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THE BIRDS OF ISLA COIBA PANAMÁ

(With Four Plates)

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INTRODUCTION

Isla Coiba, largest island on the Pacific coast of Central America, lies well at sea to the west of the lower end of the Azuero Peninsula, at lat. 7°20′ to 7°40′ N. and long. 81°36′ to 81°54′ W. The island trends northwestward and southeastward, with a length of 21½ miles and a greatest width of 13 miles. It is well watered, with numerous small streams running down from the rough, broken interior, where two separated high points near the center rise to about 1,400 feet above the sea. A lower hill, about 1,150 feet high, stands in the center of the northern end, while the southern end is mainly lower ground. The island bulges to the westward, while on the eastern side there is the large indentation of Bahía Damas, and the smaller one of Ensenada Arenosa. A broad valley, now mainly cleared to form cultivated fields and pastures, lies back of the large bay mentioned. It is drained by the parallel streams of the Río San Juan and Río Catival, which are actually a single river system, separated in their lower ends only by swampy land.

The entire island is covered with heavy virgin forest, except along the lower courses of the larger streams where there are swampy woodlands, succeeded to seaward by stands of mangroves. In the San Juan area these are of considerable extent. Rocky headlands project along the coast, with sand beaches, some of considerable extent, between them, broken by mangroves at the river mouths. The land rises back of the shore rather steeply to elevations of 80 to 250 feet, and then slopes back to the interior ridges, which in many places are steep-sided and much broken.

Near the projecting point on the western side of Boca Grande, at the extreme southern end of Bahía Damas I noted many fragments of coarse-grained sandstone, wave-worn into flattened, lenticular form, piled up on the beach. Elsewhere the numerous exposures along the eastern shore of Coiba and on Isla Ranchería are an altered

igneous rock, in places associated with beds of white chert. These three types of rock presumably belong to the pre-Tertiary basement complex of Panamá. At Punta Damas small, roughly circular, iron manganese concretions (perdigones) are extraordinarily abundant on partly eroded surfaces, particularly over the small landing field for airplanes, where, at a casual glance, the appearance of the ground in places was that of a goat corral. There is a small thermal spring, with water the temperature of a very hot bath, at the base of the hill above the swampy woodland on the southern side of the Río San Juan.

Isla Coiba, because of its size and location, was well known in the early days of the Spanish settlement in Panamá. The first white man to visit it was Bartolomé Hurtado, a lieutenant of Gaspar de Espinosa, who came to the island in 1516 during an exploration of the coast to the west of the Azuero Peninsula. Hurtado, and those who followed, found on Coiba Indian inhabitants of powerful physique, speaking a Guaymí dialect. They were armed with heavy spears, set at the tip with shark's teeth, and wore corselets made of cotton thick enough to turn a bullet, but of no avail against Hurtado's cannon. Some gold was obtained from them, which probably aided in their undoing. They were exterminated early, the final remnant being taken as laborers to Darién, probably about 1550. In historic accounts the name of the island is called variously Cabo, Cobaya, Quibo, and Coiba, apparently all variations of the name of the Indian chief in control at the time of the Spanish discovery.

Spanish settlement in Panamá during the latter part of the sixteenth century spread to the west beyond Natá, through the great Province of Veragua, which in that day extended to what is now Costa Rica. The Carmelite friar Vásquez de Espinosa, writing of the Pacific side of Veraguas, apparently from information gathered between 1612 and 1620, speaks of sawmills and shipyards employing 4,000 workmen. He mentions Remedios with about 80 houses, Montijo, and Chiriquí which had 80 Spanish residents. Since transport of products from these western outposts would have been by boat, Coiba must have been seen and visited regularly, but I have found no record of early settlement there. The operations of buccaneers along these coasts in early years may have been a deterrent to permanent residence on islands so remote.

Capt. William Dampier in his travels writes that he came to Coiba on June 15, 1685. He refers to it as the "isle of Quibo or Cobaya" and remarks on the forests, the deer, the monkeys, the iguanas, and the snakes. Among details concerned with fresh-water supply, naviga-

tion, and dangers, of interest to mariners, he mentions that the "isle of Quicarra is pretty large" which is an early reference to Isla Jicarón. He makes no reference to human habitation on Coiba, but this must have come soon after, if not already in existence, through the pearl fishery which later was pursued through the annual period of good weather. From June to November, the season of the "vendevales," strong winds blowing from unfavorable quarters were too frequent to make pearl diving profitable or safe.

Capt. George Shelvocke of the British Navy, in his account of his voyage around the world, came to Coiba on January 13, 1720, anchored off the northeast point, and found two or three deserted huts that he supposed were used by pearl fishermen, as there were heaps of pearl shell around them. During his stay two large piraguas landed on adjacent Isla Ranchería (which he calls Quivetta), and he learned from prisoners that he took of another Spanish ship laden with provisions that had passed during the night. Shelvocke came again to Coiba about the first of May 1721, and then gives a considerable description of it, in which he mentions "the great variety of birds, which the woods would not permit us to follow," and the abundance of black monkeys and igaunas.

George Anson, on another British expedition around the World, stopped at Coiba on December 3, 1741. As the expedition included several vessels, and was therefore in strong position, they anchored in Bahía Damas, off the present location of the Colonia Penal, as indicated on the map that Anson made of the eastern side of the island. Anson mentions parrots and parakeets, and especially great flights of macaws. Like his predecessors, he writes of monkeys and deer, which, however, could not be hunted because of dense forest. He discredited reports from prisoners he had taken of "tigres," since he saw no tracks or other sign of them. These same prisoners described in detail a highly dangerous poisonous snake of which they were much in fear. Pearl oysters were reported in greater abundance here than anywhere else in Panamá. Anson was impressed by the great number of turtles, and includes an account of the pearl fishery, and of the divers who obtain the shells. Only a few unoccupied huts were found.

Coconut plantations were established in due time, but there seems never to have been any extensive settlement on Coiba. At the opening of the present century, the pearl fishery was in operation, with a store, cantina, and other buildings located, in part at least, near Punta Observatorio in the southern section of the bay, the site of the present convict camp at María. Other fishing went on also, but all this

activity lessened with the depletion of the shell beds. Private holdings finally were acquired by the Government of Panamá, and the island was set aside as the penal colony of the country. A plaque on the main guardhouse and cellblock at the headquarters records that this was done by President Porras in November 1919. The location of the headquarters, known as the Central, is below the base of Punta Damas in the northern rim of Bahía Damas. The seven outlying work camps are spread along the eastern side of the island from Aguja at the north end, opposite Isla Ranchería, to Playa Blanca at the southern end, a short distance west of Boca Grande. Only two, Catival and San Juan, located on the rivers of the same name, are inland. Extensive clearings for pasture and the planting of food crops have been made adjacent to these camps, the largest of these, embracing many hundred acres, extending from Punta Damas south to the Río San Juan, and inland over the broad valley of that section. The cleared areas in general rise from the beaches back to the crest of the slopes of low hills, so that most of their area is visible from the sea, except for the interior of the San Juan Valley. Behind these there has been some logging for timber, but the great interior forests have not been touched.

Trails, mainly near the shore, for travel on foot or by horse, connect the outlying camps with the Central, and pass back through the broad San Juan Valley. There is also one across to the opposite side of the island from María and Playa Blanca, traversing the lower elevation at the southern end of the island. During World War II radar detectors were installed on a 1,400-foot hill back of the San Juan Valley, with a camp located near Playa Hermosa. The tower was still visible at the time of my visit but the camp had been long abandoned.

The impressive vegetative cover of Coiba is not appreciated until it is penetrated. I found an extensive stand of red mangroves at the mouths of the Catival and San Juan Rivers, and lesser tracts elsewhere. Behind these, at the rivers mentioned, there was swampy woodland, one of the common interesting trees being the alcornoque (*Dimorphandra megistosperma*) whose huge flattened, beanlike seeds measure up to 180 mm. in length. Near Playa Blanca I noted considerable numbers of manchineel growing in low, open groves along the beach. Plantings of coconut palms are extensive.

Inland from the clearings the forest is unbroken, the great trees rising to such heights that loads for my shotgun, suitable for the largest birds, failed to reach hawks and pigeons in the higher branches. Only on the upper Río Jaque in eastern Darién have I seen

similar stands of trees. Below the high crown were the tops of lower trees, a stratum of branches and then undergrowth, usually fairly open and easy of penetration. Through this there are scattered thickets of bamboo that are too dense for passage except by cutting trail with a machete.

On days of sunshine the masses of leaves and vines stood out clearly in silhouette in the high summits of the trees, with small birds moving actively through them. Below, the forest floor was dark and shadowed, so dimly lighted in many places that clear vision was difficult. On occasional cloudy days many areas in the heavy forest were too obscure for successful hunting.

Isla Ranchería, distant 2 miles from the northern end of Coiba, about $1\frac{3}{4}$ miles long by a mile wide, of irregular shape, rises to an elevation of nearly 500 feet. I visited this on one occasion, landing on a sandy beach midway of the southern side. A wooded swamp lay behind, and above this were fairly steep, well-forested slopes, but with trees of lesser height than those on Coiba. Many seemed stunted by the thin soil overlying the mass of altered igneous rock that is the core of the island. Ranchería long has been private property, and at one time considerable activity is reported in pearl and other fisheries. Of the store, the houses, and the clearings in which they stood there is now no evident trace, except for coconut palms and a lemon tree back of the beach, and a scattered growth of succulent bryophyllum, grown commonly as a decorative plant in gardens.

This island is known universally in Panamá as Isla Coibita, a name that is applied on current charts and maps to an outlier in the groups of islets known as the Aaron Rocks, a mile to the northwest of the western point of Ranchería. Shelvocke, in 1720, called the island Quivetta, and Anson, in 1741, varied this to Quiveta, both these names being diminutives of Quibo, the name these travelers applied to the large island. Dampier, in 1685, used the name Ranchería, which is the one cited for records in the following report since the island is so called on current charts and maps.

ACKNOWLEDGMENTS

For permission to visit Isla Coiba I have to thank Coronel Bolívar Vallarino, Comandante Jefe de la Guardia Nacional, who issued the necessary instructions. It was his assistance and personal attention that assured the success of the undertaking. Throughout my detailed studies of the ornithology of the Republic of Panamá I have had the friendly cooperation of Dr. Alejandro Méndez Pereira, Director of

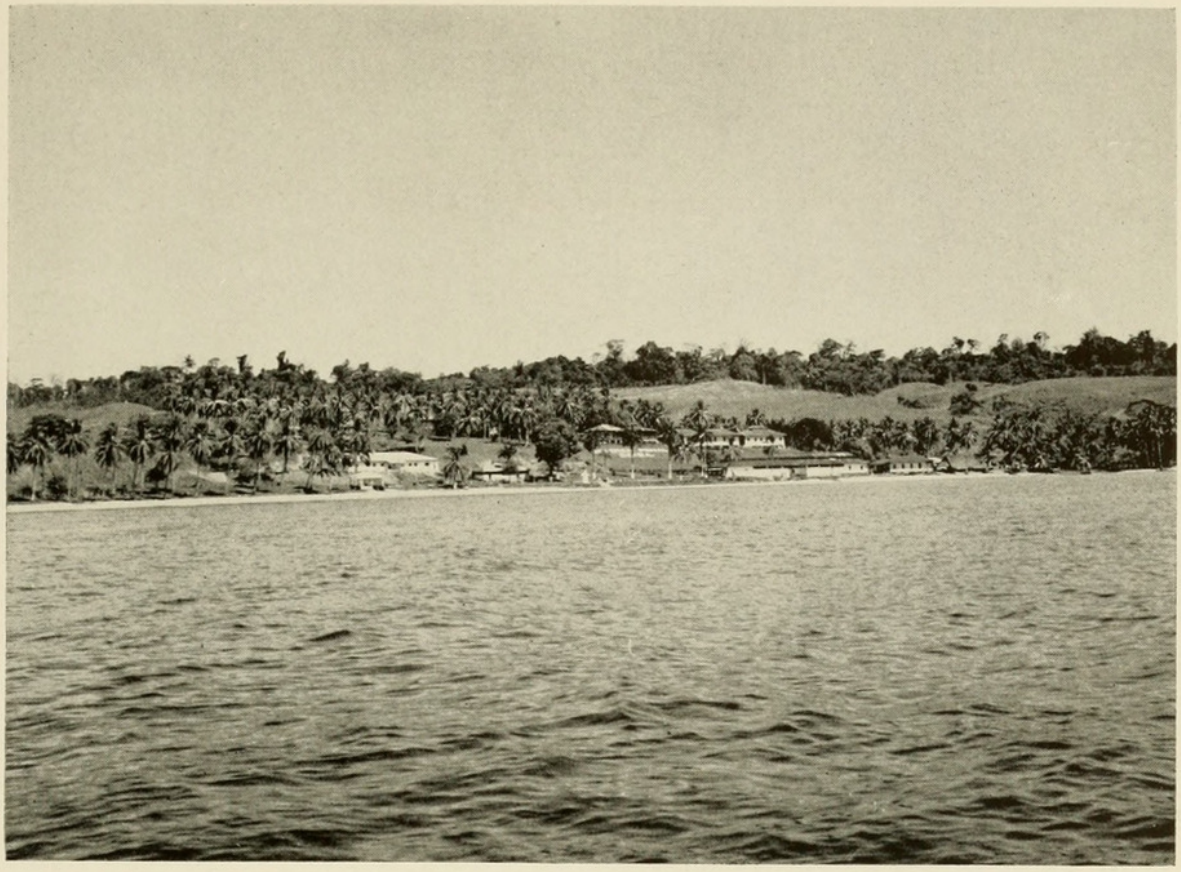
the Museo Nacional in Panamá, who in the present instance rendered major assistance in communicating my plans to Sr. Don Alejandro Remón C., Ministro de Gobierno y Justicia, in introducing me personally to Coronel Vallarino, and in numerous other ways. Dr. Pedro Galindo, of the Gorgas Memorial Laboratory in Panamá, also assisted in my plans with friendly courtesy. For transportation to and from the island I am deeply indebted to officers of the U. S. Air Force at Albrook Air Base, Canal Zone, particularly in this instance to Col. J. W. Oberdorf, Commanding Officer, and Lt. Col. D. L. Peck and Lt. Col. R. T. Lively of his staff. On my arrival at Isla Coiba I was met by Capitán Juan A. Souza, Director de la Colonia Penal, who received me in most friendly manner, and did all that was necessary to insure the success of my work, as did his assistant, Teniente Valenzuela, and other officers and members of his staff.

In making my arrangements, I was much indebted to Capt. Gordon Field, and Marvin Keenan of the 25th Medical Detachment, U. S. Army, for friendly help in numerous details concerned with preparations for the work.

I have to thank also Duncan Alexander Duff Mackay, Second Secretary, and Mr. R. A. Acley, Counselor, at the American Embassy in Panamá, for courteous assistance relative to papers for the Coiba trip, as well as for the arrangement with the Ministerio de Relaciones Exteriores of Panamá, under which my scientific work has been done. The expedition has been one of the most successful in scientific result that I have made.

ORNITHOLOGICAL STUDIES

The first birds collected for scientific purposes on Isla Coiba of which I have record were obtained by the taxidermist and preparator J. H. Batty, who was on the island from April to June 1901. Following this work Batty proceeded to the Province of Chiriquí, where he located for some time at Boquerón, and seems also to have worked for a brief period at Boquete. His final collections, dated January and February 1902, before his return to Panamá, contain specimens labeled from Insolita, Gobernadora, Sevilla, Brava, and Cebaco islands, with a scattering of other island localities along the Pacific coast of Panamá. A specimen of *Buteo magnirostris,* dated February 5, 1902, from Iguana Island, north of Punta Mala, must have been obtained during his return journey to Panamá. The itinerary outlined is not complete, the only data available being the labels on his specimens. Part of this collection, sold to the Tring



1. Headquarters of the Colonia Penal, Isla Coiba.

2. Hauling a seine in Bahía Damas; Punta Damas in background.

1. Pastures at the Juncal work camp; Isla Canal de Afuera in the background.

2. Southern shore of Isla Ranchería.

Museum, was shipped from the field, probably on the collector's arrival in Chiriquí, since Rothschild described the wood pigeon, and Hartert a hummingbird and the pepper-shrike of Coiba, in the Bulletin of the British Ornithologists' Club for December 30, 1901. At the close of the Panamanian work sets of the skins were purchased by the American Museum of Natural History, where they were cataloged in July 1902. The Chicago National History Museum also has a small lot of specimens from this collection, presented by Batty, and entered on the Museum records on January 4, 1906. The remainder came to the American Museum, apparently as a gift from the collector, where they were cataloged in March 1910, nearly four years after Batty's accidental death in Chiapas, on May 26, 1906. A few of the skins have gone in exchange to other institutions, but with the accession of the Rothschild collection, the American Museum of Natural History now houses the greater part of this material. The Coiba material has been mentioned from time to time by Griscom, Hellmayr, and Zimmer in various studies, and Eugene Eisenmann in 1950 described the white-throated robin from the island as a distinct subspecies.

In my work on Panamanian birds over a period of years I have examined Batty's specimens from Coiba from time to time and have been puzzled occasionally by discrepancies apparent in dates and other details. These could not be explained until I began the identification of my own collection. As this work has progressed, it has become clearly evident that some of the field labels for Batty's skins must have been made later, after the work was completed, and that there was a certain amount of mixing through which a number were marked with the wrong localities. This I have been able to determine because of the considerable differences that exist between various of the mainland birds and their representatives on Coiba. For example, in the series of the woodpecker *Centurus rubricapillus,* there are six specimens marked "Coiba" of which five are obviously the peculiar subspecies found on the island, and one as obviously represents the mainland race. Among the skins of the wood pigeon *Leptotila plumbeiceps battyi,* restricted to Coiba, there is one immature bird of the distinct species *Leptotila v. verreauxi* also labeled "Coiba," an obvious error as only *L. p. battyi* occurs on the island. Similar mixing is evident in the crimson-backed tanager, where 20 skins labeled "Coiba" in major part represent *Ramphocelus dimidiatus pallidirostris* of Chiriquí, and only a few the Coiba subspecies.

The pepper-shrike of Coiba, described by Hartert, is a very distinct form, with clearly marked characters. The Batty collection, in addi-

tion to the type series from Coiba, contains one skin labeled "Hicaron" (intended for Isla Jicarón) which is a typical example of *Cyclarhis gujanensis subflavescens* of the hill country of the mainland. Isla Jicarón, a small island, lies immediately south of Coiba, with its larger neighbor between it and the distant isthmian shore. It would be most remarkable to have the mainland race on Jicarón, and a completely different one on Coiba. Batty's "Coiba" specimens also include a juvenal sparrow of the species *Zonotrichia capensis,* which is resident in Panamá only in the mountains from Chiriquí eastward, mainly above 3,000 feet elevation, occasionally somewhat lower, but never in Panamá near sea level.

It is undoubtedly this mixing of localities in the Batty material, aided by the fact that the collection runs largely to the more easily found and conspicuous species, that has caused the considerable degree of endemism in the resident birds to be overlooked by the careful systematists who have handled the skins.

Among the few other naturalists who have visited the island, a party of British scientists traveling on the yacht *St. George* came to Bahía Damas on the afternoon of August 31, 1924, and remained for five days to make shore collections. Lt. Col. H. J. Kelsall, the ornithologist, with his assistant Cullingford, obtained a small lot of birds which are now in the British Museum (Natural History). Collecting was confined to the vicinity of the headquarters of the Penal Colony, with one trip by cayuco along mangroves and past a low bluff to a small stream, where Kelsall shot a few birds.[1] Apparently this was near Bajo España at the mouth of the Río Cativa1. No published report was made on the specimens obtained, which include a few of the forms peculiar to the island. Dr. Alejandro Méndez, Director of the Museo Nacional of Panamá, visited Coiba in 1932, when he made observations in various branches of natural history, including the birds.

The only other ornithologist known to me to have visited Coiba is William Beebe, who was there for a day while on Templeton Crocker's yacht *Zaca* in 1938. On March 19 the ship crossed from Bahía Honda, on the coast of Veraguas, to Ensenada Hermosa, a bay on the western side of Isla Coiba. The following night while they were collecting with lights on Banco Hannibal to the west a

[1] For accounts of this expedition see Douglas, A. J. A., and Johnson, P. H., The South Seas today, being an account of the cruise of the yacht *St. George* to the South Pacific, London, 1926, pp. 73-81; and Collenette, C. L., Sea-girt jungles, the experiences of a naturalist with the "St. George" Expedition, London, no date [1926], pp. 186-195.

storm petrel came on board.[2] This was the only bird specimen recorded.

My own studies of the birds of Coiba extended from January 6 to February 6, 1956. I had with me two assistants, Armaguedón Hartmann of Chiriquí, who had been my helper for the two previous field seasons in Panamá, and Vicente Álvarez, technician of the Malaria Control Force of the U.S. Army, assigned for special work by Capt. Gordon Field, 25th Medical Detachment (Preventive Medicine Survey), and Marvin Keenan, Chief, Mosquito Control Force, attached to the Survey mentioned. Through the friendly interest of Col. J. W. Oberdorf, Commanding Officer at Albrook Air Base, transportation was provided on an Air Force crash boat, which made a journey that otherwise would have been difficult, not only rapid, but comfortable. Our field equipment and supplies were delivered and stowed on board on the afternoon of January 5, under the direction of Chief Warrant Officer Claude H. Drake, Commanding Officer, Crash Boat Detachment, who commanded the boat on the following day. We left the crash boat base at Fort Rodman, C.Z., at 3:50 a.m., January 6, passed out of the Canal, and at 8:30 a.m. were abreast of Cape Mala. At 1:30 p.m. we dropped anchor in Bahía Damas, Isla Coiba, off the Penal Colony Headquarters, after a pleasant and interesting journey of 220 miles.

Capitán Juan A. Souza, Director de la Colonial Penal de Coiba, came off to greet me, and we were soon ashore and established in two rooms in a new hospital building. The captain assigned a trusty as our cook, regularly supplied us with fresh meat, vegetables, oranges, and plátanos, and assisted us throughout the work effectively and courteously.

During the following month I was out in the field daily, having boat transportation whenever needed by cayuco driven by an outboard motor, handled competently by a convict skilled in such craft. On foot and by boat I was thus able to cover the entire shoreline of Bahía Damas, from Punta Fea at the entrance of Boca Grande, beyond the southernmost convict work camp at Playa Blanca, to Punta Damas on the north. Farther north we worked along the Ensenada Arenosa to the work camp at Juncal. On February 4 I went by cayuco to Isla Ranchería off the northeastern end of Coiba, a journey I had attempted on an earlier day, but had been driven back by suddenly rising seas. In addition we opened a hunting trail

[2] See Beebe, Zoologica, vol. 28, 1932, pp. 297-298; Book of Bays, 1942, pp. 280, 297.

through the forest from the end of the paths back of the Colonia Central inland for a distance of 5 miles, and to an elevation of about 700 feet, along the slowly rising ridges leading to a high point in the center of the northern end of the island. The mangroves at the mouths of the Río Catival and the Río San Juan, and the swampy woodland bordering them, were productive, as was the low second growth (known locally as rastrojo) in areas of abandoned fields.

The only bird reported that I did not actually see and identify was a hawk, an example of which had been killed the week before my arrival. The partly decomposed feet, preserved as curiosities, shown to me by Capitán Souza, had the tarsi completely feathered. Because of their condition I was not able to identify them certainly, but I believed at the time that they came from a species of *Spizaëtus*.

Heavy rain had fallen the night before our arrival, but the weather then remained clear and pleasant until January 14. Clouds began to gather, and two days later there was a heavy shower before dawn, with mist the following morning. On January 25 there came a heavy downpour before sunrise, and rains continued at intervals until our departure. This, however, did not interfere with our fieldwork. Daily Fahrenheit temperatures for the first eight days ranged from 70° to 72° at dawn to 82° to 85° at midday, with the trade wind tempering the heat. With the return of the rains this changed to 74° to 76° at dawn, and 84° to 89° at midday, with uncertain breezes and high humidity.

There was constant talk among the convicts of the dangers attendant on entering the forests because of the great abundance of poisonous snakes, a belief that was so prevalent even in Panamá that a trip to Coiba was discussed as a definitely perilous adventure. It was my experience, however, and that of my two assistants, all of us accustomed to jungle work, that the snake population appeared to be the same as that of similar woodland throughout the Pacific slope of the mainland. We practised the usual precautions in working through areas suitable for snakes, particularly when hunting at night, and actually saw few since they tend to keep hidden, and to move aside when they have warning. Laborers engaged in clearing land are in a different situation, since the removal of cover destroys the usual hiding places, and danger from snakebite is inevitable. Several men have died from this cause on the island, one not long after our departure.

My last trip in the field came on February 4, and the day following was devoted to packing, in readiness for departure. At 5:00 p.m. as this work was finished word came that the crash boat was in sight,

and soon it was at anchor. Since the tide was full, we went on board that evening in readiness for an early start. At 5:20 a.m. on February 6 we were underway, and I watched the lights of the Colonia Penal and the dark shoreline at either side recede, well satisfied with the results of my work, and with many pleasant thoughts of the friendly assistance that I had received at the hands of Capitán Souza and his staff of guards. We were delayed somewhat by headwinds after rounding Cape Mala, but were at the dock at Fort Rodman at 3:50 p.m. The entire expedition is one that remains most pleasantly in memory.

THE BIRD LIFE

The annotated list that follows these introductory paragraphs covers 133 species and subspecies of birds that are recorded from Isla Coiba, with remarks on 4 additional (a skua, a gull, and 2 terns) noted in the Gulf of Panamá en route to and from the island. Of the total as given, 36 are migrants, one, the small Galápagos storm petrel, coming from Peruvian waters to the south, another, a subspecies of the yellow-green vireo (*Vireo flavoviridis hypoleucus*), found en route from winter quarters in South America to nesting grounds in northwestern México, and the remainder kinds that nest in the United States and Canada, present for the period of the northern winter. Plovers, sandpipers, and related shorebirds, 10 species in all, were the most common, with scattered individuals of 6 wood warblers and the summer tanager standing next in abundance.

Kinds that are resident in Panamá as a whole number 97, a few of these like the black jaçana, the white-collared swift, and the fork-tailed flycatcher, being merely wanderers from the mainland. Among the resident kinds the amount of endemism that is found is quite remarkable, in part for the number of species concerned, and in part for the fact that its extent has gone unnoted for so long. Four well-marked subspecies had been described from Batty's collections prior to my visit—the wood pigeon by Rothschild, the Cuvier's hummingbird and pepper-shrike by Hartert, and the white-throated robin by Eisenmann. These four I recognized easily, and in addition, from my first day afield I observed differences among a number of others, sometimes on my first view of the bird in life, sometimes after specimens were in hand, even though no comparative material was available.

In the following report I have described 16 races that are new to science, in addition to the 4 mentioned, several of them so well

marked that they are treated as geographic races only under present-day concepts, since 20 years ago they would have been considered distinct species. There are also several others that undoubtedly will be named later when further specimens corroborate differences now discernible in the few examples at hand. Thus of the 97 kinds among the tropical residents of the island more than 20 percent are distinct subspecies. Among these the most surprising is the race of the rusty spinetail (*Cranioleuca vulpina*), a species of South America not previously found north of the valley of the Orinoco River in southern Venezuela and southeastern Colombia. It represents an avian element previously unknown in the avifauna of Central America.

The differences that mark the resident races are mainly heavier, darker pigmentation, which may be explained in terms of more abundant rainfall, indicated by the considerable drainage system seen in the numerous rivers of the island. There is also a tendency in some to large bills, which is not unusual in isolated islands.

The great forests that clothe Isla Coiba, still practically unbroken except for a relatively small area, offer habitat suitable for any of the birds that exist in such abundance as to kinds and individuals in the vast lowland area between southern México and northern Argentina. When we note those that are lacking in the island environment, we find a matter for astonishment equal to that experienced with the amount of endemism among the kinds that do occur. The following list of families of birds of regular occurrence on the nearby mainland but not found on Coiba is noteworthy:

Tinamous (Tinamidae)
Curassows and guans (Cracidae)
Trogons (Trogonidae)
Motmots (Momotidae)
Jacamars (Galbulidae)
Puffbirds (Bucconidae)
Toucans (Ramphastidae)
Woodhewers (Dendrocolaptidae)

In addition to these eight prominent families, there is no record of the wood-quails (*Odontophorus*), the long-tailed squirrel cuckoo (*Piaya cayana*), or the large forest woodpeckers (*Dryocopus* and *Phloeoceastes*). Ovenbirds (*Furnariidae*), except the rusty spinetail (*Cranioleuca vulpina*), are missing, as are antbirds, except the barred antshrike (*Thamnophilus doliatus*), manakins, except the lance-tailed manakin (*Chiroxiphia lanceolata*), many common genera of forest-loving tyrant flycatchers, wrens, except the house wren, and resident orioles and blackbirds, except the boat-tailed grackle. The common

jay of the mainland (*Cyanocorax affinis*) does not occur, and there are none of the true forest tanagers (*Tangara*) so abundant as to kinds, or of the widespread euphonias.

The northern end of Isla Coiba is separated from Punta Jabalí, marking the southern side of the entrance to Bahía Honda, the nearest point on the mainland of Veraguas, by a little more than 15 miles. From the southern end of the island to Punta Brava, at the western side of the Golfo de Montijo, the distance is about 32 miles. The depths separating the island from the mainland range from 240 to 330 feet. Coiba is seen thus to be fairly remote in miles, and also to be cut off by a fair depth of water. Current geological theory is to the effect that the present Isthmus of Panamá was considerably wider in earlier times than at present. If earth movement during the subsidence that has molded the present outline of the land proceeded in a fairly regular and evenly distributed manner, then Coiba may have been separated early in the history of the Isthmus. If the separation came sufficiently early, it may have been established before the growth of forests to provide suitable ecological habitat for the spread of true woodland inhabitants. Or, the formation of the island may have come before the missing groups of birds had begun their movement between the northern and southern continents. The third obvious explanation would be that Coiba at no time was connected with the mainland.

While birds are readily mobile because of their powers of flight, it is an accepted fact that, although many are venturesome, there are many others that avoid crossing wide expanses of water. The avian colonists of Coiba in the main appear to be either those that are known to make extensive flights, or others—for example, the flycatchers—that may be assumed to have been blown across from the mainland by violent winds of tornado force.

These are purely speculative hypotheses, but it seems difficult except in some such fashion to explain the condition as it actually exists.

ANNOTATED LIST

Details of occurrence and other information concerned with the kinds of birds at present known from Isla Coiba are given, species by species, in the pages that follow, with descriptions of the forms that are new to science. With each form there is included the scientific name with its reference, and a common name in English and in Spanish. These common names in the two languages are intended to be used for the species as a whole, regardless of geographic race, and

thus cover all of the subspecies of the particular kind of bird concerned. In numerous cases the scientific name is that of a subspecies, but this does not in any way indicate that the common names that follow cover that species alone. They are not so intended. The English names, with a few exceptions follow those given in the recent useful and important paper by Dr. Eugene Eisenmann entitled "The Species of Middle American Birds".[3]

Selection of the Spanish names has been made with care, and in some cases after considerable thought. Some conspicuous birds are well known, so that their Spanish names are matters of common knowledge. Where several terms are in local use for the same bird, choice has been made of the one that seems most general, in some cases extending beyond Panamá to other countries in Central America or the West Indies, for example, alcatraz, rather than cuáco, for the brown pelican. The list of names given by Señor Alberto Frederico Alba in his book "Algunas Aves de Panama," published in 1946, in a number of cases has been helpful. In numerous instances with small, inconspicuous kinds, where no local name is available, one that seems properly applicable has been selected, sometimes from usage in other countries, sometimes from a descriptive term that seems appropriate, and sometimes by a translation of the name in English. In some instances the name in Panamá refers to quite a different bird elsewhere, as ruiseñor for the house wren, but this term is so universal in the country that it would be wholly inappropriate to attempt to change it.

The black-and-white illustrations drawn by Walter Weber are from a series intended for a volume on the birds of the Republic of Panamá, for which I have been gathering data for several years. They are intended to represent the species depicted as a whole, and not any particular subspecies from Coiba or elsewhere.

Mention is made above, in the account of my fieldwork, of the crested hawk (apparently a *Spizaëtus*), of which I saw only the feet, killed by a hunter. There is also a specimen in the Batty collections that should be recorded, a skin of Gould's manakin (*Manacus vitellinus vitellinus*) labeled "Coiba, J. H. Batty, Jun. 23, 1901 ♀." This manakin, widely distributed in Panamá from the lower mountains of Veraguas east to Darién, is a conspicuous bird, and one readily found, of which I encountered no trace on Coiba during the month in which I was daily afield. Possibly it may occur, but I feel there is only a slight probability that it does. The "make" of this specimen

[3] Published in Trans. Linn. Soc. New York, vol. 7, Apr. 1955, pp. i-iv, 1-128.

appears somewhat different from Batty's usual preparation so that he may have obtained it from some other source, perhaps from the collector Enrique Arcé, with whom Batty must have had contact.

The forests of the western side of Coiba have still to be examined for their birds. There is a possibility that there may be further resident species in that area.

Family Podicipedidae: Grebes

PODICEPS DOMINICUS BRACHYPTERUS (Chapman): Least Grebe, Tigua

Colymbus dominicus brachypterus Chapman, Bull. Amer. Mus. Nat. Hist., vol. 12, Dec. 23, 1899, p. 256. (Lomita Ranch, lower Rio Grande, Tex.)

On January 13 a prisoner brought me a live young least grebe that he had captured on a small lagoon beyond Cattival. The following day we visited this locality and found several of these birds floating about on a small pond in which there was considerable aquatic growth. Adept at concealment, they dived and disappeared, but by careful watching we were able to get an occasional glimpse of one under the cover of the taller water plants.

I have realized for several years that these grebes fly about a good deal from one body of water to another, probably at night, but this occurrence on Coiba was a definite surprise. It is probable that the lagoon in which they lived would be dry before the end of the summer season so that they might be under necessity of crossing to the mainland. We secured an adult female, one young fully grown but with the throat and lines on the side of the head white, and another half grown. The adult, in full breeding plumage, agrees in color and size with birds from Central America and México. Its measurements are as follows: Wing 90.0, culmen from base 22.7, tarsus 33.8 mm.

Countrymen in Panamá usually call any species of grebe a patico.

Family Hydrobatidae: Storm Petrels

OCEANODROMA TETHYS KELSALLI (Lowe): Galápagos Petrel, Golondrina de Mar Galapagueña

Thallassidroma tethys kelsalli Lowe, Bull. Brit. Orn. Club, vol. 46, Nov. 4, 1925, p. 6. (Pescadores Islands, off Ancón, Perú.)

William Beebe informs me that he secured one of these petrels that came on board ship at night on March 20, 1938, while on Banco Hannibal, west of Coiba. The bird was attracted by lights that he was using to lure and collect marine life.[4] There are three specimens

[4] See Beebe, Book of Bays, 1942, pp. 280, 297.

of this petrel in the British Museum (Natural History) taken in Panamanian waters out from Balboa August 22, and 20 miles south of Panamá, September 9, 1924, by Lt. Col. H. J. Kelsall in whose honor this race is named.

Family PELECANIDAE: Pelicans

PELECANUS OCCIDENTALIS CAROLINENSIS Gmelin: Brown Pelican, Alcatraz

Pelecanus carolinensis GMELIN, Systema naturae, vol. 1, pt. 2, 1789, p. 571. (Charleston Harbor, S. C.)

Brown pelicans were to be found daily over Bahía Damas, shifting about to some degree, so that the number present varied. Those observed were mainly immature, or adults with the white necks that mark the postbreeding stage, though occasionally individuals in full breeding dress were seen. No nesting colonies were recorded, though undoubtedly their rookeries were not far distant. When the tide was high they cruised about as usual in line, diving whenever fish were sighted. At low water groups of the great birds rested in the mangroves and on rock exposures on the beach. I saw one fishing after dark on one occasion, sighting it as it passed the electric lights at the Colonia Central.

Two adults were prepared for specimens, a male with white neck, and a breeding female with the larger ovaries developed to a diameter of half an inch. Measurements are as follows: Male, wing 518, tail 136, culmen from base 327, tarsus 79.4 mm.; female, wing 507, tail 131, culmen from base 290.0, tarsus 74.7 mm. In coloration these two agree with birds from Taboga Island in the northern sector of the Gulf of Panamá. The brown of the hindneck in the female is very dark, like that of Taboga birds, being darker than the average in pelicans of the southeastern United States. The Coiba birds however are within the limits of variation of the race *carolinensis,* and are identified as that subspecies. I watched particularly for individuals with exceptionally long bills but saw none that could represent the large-billed subspecies *californicus* of the coasts of California and northwestern México.

The usual name for the alcatraz in these waters is cuáco.

Family Sulidae: Boobies

SULA LEUCOGASTER ETESIACA Thayer and Bangs: Brown Booby, Piquero Moreno

Sula etesiaca Thayer and Bangs, Bull. Mus. Comp. Zoöl., vol. 46, June 1905, p. 92. (Gorgona Island, Colombia.)

Single birds or couples cruised regularly over the sea, sometimes near the shore but more often half a mile or more from land. Usually they coursed with set wings in the stiff breeze, low over the water, rising at intervals to 30 or 40 feet in the air. It was usual to have them approach our cayuco when we crossed the bays, but then to veer away to continue their fishing. All those observed were in adult plumage.

They were noted commonly over the sea between Taboga Island and Punta Mala during the journeys to and from Coiba. Fishermen and boatmen in these waters usually called this bird piquero, a name that applies properly to another species of the family, *Sula variegata,* which is one of the important species of the guano islands of Perú. They are also known as bobito.

Family Phalacrocoracidae: Cormorants

PHALACROCORAX OLIVACEUS OLIVACEUS (Humboldt): Olivaceous Cormorant, Pato Cuervo

Pelecanus olivaceus Humboldt, *in* Humboldt and Bonpland, Recueil d'observations zoologie et d'anatomie comparée, vol. 1, livr. 1, 1805, p. 6. (El Banco, Magdalena River, Colombia.)

Birds, mainly in immature dress, were present daily along the shores of Bahía Damas, where they fished in little groups in the shallows bordering the beach when the tide was full, or joined the pelicans farther out when schools of fish appeared. Otherwise they rested on the rock exposures near the waterline. Few adult birds were recorded.

When Dr. Charles W. Richmond established the scientific name of this bird, he was under the impression that the citation above was a later print of the work concerned, and that the description of this cormorant was to be listed from the same title with the same year, but on page 47 instead of on page 6. In this he was in error as the listing given is the original that immediately seems to have been included, with a few modifications, in the great series of 24 volumes covering the voyage and observations of Humboldt and Bonpland.

Family FREGATIDAE: Frigate-birds

FREGATA MAGNIFICENS Mathews: Magnificent Frigate-bird, Tijereta de Mar

Fregata minor magnificens MATHEWS, Austr. Avian Rec., vol. 2, Dec. 19, 1914, p. 120. (Barrington Island, Galápagos Islands.)

Frigate-birds were noted regularly, but usually only one or two per day. On February 4 I saw one at Isla Ranchería, and on the journey to Coiba and return I observed them in numbers off Punta Mala. On one occasion I watched for several minutes as one pursued an agile royal tern over Bahía Damas, without making the smaller bird disgorge.

Family ARDEIDAE: Herons

ARDEA HERODIAS Linnaeus: Great Blue Heron, Garzón Cenizo

Ardea Herodias LINNAEUS, Systema naturae, ed. 10, vol. 1, 1758, p. 143. (Hudson Bay.)

These large herons were seen feeding or flying along the beach near the Headquarters, or in a wet meadow inland, on four occasions between January 11 and February 3. All were wary and remained in the open where they had a clear view for some distance around. From their rather casual occurrence it appeared that they had reached Coiba by chance while in flight along the mainland coast. I watched three for some time and observed that they were decidedly dark-colored, indicating that they were probably of the typical race *Ardea herodias herodias,* which is the one to be expected.

CASMERODIUS ALBUS EGRETTA (Gmelin): Common Egret, Garza Blanca

Ardea Egretta GMELIN, Systema naturae, vol. 1, pt. 2, 1789, p. 629. (Cayenne.)

These large egrets were seen regularly along the beach or occasionally in wet meadows inland. Larger size and yellow bill distinguish them from the other white herons. This species is called garza real, also.

LEUCOPHOYX THULA (Molina): Snowy Egret, Garceta Blanca

Ardea Thula MOLINA, Saggio sulla storia naturale del Chili, 1782, p. 235. (Chile.)

This egret was recorded in the small flocks of white herons that were common along the beaches, being marked by its black legs, yellow feet, and black bill. On January 30 I identified a dozen.

FLORIDA CAERULEA (Linnaeus): Little Blue Heron, Garceta Azul (adults), Garceta Blanca (immature birds)

Ardea caerulea LINNAEUS, Systema naturae, ed. 10, vol. 1, 1758, p. 143. (South Carolina.)

The immature birds in white plumage, with dark gray-green legs and bills, were common along the beaches of Bahía Damas, where they often gathered in little flocks. When small fishes came into the shallows with the incoming tide the herons often became quite active, dancing about gracefully in pursuit of this food. Occasionally I noted a bird in slate-blue adult dress, rarely one pied variously in slate and white, but most were immature individuals in white plumage. About January 20 there was a considerable increase in their numbers, and they remained in this greater abundance until the close of my stay. January 27 I recorded 50 congregated on the flats near Hato, with others scattered along the water beyond.

BUTORIDES VIRESCENS MACULATUS (Boddaert): Green Heron, Martinete

Cancroma maculata BODDAERT, Table des planches enluminéez, 1783, p. 84. (Martinique.)

January 20 I shot a female in the mangroves at the mouth of Río Cativa1, the only one recorded on Coiba. The bird is adult as shown by the pointed wing coverts and their buffy edgings, and has the wing in partial molt. The next to the outermost primary, somewhat worn at the tip, is still in place in each wing, allowing a fairly accurate wing measurement of 166 mm. The brown on the side of the neck is quite dark, which, in conjunction with the short wing, places it in the subspecies *maculatus,* it being too small for migrant *virescens* of the north. The fact that the color of the under surface of the body is pale like that of mainland birds suggests that it may be a wanderer from some point on the Isthmus. It would be expected that a resident population on Coiba, if there is one, would have darkened coloration, on the order of that found in the subspecies *Butorides v. margaritophilus* of the Pearl Islands in the Gulf of Panamá.

NYCTANASSA VIOLACEA CALIGINIS Wetmore: Yellow-crowned Night Heron, Garzota de Corona Amarilla

Nyctanassa violacea caliginis WETMORE, Proc. Biol. Soc. Washington, vol. 59, Mar. 11, 1946, p. 49. (San José Island, Archipiélago de las Perlas, Panamá.)

Near the mouth of the Río Cativa1 we obtained an adult male January 27, and saw several others. Apparently they are not common

here, though it was difficult to judge their number accurately because of the difficulty in penetrating the extensive mangrove swamps.

The bird taken is typical of the resident race of Panamá, being dark in color, with a heavy bill that measures 22.8 mm. in depth through the nostril. Another common name for this species is yaboa coronada.

HETEROCNUS MEXICANUS (Swainson): Bare-throated Tiger Bittern, Jorrálico

Tigrisoma mexicanus SWAINSON, *in* Murray, Encyclopedia of geography, July 1834, p. 1383. (México.)

This curious heron, now rare in many parts of mainland Panamá, was fairly common on Coiba where it lived in the mangrove swamps. Morning and evening these birds came out on the open flats or on areas of mud left by the receding tide, sometimes far from any cover. It was possible to approach them without much precaution, and undoubtedly it is this lack of wariness that has destroyed them in more settled areas, since they are easy marks for a gun, or, for that matter, for a well-aimed stone. They move quietly in feeding, often remaining motionless for long periods. Crabs seemed to be a principal source of their food.

On January 21 as my cayuco, driven by an outboard motor, entered the mouth of the Río San Juan, I saw four, evidently two pairs, engaged in a display in which they swelled out the breast and neck, showing a prominent orange streak down the sides. At the same time the bill, with the long neck fully extended, was pointed directly upward. As their legs are short they presented a most unusual, almost grotesque appearance.

An adult female taken January 14 has a wing measurement of 350 mm.

Family THRESKIORNITHIDAE: Ibises

EUDOCIMUS ALBUS (Linnaeus): White Ibis, Coco Blanco

Scolopax alba LINNAEUS, Systema naturae, ed. 10, vol. 1, 1758, p. 145. (South Carolina.)

Small bands frequented the extensive swamps, particularly where the Río San Juan entered Bahía Damas. From here they ranged out to feed, as twice, at sunset, I saw a flock of a dozen flying low over the water of the bay past the Colonia Central bound for a roost in the distant mangroves.

Family ANATIDAE: Ducks

ANAS DISCORS Linnaeus: Blue-winged Teal, Cerceta

Anas discors LINNAEUS, Systema naturae, ed. 12, vol. 1, 1766, p. 205. (South Carolina.)

On January 14 I saw a flock of a dozen on the small lagoon back of Cativa1, and I was told that teal came regularly to the Río San Juan in its lower section above the wooded swamps. On January 23, as we crossed in a cayuco to the western side of Bahía Damas, a teal flew low over the sea in front of us.

On February 6, off Punta Mala, one rose from the sea before our boat and flew away through a host of circling terns.

CAIRINA MOSCHATA (Linnaeus): Muscovy Duck, Pato Real

Anas moschata LINNAEUS, Systema naturae, ed. 10, vol. 1, 1758, p. 124. (Brasil.)

On January 23, at sunrise, half a dozen of these ducks, of maximum size, flew past the Colonia Central over the sea on a course that led past Punta Damas toward the distant mainland. These were evidently wild birds, and quite different from the domestic stock, with plumage partly pied with white, that flew about regularly between the stream at headquarters and that at Hato a mile south.

AYTHYA AFFINIS (Eyton): Lesser Scaup, Pato Pechiblanco

Fuligula affinis EYTON, Monograph of the Anatidae or duck tribe, June 1838, p. 157. (North America.)

On January 14 five rested on the small lagoon back of Cativa1. Such an occurrence on this small body of water in its remote location is interesting evidence of the broad line of flight through which these ducks perform their migrations.

Family CATHARTIDAE: American Vultures

CORAGYPS ATRATUS (Bechstein): Black Vulture, Gallinazo

Vultur atratus BECHSTEIN, *in* John Latham, Allgemeine Uebersicht der Vögel, Bd. 1, Anhang, 1793, p. 655. (Florida.)

Gallinazos were in constant attendance about the buildings at headquarters and the work camps—scavengers in search of any source of food. While waiting at the abattoir for some scrap of refuse it was amusing to see them running and hopping about, fighting among themselves, often with the tail erect like a rail. Once I saw one try to drive a laughing gull from a bit of food on the open beach, but

the gull held its ground, and the vulture finally gave up the attempt. Prisoners in charge of the vegetable gardens told me that the vultures were nesting during the middle of January.

CATHARTES AURA (Linnaeus): Turkey Vulture, Noneca

Vulture aura LINNAEUS, Systema naturae, ed. 10, vol. 1, 1758, p. 86. (Veracruz, México.)

Turkey vultures were seen daily in flight over the island though never in large numbers. About January 12, with a change in weather conditions, the northeast trade wind blew steadily throughout the day, which made soaring easy, and immediately there was an increase in the prevalence of these birds. While I noted them regularly above the high forest, where occasional openings in the treetops gave a view of the sky, they were more often seen over the open pastures and along the beaches.

Most of those that I observed near enough at hand to give me a clear view with binoculars, had the bare skin of the head dull red, indicating that they were migrants from the north, in Panamá for the winter season. But on January 8 I noted one with the definite yellow lines across the back of the red head that identified it as the race *Cathartes aura ruficollis* Spix, which I have found to be the breeding bird of the Pacific slope of Panamá, west to Chiriquí.

SARCORAMPHUS PAPA (Linnaeus): King Vulture, Cacicón

Vultur Papa LINNAEUS, Systema naturae, ed. 10, vol. 1, 1758, p. 86. (Surinam.)

The king vulture appears to be fairly common on Coiba Island though I recorded it on only three occasions. At Salinas January 23 three adults soared high in air. Three days later near Punta Damas several turkey vultures flew out of the brush back of the beach, and when I walked in to see what had attracted them I found a great king vulture, in fully adult feather and color, peering down with its light-colored eyes from a low branch barely 40 feet away. I watched it for some time, and then moved along without disturbing it. It did not seem desirable to kill it for a specimen as I was 3 miles from our quarters! (There are several available from Coiba, viz, two adult and two immature in the Chicago Natural History Museum, collected by J. H. Batty May 21 to 26, 1901.) I saw another in a tree in an open pasture at Punta Damas February 1, and approached it closely, but it showed no apparent fear of me.

Family Accipitridae: Hawks, Eagles

HARPAGUS BIDENTATUS FASCIATUS Lawrence: Double-toothed Kite, Gavilán Dentado

Harpagus fasciatus Lawrence, Proc. Acad. Nat. Sci. Philadelphia, December 1868 (1869), p. 429. (Guatemala.)

On January 13, when I was calling small birds, a female kite alighted overhead on a limb so large that the bird was completely hidden from view. Presently it moved to another tree and began to climb through the branches. It is a specimen in which the lower surface is strongly chestnut, with the barring broad and the gray much reduced.

ACCIPITER BICOLOR BICOLOR (Vieillot): Bicolored Hawk, Gavilán de Dos Colores

Sparvius bicolor Vieillot, Nouveau dictionnaire d'histoire naturelle, nouv. éd., vol. 10, June 21, 1817, p. 325. (Cayenne.)

On January 17 when we were in tall forest one of these hawks came dashing through the branches to a perch a few feet away, attracted by the calls of a thrush. It proved to be an adult female, and one that probably was feeding young. On January 23, a prisoner brought me an immature male from San Juan. Hawks of this species are decidedly uncommon in Panamá, being found only where there is heavy forest.

The adult female had the following colors in life: Base of maxilla below nostril and base of mandible neutral gray; rest of bill black; cere dusky neutral gray; edge of the eyelids honey yellow; rest of the bare skin about the eye and on the loral area dull yellowish green; iris orange; tarsus and toes yellow; claws black. The double ovary, usual in hawks of this genus, was present, the right one about one-third the size of the one on the left. The appearance on the left side indicated that the bird had laid rather recently. This bird has the abdomen paler than the breast and the under wing coverts partly rufous, both indications that remain from the immature dress.

The second specimen is cinnamon-buff below, with gray feathers of the adult dress beginning to appear on the throat, foreneck, and in a ring around the hindneck.

BUTEO PLATYPTERUS PLATYPTERUS (Vieillot): Broad-winged Hawk, Gavilán Aliancho

Sparvius platypterus Vieillot, Tableau encyclopédique et méthodique des trois règnes de la nature, vol. 3, 1823, p. 1273. (Philadelphia, Pa.)

The broad-winged hawk, migrant from the north, is common on the mainland, but during my entire stay on Coiba I recorded only

half a dozen or so. The species apparently is averse to long flights over water. An immature male was taken on January 28.

BUTEO MAGNIROSTRIS PETULANS van Rossem: Large-billed Hawk, Cuiscuí

Buteo magnirostris petulans VAN ROSSEM, Condor, vol. 37, No. 4, July 15, 1935, p. 215. (Lion Hill, Canal Zone.)

This hawk undoubtedly is more common on Coiba than any of the other species of its family. I saw it at first in small trees along

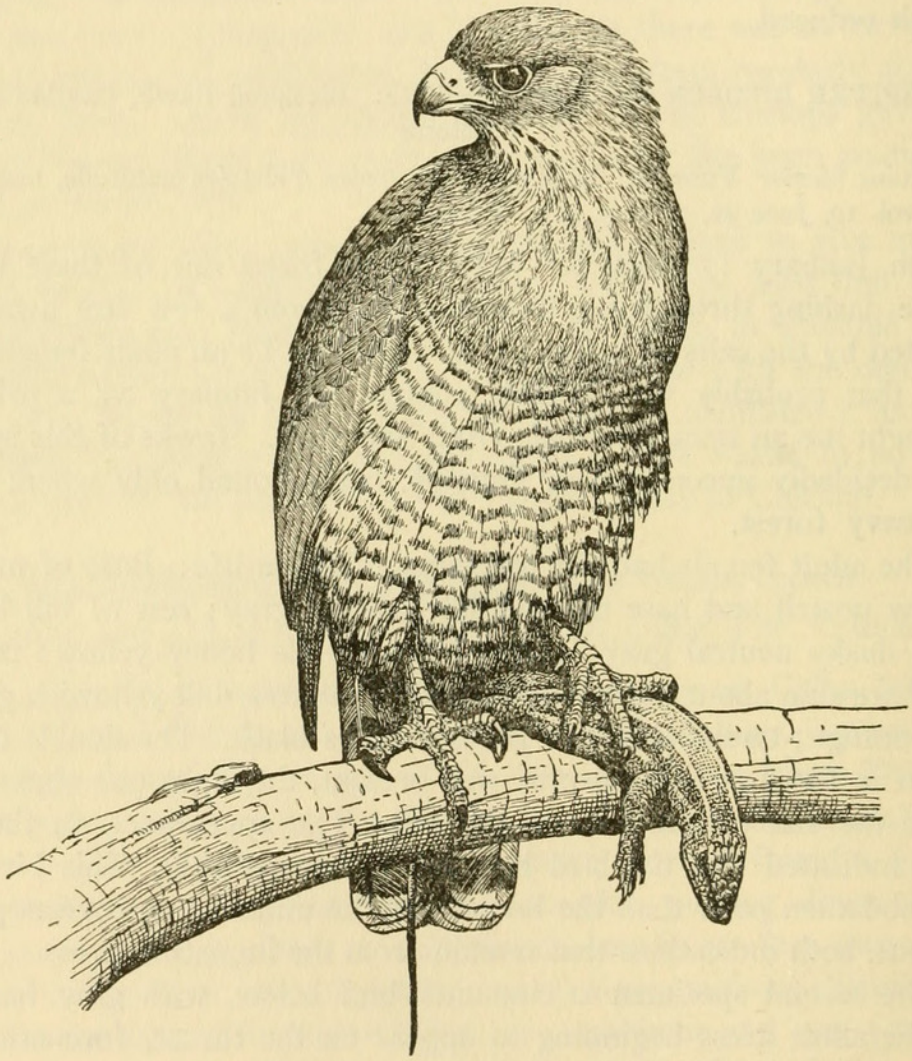


FIG. 1.—Large-billed Hawk, Cuiscuí.

the fences in pastures, and then more commonly in the second-growth brush that covered old fields in which cultivation had been abandoned. As I became more familiar with the island I found that it also ranged inland over the high forest crown, where apparently the undulating surface of the leaf canopy and the smaller branches immediately below, lying in the sun, afforded as favorable hunting ground as the old

fields and the rastrojo where these birds are usually observed in more settled areas.

Though they shun deeply shaded forest areas, they usually rest on perches that are protected from the sun but that are sufficiently open to afford a view. Often they call querulously, when they are easily located. Usually, also, it is easy to approach them as they have little fear. On January 21 I recorded a nest, with birds about it, 40 feet from the ground in a tree of moderate size, rising above a thicket of second growth, but was not able to examine it closely.

The six specimens prepared agree in general with those from the Pacific slope of Panamá. The breast and foreneck average very faintly darker gray than most, but are equaled in this by occasional mainland specimens. The common name is given in imitation of the call.

MORPHNUS GUIANENSIS (Daudin): Crested Eagle, Águila Moñuda

Falco guianensis DAUDIN, Traité élémentaire et complet d'ornithologie, vol. 2, 1800, p. 78. (Cayenne.)

An occasional view of one of these great eagles soaring high in air over the forest is one of my stirring memories of Isla Coiba. The long tail and broad but blunt-pointed wings present a curious outline when seen in the air so that for a time, viewing them from a considerable distance, I was not wholly certain of their identity. One day the sharp eyes of Vicente saw one resting quietly on a high upper branch in an enormous forest tree, where its background at first view dwarfed it in such proportion that, until my eye had noted the long central feathers of the erected crest, the bird appeared to be some smaller kind of hawk. On several occasions two, obviously a pair, were observed soaring together.

There have been relatively few observations of this species in Panamá.

BUTEOGALLUS ANTHRACINUS SUBTILIS (Thayer and Bangs): Common Black Hawk, Gavilán de Ciénaga

Urubitinga subtilis THAYER and BANGS, Bull. Mus. Comp. Zoöl., vol. 46, June 1905, p. 94. (Gorgona Island, Colombia.)

A few of these hawks lived in and near the tidal swamps at the mouths of the San Juan and Catival rivers, and I saw others occasionally on the uplands back of the beach at Punta Damas. They do not enter the heavy inland forests, but prefer areas of more open growth along the borders.

The two adult females shot at Salinas January 23 and 28 have the following measurements: Wing 357, 365; tail 210, 206; culmen from cere 27.4, 26.6; tarsus 89.8, 86.2 mm.

Family PANDIONIDAE: Ospreys

PANDION HALIAETUS CAROLINENSIS (Gmelin): Osprey, Águila Pescadora

Falco carolinensis GMELIN, Systema naturae, vol. 1, pt. 1, 1788, p. 263. (South Carolina.)

Ospreys were observed daily along the shore, usually alone, but occasionally two in sight at the same time. One was recorded carrying a fish at Isla Ranchería February 4.

Family FALCONIDAE: Falcons

FALCO PEREGRINUS ANATUM Bonaparte: Peregrine Falcon, Halcón Cazapatos

Falco Anatum BONAPARTE, Geographical and comparative list of the birds of Europe and North America, 1838, p. 4. (Egg Harbor, N. J.)

Peregrines were observed occasionally but appeared to be casual in occurrence. On the afternoon of January 21 a large one, evidently a female, dropped on a laughing gull resting on the beach in front of the guardhouse, crippled it, and then began to circle over it. The tide was out, exposing a broad expanse of sand and rock, and presently the falcon alighted briefly at the edge of the water. Apparently it was not hungry, as, though it returned several times, it did not pick up the gull. While it seemed to pay little attention to the crowd of men watching, it was careful not to come within gun range.

FALCO ALBIGULARIS ALBIGULARIS Daudin: Bat Falcon, Halcón Cazamurciélagos

Falco albigularis DAUDIN, Traité élémentaire et complet d'ornithologie, vol. 2, 1800, p. 131. (Cayenne.)

January 13 I shot the female of a pair flying about at the edge of the forest back of the pastures at Punta Damas. Ten days later one soared in rising air thermals in company with several vultures near the shore at Salinas. Another was recorded at Punta Damas January 26. These falcons are graceful on the wing and soar regularly, evidently for pleasure. At rest they perch on dead branches or stubs where they have a clear view. Small birds in their haunts seem to continue their activities without fear while the falcons are about.

It is probable that they were more common on Coiba than these few notes indicate, as in these heavy forests they must often be hidden from view to one on the ground.

FALCO SPARVERIUS SPARVERIUS Linnaeus: Sparrow Hawk, Cernícalo

Falco sparverius LINNAEUS, Systema naturae, ed. 10, vol. 1, 1758, p. 90. (South Carolina.)

Occasionally during January I saw a sparrow hawk in the pastures above the Colonia Central, a migrant individual here for the northern winter. They flew immediately when men come in sight, and seemed quite wild.

Family RALLIDAE: Rails, Coots, and Gallinules

ARAMIDES CAJANEA CAJANEA (Müller): Gray-necked Wood Rail, Cocaleca

Fulica Cajanea P. L. S. MÜLLER, Vollständigen Natursystems, Supplements- und Register-Band, 1776, p. 119. (Cayenne.)

The wood rail ranged in two quite different habitats on Coiba, being fairly common in the mangrove swamps at the mouths of the rivers, and found also in more open forest areas in the uplands. In

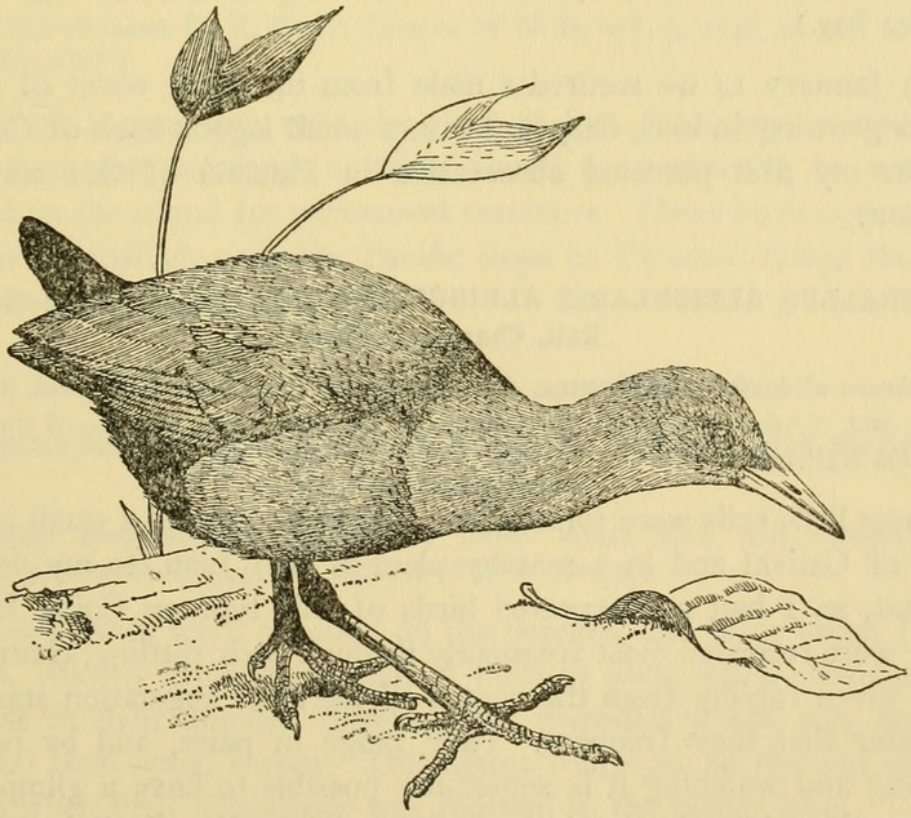


FIG. 2.—Gray-necked Wood Rail, Cocaleca.

early morning we sometimes saw them along the small streams running through the pastures, but it was more usual to hear their curious calls from dense cover where they remained hidden, except perhaps for a brief impression of movement as one stirred behind leafy cover in dense shadows. They call frequently at night. The country name is given in imitation of their calls, and curiously, is used for other rails, regardless of their size.

In the swamps they appear to feed largely on crabs, and their flesh has a definitely rank odor. One shot in the forest lacked this entirely and I found the body, saved from the skinning table, excellent eating.

The three taken—two males and a female—are very slightly darker, more reddish brown on the breast and sides when compared with mainland skins, being in fact decidedly darker than the average bird from Panamá proper. Occasional mainland specimens, however, approach them so closely that it does not seem appropriate to try to separate the Coiba population under a distinct name, particularly in view of the considerable individual variation found among these rails.

PORZANA CAROLINA (Linnaeus): Sora, Cocalequita Migratoria

Rallus carolinus LINNAEUS, Systema naturae, ed. 10, vol. 1, 1758, p. 153. (Hudson Bay.)

On January 14 we secured a male from the dense cover of water plants growing in knee-deep water in a small lagoon back of Cativa1. It was my first personal observation in Panamá of this northern migrant.

LATERALLUS ALBIGULARIS ALBIGULARIS (Lawrence): White-throated Rail, Charrasqueadora

Corethrura albigularis LAWRENCE, Ann. Lyc. Nat. Hist. New York, vol. 7, 1861, p. 302. (Atlantic side of the Isthmus of Panamá along the line of the Panama Railroad.)

These little rails were found, few in number, around a small lagoon back of Cativa1 and in a marshy place at San Juan, to my definite interest, as I had not expected birds of this type on Coiba Island. They were recorded most frequently through their rattling, chattering calls, given rapidly from the depths of the thick vegetation standing in water that they frequent. They range in pairs, and by patient stalking and watching it is sometimes possible to have a glimpse of one moving about in the dark shadows, but ordinarily it is difficult

to secure them. My three specimens, a male and two females taken January 14, 17, and 19, agree in color with our series from the Pacific slope of Panamá.

LATERALLUS EXILIS (Temminck): Gray-breasted Rail, Cocalequita Pechiceniza

Rallus exilis Temminck, Nouveau recueil de planches coloriées d'oiseaux, livr. 88, 1831, pl. 523. (Cayenne.)

On January 28 a convict brought me one alive, captured in marshy ground near the Cativa1 work camp. The bird, an adult female, is the first record of the species from Panamá. The nearest locality at which it has been found to the north is on the Río Escondido, 50 miles above Bluefields, Nicaragua, and to the south at the Laguna Guájaro, near La Peña, Atlántico, Colombia.

The specimen has the following measurements: Wing 74.2, tail 29.7, culmen from base 16.8, tarsus 24.8, middle toe with claw 33.8, middle toe without claw 30.0 mm.

Family Jacanidae: Jaçanas

JACANA JACANA HYPOMELAENA (Gray): Wattled Jaçana, Gallito de Ciénaga

Parra hypomelaena G. R. Gray, Genera of birds, vol. 3, 1846, p. 589, pl. 159. ("Bogotá.")

A black jaçana seen near the river at San Juan, was probably a stray from the mainland, as there would not appear to be suitable habitat on the island for permanent residence. These birds apparently wander extensively over the Pacific slope of Panamá during the dry season.

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.)

These plovers were common on the beaches, one being taken January 18. Shortly after the middle of January there was a considerable increase in their number, dozens being recorded where only one or two had been noted earlier. This status continued to the end of the month when their abundance was reduced to the earlier level.

CHARADRIUS WILSONIA BELDINGI (Ridgway): Wilson's Plover, Chorlito Piquigordo

Pagolla wilsonia beldingi RIDGWAY, U. S. Nat. Mus. Bull. 50, pt. 8, June 26, 1919, p. 112. (La Paz, Baja California.)

At Juncal on January 30 I shot one as it ran across the broad sand beach. This bird, a female with undeveloped ovaries, was the only one seen.

SQUATAROLA SQUATAROLA (Linnaeus): Black-bellied Plover, Chorlo Gris

Tringa Squatarola LINNAEUS, Systema naturae, ed. 10, vol. 1, 1758, p. 149. (Sweden.)

The black-bellied plover fed regularly on the beaches in groups of 3 or 4 to 25. One was taken January 12.

ARENARIA INTERPRES MORINELLA (Linnaeus): Ruddy Turnstone, Vuelvepiedras

Tringa Morinella LINNAEUS, Systema naturae, ed. 12, vol. 1, 1766, p. 249. (Coast of Georgia.)

Turnstones ranged daily over the broad flats of Bahía Damas when these were laid bare by low water, or ran along the sandy margins when the tide was full. It was amusing to see how expertly they flipped over small stones or shells to search underneath, and also to hear their low chattering calls when feeding in close company during rain. At low water they came back among the mangrove roots at the mouths of the rivers.

Two birds, male and female, were taken January 11 and 27.

Family SCOLOPACIDAE: Snipe, Woodcock, Sandpipers

EREUNETES PUSILLUS (Linnaeus): Semipalmated Sandpiper, Playerito Gracioso

Tringa pusilla LINNAEUS, Systema naturae, ed. 12, vol. 1, 1766, p. 252. (Hispaniola.)

These small sandpipers scattered far out over the bare flats at low tide, where they often passed unnoticed until driven in to the beach at high water. They seemed to vary in abundance; many were recorded January 18 and 20.

EREUNETES MAURI Cabanis: Western Sandpiper, Playerito Occidental

Ereunetes Mauri CABANIS, Journ. für Orn., vol. 4, 1856 (1857), p. 419. (South Carolina.)

On January 18 I recorded four western sandpipers among the many semipalmated and shot one, a female, for a specimen. Several

were seen two days later. The longer bill serves to identify them when they are feeding with the other species. It is probable that they were much more common than these two observations indicate.

EROLIA MINUTILLA (Vieillot): Least Sandpiper, Playerito Menudo

Tringa minutilla VIEILLOT, Nouveau dictionnaire d'Histoire naturelle, nouv. éd., vol. 34, December 1819, p. 466. (Halifax, Nova Scotia.)

Specimens were taken on January 14 and 18 from among the abundant semipalmated sandpipers.

CATOPTROPHORUS SEMIPALMATUS INORNATUS (Brewster): Willet, Playero Aliblanco

Symphemia semipalmata inornata BREWSTER, Auk, vol. 4, No. 2, April 1887, p. 145. (Larimer County, Colorado.)

This migrant from the north apparently is of casual occurrence on Coiba. January 8 I noted a number along the beach, but did not see them again until January 20, when I shot one of several seen at María.

CROCETHIA ALBA (Pallas): Sanderling, Playero Arenero

Trynga alba PALLUS, *in* Vroeg, Catalogue raissonné d'oiseaux. Adumbratiunculae, 1764, p. 7. (Coast of the North Sea.)

Occasionally at high tide sanderlings appeared on the beach at the Colonia Central, sometimes alone, sometimes two or four together. Here they ran back and forth, as usual following the receding waves and then retreating quickly as the water returned. Two were taken for specimens February 3.

TOTANUS FLAVIPES (Gmelin): Lesser Yellowlegs, Playero Chillón Chíco

Scolopax flavipes GMELIN, Systema naturae, vol. 1, pt. 2, 1789, p. 659. (New York.)

I saw one near the mouth of Río Catival on February 2.

ACTITIS MACULARIA (Linnaeus): Spotted Sandpiper, Playerito Coleador

Tringa macularia LINNAEUS, Systema naturae, ed. 12, vol. 1, 1766, p. 249. (Pennsylvania.)

This bird of the north is so prevalent on beaches and around more open bodies of water in Panamá, many nonbreeding individuals remaining throughout the year, that it is almost a native species. On Coiba spotted sandpipers were scattered singly along the shore, or along the inland streams where these ran past open banks in cleared

areas. Usually from one to a dozen were seen daily, teetering ahead of me, or flying with quick, short wingbeats low over the water. At high tide, when much of their normal feeding ground on the beaches was under water, I saw them perched on the gunwales or prows of boats anchored in the bay, or on logs and rocks above the water, where they rested quietly with none of the nervous body movements that normally draw attention to them. At the convict camps located near the shore, they came familiarly along the paths and about the houses in search of food.

NUMENIUS PHAEOPUS HUDSONICUS Latham: Whimbrel, Zarapito Trinador

Numenius hudsonicus LATHAM, Index ornithologicus, vol. 2, 1790, p. 712. (Hudson Bay.)

These large curlews were scattered along the beaches everywhere, regardless of whether the surface was the edge of a rocky reef, or a smooth stretch of sand. As they are hunted to a certain extent, they were rather wild, flying out ahead of me with the loud calls that give them their Spanish name of trinador. Occasionally I found one in the marshy open pastureland at Baja España, near the mouth of the Río Cativa1, but the shore, even among the mangroves, was the normal habitat.

Family STERCORARIIDAE: Skuas, Jaegers

CATHARACTA SKUA CHILENSIS (Bonaparte): Skua, Salteador Grande

Stercorarius antarcticus b. *chilensis* BONAPARTE, Conspectus generum avium, vol. 2, 1857, p. 207. (Chile.)

On the return trip to Balboa on February 6 I recorded between 15 and 20 skuas at sea between Punta Mala and the area where the islands of Otoque and Bona were barely in sight to the north. All were flying low above the water among the terns and other sea birds. None were recorded on January 6 when I crossed these same waters on the voyage to Coiba.

While these records, like my earlier observations of skuas in the Gulf of Panamá in 1944, are placed under the subspecies *chilensis* on the basis of probability, it must be noted that no specimens have been taken as yet in these waters. One or two seen near at hand seemed to show the characters of *chilensis,* so far as could be told without the bird in hand. I was interested, however, to have a brief, distant view of one that appeared very light in color.

Family LARIDAE: Gulls, Terns

LARUS HEERMANNI Cassin: Heermann's Gull, Gaviota de Heermann

Larus Heermanni CASSIN, Proc. Acad. Nat. Sci. Philadelphia, vol. 6, Dec. 31, 1852, p. 187. (San Diego, Calif.)

On February 6, when the crash boat was about 3 miles south of Otoque, three of these gulls rose from the water near at hand, giving me a clear view of their colors and color pattern. The species has been recorded south in winter only to Champerico and San José on the Pacific coast of Guatemala, so that it was a distinct surprise to see them in the Gulf of Panamá.

LARUS ATRICILLA Linnaeus: Laughing Gull, Gaviota Reidora

Larus atricilla LINNAEUS, Systema naturae, ed. 10, vol. 1, 1758, p. 136. (Bahama Islands.)

On January 6 I recorded Laughing Gulls at sea throughout the journey from Balboa, and at Coiba one or two came daily to the beach in front of the Colonia Penal. I was interested to see one that was tearing at a small bird body on the beach stand its ground and drive off a black vulture that attempted to crowd it away from the food. As related above, on one occasion a laughing gull was killed rather wantonly by a peregrine falcon.

A male taken January 9 had begun to molt on the back, scapulars, and wing coverts, but in the main was still in worn winter dress.

THALASSEUS MAXIMUS MAXIMUS (Boddaert): Royal Tern, Gaviotín Real

Sterna maxima BODDAERT, Table des planches enluminéez, 1783, pl. 58. (French Guiana.)

Scattered royal terns fished daily over the bay, or gathered in little groups to rest on the beaches. In journeys by boat I saw them standing on drift floating on the water, often on bits of stick or board barely large enough to support them. One day I watched with interest while a frigate-bird pursued one of these terns for five minutes, but was so completely outmaneuvred that finally it gave up the chase. A female tern in winter plumage was taken January 18.

STERNA ANAETHETUS NELSONI Ridgway: Bridled Tern, Gaviotina Monja

Sterna anaetheta nelsoni RIDGWAY, U. S. Nat. Mus. Bull. 50, pt. 8, June 26, 1919, pp. 487 (in key), 514. (Sihuatanejo, Guerrero.)

On February 6, as our boat passed the two rocks of Frailes del Sur, off Punta Mala, suddenly scores of terns appeared, wheeling

over the sea, and looking back I saw hundreds more, circling in apparent confusion but in their usual manner over the barren summit of the larger of the two islets. They continued in numbers until we were opposite Isla Iguana, and an occasional one was sighted farther north to within 15 miles of Isla Otoque. None was seen when we passed on January 6, and apparently they had arrived only recently at their nesting grounds at the Frailes, to judge from their actions. The presence of this large tern colony here has not been reported so far as I am aware.

A few that came near appeared to be the present species, an identification that is probable because of the immature specimen in the National Museum collections captured by Charles L. Fagan on September 24, 1922, aboard a ship when the vessel was abeam of Punta Mala.[5]

CHLIDONIAS NIGER SURINAMENSIS (Gmelin): Black Tern, Gaviotina Negra

Sterna surinamensis GMELIN, Systema naturae, vol. 1, pt. 2, 1789, p. 604. (Surinam.)

On January 6, while passing Punta Mala I noted two flocks of about 40 each resting on the sea 3 miles offshore.

Family COLUMBIDAE: Pigeons, Doves

COLUMBA CAYENNENSIS PALLIDICRISSA Chubb: Pale-vented Pigeon, Torcaza Común

Columba pallidicrissa CHUBB, Ibis, ser. 9, vol. 4, January 1910, p. 60. (Costa Rica.)

The torcaza was present in fair numbers, scattered singly through the forest, where for most part they remained in the tops of the taller trees, so high as to be beyond gunshot. While we heard their guttural calls daily, it took careful stalking and watching to see them, and then usually they were out of reach. Finally we secured a male on January 28, and a female two days later.

COLUMBIGALLINA TALPACOTI NESOPHILA (Todd): Ruddy Ground Dove, Tortolita Colorada

Chaemepelia rufipennis nesophila TODD, Ann. Carnegie Mus. vol. 8, May 8, 1913, p. 590. (Isla El Rey, Archipiélago de las Perlas, Panamá.)

The ruddy ground dove was found in the pastures where I saw them daily, feeding in little groups on the ground where the grass

[5] See Wetmore, Condor, vol. 25, Oct. 3, 1923, p. 171.

was short, or where it grew in scattered tufts on stony soil. As I approached the doves crouched motionless until I had passed; or if I came too near, they rose quickly with a flash of bright reddish brown from their wings, often to perch on shaded branches in the small, scattered trees in these locations. I heard them calling occasionally, and January 11 flushed a female from a nest placed 6 feet from the ground on the summit of a tree stump standing in the border of swampy woodland. The nest was a flat, fairly well-built platform of twigs, hidden among tall, green shoots sprouting from the top of the stump. The two eggs were white, bluntly ovate in form, and measured 22 x 16.9 and 22.2 x 16.9 mm. The following day a convict brought me another nest with two eggs that he had found in the top of a palm while gathering coconuts, but these were nearly ready to hatch, and could not be saved.

On the Pacific slope of Panamá these doves prefer open lands. They enter thickets or groves readily, but usually do not penetrate forested areas beyond the immediate borders. The pastures cleared around the convict camps are definitely favorable to them so it is apparent that they must be more common now than formerly, when they were restricted to the borders of the swamps and the shoreline. At present this species is the only common bird in the man-made environment of these pasturelands, which are frequented otherwise only by kingbirds except along their borders. Two males and two females were prepared for specimens.

On comparing these birds with others, it was noted immediately that the females were definitely darker on the lower surface than the mainland series; and also that they agreed in this darker color with skins from San José and Pedro González Islands in the Archipiélago de las Perlas, which represent the race named *nesophila* by Todd. It is highly interesting to note this resemblance between the Coiba population and that of this other island group. Bangs [6] stated that Todd's type of *nesophila,* from "San Miguel" (Isla El Rey) was an immature male with the sex wrongly marked as female by the collector, and therefore placed *nesophila* in the synonymy of *C. t. rufipennis,* in which he has been followed by Peters and by Hellmayr and Conover. However, in 1944 when I secured four females from the Perlas Islands I found that these clearly upheld the validity of Todd's race.[7] An occasional immature bird from the mainland, freshly molted from juvenal plumage, may approach *nesophila* in

[6] Bull. Mus. Comp. Zoöl., vol. 70, 1930, p. 165.

[7] See Wetmore, Smithsonian Misc. Coll., vol. 106, No. 1, Aug. 5, 1946, pp. 36-37.

depth of color, but in a considerable series I have seen only one that could not be separated easily on close examination, and that single specimen does not agree entirely with the island series.

CLARAVIS PRETIOSA (Ferrari-Pérez): Blue Ground Dove, Tortolita Azul

Peristera pretiosa Ferrari-Pérez, Proc. U. S. Nat. Mus., vol. 9, Oct. 2, 1886, p. 175. (Brasil.)

These handsome little doves, of shy and retiring habit, were found sometimes in swampy woodland, as in the area near Cativa1, and sometimes along the more open trails on the upland where the larger trees of the forest had been cut. In early morning they were encountered in plantations of plátanos and yuca. Occasionally, while moving quietly, I had brief glimpses of them as they walked on the ground under the shelter of leaves and branches, but more often they were not observed until they flushed and flew with swift, direct flight, traveling low down, usually to drop in some spot that was difficult of access. Three males were taken on January 11, 25, and 31.

LEPTOTILA PLUMBEICEPS BATTYI Rothschild: Gray-headed Dove, Paloma Cabeciceniza

Leptoptila battyi W. Rothschild, Bull. Brit. Orn. Club, vol. 12, Dec. 30, 1901, p. 33. (Coiba Island, Panamá.)

The gray-headed dove was one of the common birds in the forests of Coiba Island, so abundant in fact that in spite of their secretive habits I saw them nearly every day, sometimes in the swampy woodlands back of the mangroves near the river mouths, sometimes in the great forest of the interior. They live and feed on the ground, usually two or three together, rising to low perches on logs or branches when flushed if not too badly frightened, or, if startled, flying swiftly to secure cover. Occasionally I had random glimpses of them walking with bobbing heads among the shadows, or standing completely motionless, when it was difficult to distinguish them in the dim light of their haunts. In early morning they came out into the open trails, but when startled darted at once to cover.

Some of the males were calling, a single hooting note, so highly ventriloquial that we never succeeded in following it to see the actor perform, though we were certain of the source. Usually the birds when calling appeared to rest on low perches near the ground, where they were completely concealed; when we came too near they became silent and flew or walked away. But always the impression was that the sound came from the trees rather than from the undergrowth near at hand.

The flesh of these doves was esteemed highly for the table and the convicts trapped many and sold them alive, the usual price being 60 cents a dozen.

This is the most handsomely marked of the races of this species, the darker colors, in contrast with the paler hues of the other subspecies, following the characteristic pattern of increased depth in color found in the other forms that are peculiar to Coiba Island. Until now this race has been represented in collections by a male and two females (the type series) in the American Museum of Natural History, and a female in the British Museum (Natural History) taken on Coiba by H. J. Kelsall Sept. 4, 1924.

Following are measurements of eight skins that I prepared: Males (2 specimens), wing 139.2-143.5, tail 89.2-89.4 (89.3), culmen from cere 8.5-8.9 (8.7), tarsus 31.2-32.6 (31.9) mm. Females (6 specimens), wing 134.0-142.2 (138.2), tail 82.5-90.2 (86.0), culmen from cere (5 specimens) 8.0-9.0 (8.6), tarsus 29.9-33.2 (32.1) mm.

The soft parts in a female taken January 17 were colored as follows: Bill black; bare loral area dull red; rest of bare skin on side of head dull neutral gray; iris dull yellow; tarsus and toes dull red; claws wood brown. The sexes are alike in color and in size, the resemblance extending to the incised tip of the outermost primary, which averages very slightly broader in the females than in the males, but varies in length of the attenuated portion apparently without regard to sex. Immaturity in age may be a factor among those in which it is shortened, since in one bird that had just attained adult body plumage this feather is only slightly narrowed toward the end.

An immature specimen in the American Museum of Natural History, collected by J. H. Batty, May 11, 1901, has a few feathers of the juvenal plumage remaining on the forehead, crown, neck, and upper breast that are wood brown edged with cinnamon. The greater wing coverts have an indistinct subterminal bar of dark neutral gray and a narrow tip of cinnamon.

GEOTRYGON MONTANA MONTANA (Linnaeus): Ruddy Quail-Dove, Paloma Montañesa

Columba montana LINNAEUS, Systema naturae, ed. 10, vol. 1, 1758, p. 163. (Jamaica.)

This quail-dove, widely distributed in the American Tropics, was fairly common in the heavy forests where, as usual, it lived on the ground in the shadows of the undergrowth. Occasionally one flushed ahead of me, when it was readily identified by its shorter tail and general form, even when the colors were not clearly seen; but when

I detected a dove walking amid the low cover below the undergrowth I was often uncertain which of the two forest-inhabiting species was before me. Two males in adult plumage and two females in immature dress were taken. One of the latter, collected February 4, was shot on Isla Ranchería as it walked along a steep, fairly open slope back of the beach.

Family PSITTACIDAE: Parrots, Macaws

ARA MACAO (Linnaeus): Scarlet Macaw, Guacamayo Rojo

Psittacus Macao LINNAEUS, Systema naturae, ed. 10, vol. 1, 1758, p. 96. (Lower Amazonas, Brasil.)

Each morning, when the sun was above the horizon, groups of macaws, traveling in pairs, came flying over the forest and the

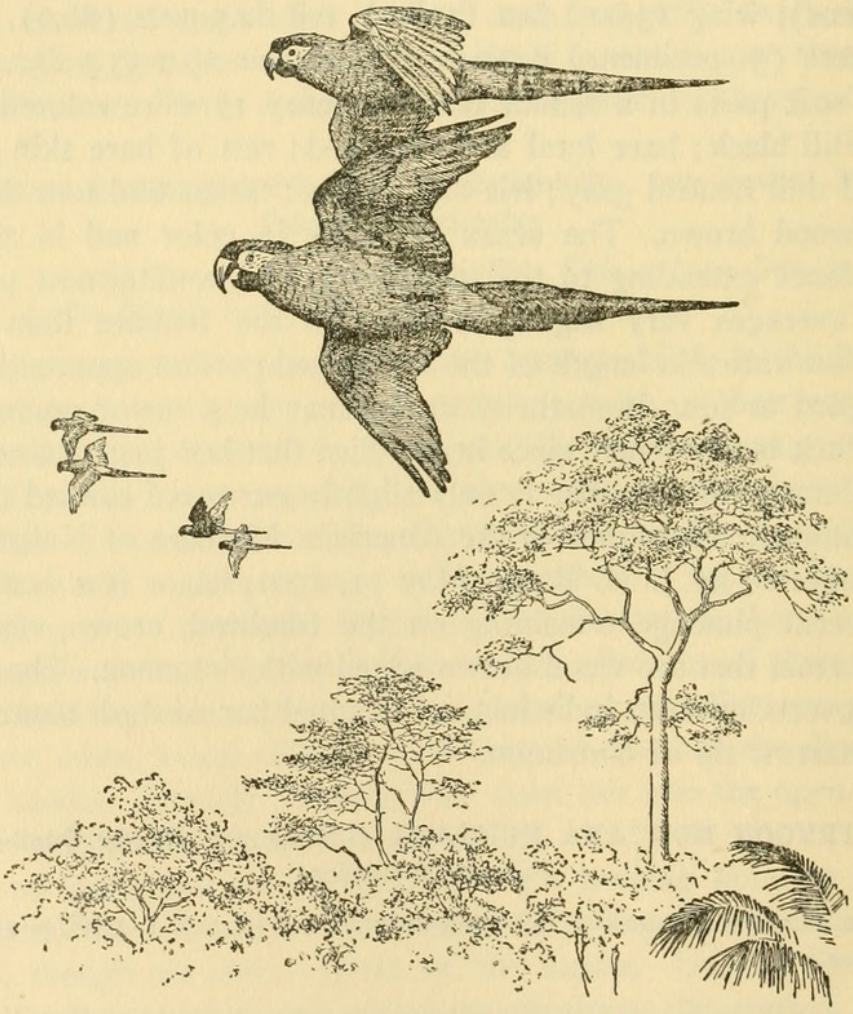


FIG. 3.—Scarlet Macaw, Guacamayo Rojo.

pasturelands from the southern part of the island, and each evening as sunset was near they returned. Often the low-lying sun was at a proper angle to light their brilliant colors, and always whether

near or far, they made an attractive sight as they crossed the sky with steady wing beat, and long tail streaming behind. During the day I encountered them about fruiting trees of various kinds, feeding usually high above the ground, sometimes wary and sometimes quite tame, usually calling raucously whenever I came near. At the beginning of February the pairs were often increased to trios as young birds, with the longer tail feathers not quite grown, began to accompany their parents. Though they appeared to gather at night to roost in some special area in the southern end of the island, during the day they scattered to the farthest forests. On February 4 I saw several on Isla Ranchería. Male and female were collected January 8 and 15 for specimens.

The restricted type locality, "Baixo Amazonas" designated by Pinto,[8] is to be accepted (Linnaeus having written only "America meridionali"), rather than the proposal of Hellmayr[9] who selected Pernambuco, as in Brasil the bird is found only in the northwestern section, in Amazonas, Pará, and northern Mato Grosso.

AMAZONA FARINOSA INORNATA (Salvadori): Mealy Parrot, Loro Verde

Chrysotis inornata SALVIN, Cat. Birds Brit. Mus., vol. 20, 1891, pp. 269 (in key), 281. (Veraguas, Panamá.)

These, the conspicuous parrots on Coiba, ranged in pairs and flocks everywhere through the forest. Their calls greeted me constantly, and at times, when fruiting trees caused them to congregate, their noise was such that few other bird sounds could be heard above it. In early morning they were active in flying about until they had located a feeding area for the day, when they tended to move only through limited areas. The guards responsible for the work camps often stationed men around fields of ripening corn for two hours or so after sunrise, when the parrots were flying from their roosts, to move the birds along to the forests by shouting and making other noise, as if not driven away the birds caused much damage. Several were heard and seen on Isla Ranchería February 4.

The four prepared for specimens all agree with skins from the mainland from Veraguas eastward in having the crown clear green with the back of the head and upper hindneck rather dark blue. The edge of the wing (the carpal area) in all four shows the line of red usual in this race, though in one it is reduced in extent. They show no resemblance therefore to *Amazona farinosa virenticeps* which is

[8] Catalogo das aves do Brasil, pt. 1, 1938, p. 182.

[9] Abh. Kon. Bayerischen Akad. Wiss., Kl. 2, vol. 22, pt. 3, 1906, p. 577.

found in the lowlands of western Chiriquí (Bugaba, Divalá) and Bocas del Toro (Almirante), which has the crown bluish green, the hindneck lighter blue, and the edge of the wing marked with yellow, only rarely with a tinge of red.

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

Chrysotis salvini SALVADORI, Cat. Birds Brit. Mus., vol. 20, 1891, pp. 271 (in key), 300, pl. 7, fig. 3. (Lion Hill Station, Canal Zone.)

I was certain that this species was present on Coiba as at times I believed that I could distinguish the notes of these birds among the myriad parrot calls of the forest, but in spite of much scanning of feeding and flying birds I was not able to find them. The only one identified was a captive bird that had been taken on the island. The Batty collection in the American Museum of Natural History includes eight skins labeled Coiba Island, taken May 5, 11, and 14, 1901, in which the locality given is assumed to be correct.

PIONUS MENSTRUUS (Linnaeus): Blue-headed Parrot, Casanga

Psittacus menstruus LINNAEUS, Systema naturae, ed. 12, vol. 1, 1766, p. 148. (Surinam.)

Blue-headed parrots were as common on Coiba as the larger species, but were less conspicuous because of their smaller size and less raucous voices, their higher-pitched calls being lost on many occasions amid the shrieks and gutturals of the loro verde. Where casangas found an abundant supply of food they tended to remain quietly through the day, being conspicuous only when disturbed, or during their morning and evening flights to their roosting places. Often they relied on their green coloration for concealment, allowing me to pass close at hand, even when they were low down in banana plantations. They did much damage in the cornfields, so that it was necessary frequently to drive them out by shooting. Sometimes I found them feeding alone, but where food was abundant, 40 to 50 congregated in scattered flocks. Two males were preserved for specimens on January 7 and 19.

BROTOGERIS JUGULARIS JUGULARIS (Müller): Orange-chinned Parakeet, Perico Común

Psittacus jugularis P. L. S. MÜLLER, Vollständigen Natursystems, Supplements- und Register-Band, 1776, p. 80. (Bonda, Magdalena, Colombia.)

This small parakeet, familiar as a household pet throughout the Republic, is fairly common on Coiba, though not nearly so abundant

as in many mainland localities. Occasionally I heard them calling from the high forest crown, where they were hidden from view by the screen of leaves, or saw little groups in flight near the work camps. But it was not until the guayabo trees scattered through the pastures came into blossom that I recorded them regularly, as then they came in bands of a dozen to 25 to feed at the blossoms. Three that I shot for specimens on January 26 at one of these trees had the throat completely filled with nectar.

Family CUCULIDAE: Cuckoos, Anis

CROTOPHAGA ANI Linnaeus: Smooth-billed Ani, Garrapatero Común

Crotophaga Ani LINNAEUS, Systema naturae, ed. 10, vol. 1, 1758, p. 105. (Jamaica.)

Anis in the usual little groups of 6 to 12 or so were found in the low thickets in abandoned fields, or around the borders of the pastures. They were restricted to the cleared areas, and, though only fairly common, probably were more abundant now that some of the land has been cleared than they were formerly when the island was completely forested. Two were taken for specimens January 21 and 26.

Family STRIGIDAE: Owls

BUBO VIRGINIANUS MAYENSIS Nelson: Great Horned Owl, Gran Buho Cornudo

Bubo virginianus mayensis E. W. NELSON, Proc. Biol. Soc. Washington, vol. 14, Sept. 25, 1901, p. 170. (Chichén Itzá, Yucatán.)

On February 4, on Isla Ranchería, I came on one of these birds resting in a large-limbed, open tree standing at the edge of a swamp. The bird was only a short distance from me, as at the time I was climbing along the face of a steep bank, high above the muddy, level ground. While I had a clear view of the owl for a minute or so, I failed to secure it for a specimen owing to one of those mishaps that torment the naturalist when a quick snap shot is necessary, since my footing on the slippery bank was treacherous. My disappointment was the greater since I knew at the moment that the only record of this species for Panamá was that of a bird taken by Enrique Arcé at Chitrá, Veraguas, in 1868. As the bird was near at hand I could see that it was quite dark in general coloration.

From examination of available material, including that in the British Museum (Natural History), I agree with Griscom [10] that the

[10] Ibis, 1935, pp. 546-547.

great horned owls of southern México and Central America include only one race, to be called *mayensis*. Under these circumstances I have listed this observation under the subspecific name though it is only a sight record.

Owls were reported as occasional on Coiba, but search for them by day and by night was unsuccessful. Whether the present species or others were involved is therefore unknown.

Family CAPRIMULGIDAE: Goatsuckers

CAPRIMULGUS RUFUS MINIMUS Griscom and Greenway: Rufous Nightjar, Chotacabras Morena

Caprimulgus rufus minimus GRISCOM and GREENWAY, Bull. Mus. Comp. Zoöl., vol. 81, May 1937, p. 424. (Panamá City, Panamá.)

It was a pleasant experience to find this interesting goatsucker fairly common on Coiba, particularly since the omnipresent *Nyctidromus* encountered throughout the lowland coverts of the mainland, was entirely absent. In traversing the forest I came across them resting on the ground, usually in sections where the surface was somewhat hilly or undulating. They rose on noiseless wings and flew swiftly through the undergrowth where, in the dim light, it was difficult for the eye to follow them. I soon learned to move quietly ahead in the general direction that they had taken, and by watching carefully often saw them perched on a log or a low vine, where it was easier to see them than when they were on the ground. In flying they did not rise more than 10 to 20 feet, and usually traveled at a much lower level. In the evening I heard them calling in the distance from the forest border above the pastures, *whit-wit-we-oo,* uttered rapidly, repeated after a slight pause, and continued steadily for several minutes. The sound was low but resonant, so that the notes carried for a considerable distance. Male and female shot in company on January 10 were not in breeding condition, but on January 19 a female taken in the forest near the Punta Damas trail was nearly ready to lay. January 29 I shot another female that flew up to perch on a log, and then discovered that she had risen from her nest. This was on the ground, in a little space free of undergrowth beside a fallen log. A single egg was placed in the center of a thick, brown-colored dead leaf that measured 4 by 7 inches. On this dark background the light-colored egg stood out clearly with no semblance of concealment. Two small, freshly plucked green leaves had been laid alongside on the larger leaf, apparently as decorations. The egg, oval in shape, measures 30.8 x 23.5

mm. The general ground color is somewhat glossy white, marked irregularly over the entire surface with spots of French gray to lilac gray, with a lesser number that are cinnamon drab, some of these scattered over the surface, but most of them grouped as a poorly outlined wreath around one end. Many of the spots are highly irregular in outline. On skinning the parent I found that she contained a second egg ready for the shell, so that the complete set is two, as it is in the related chuck-will's-widow (*Caprimulgus carolinensis*) that nests in the southeastern United States.

The five skins from Coiba Island probably represent a race peculiar to the island, since they are definitely brighter, more rufescent brown on the crown and hindneck than four others, two from the Province of Panamá, and two from northern Colombia, that are at the present moment available. The Coiba series includes specimens in the two color phases, one grayer and one browner, usual in this species, and the difference indicated holds in both. However, in view of the considerable individual variation in the rufous nightjar it seems desirable to see further mainland specimens before reaching final decision on the Coiba series.

Family Apodidae: Swifts

STREPTOPROCNE ZONARIS ALBICINCTA (Cabanis): White-collared Swift, Vencejo Cuelliblanco

Hemiprocne albicincta Cabanis, Journ. für Orn., vol. 10, May 1862, p. 165. (Junction of Haiama Creek and the Demerara River, British Guiana.[11])

On January 14 I shot two from a small flock that came to drink at the little fresh-water lagoon at Cativa1. As no others were seen, this occurrence may be taken as an example of the wide range of territory covered by the fast-moving flocks of swifts, since it is assumed that they had crossed from the mainland. Both of the specimens are immature. One, a male, has the breast band restricted in size and dull white. In the other, in which I was not able to determine the sex, the feathers of the upper breast are tipped so lightly and so narrowly with white that the band seems to be completely lacking until the bird is examined closely.

[11] In the original description Cabanis proposed this name for the birds found from "Mexico bis Guiana" without selecting a type. Zimmer, Amer. Mus. Nov., No. 1609, Feb. 25, 1953, p. 3, has designated the type locality as given above. It is to be noted in this connection that Ridgway, U. S. Nat. Mus. Bull. 50, pt. 5, 1911, p. 698, in discussion of this race had already suggested "Guiana."

CHAETURA VAUXI OCHROPYGIA Aldrich: Vaux's Swift, Vencejo Oscuro Común

Chaetura vauxi ochropygia ALDRICH, Sci. Publ. Cleveland Mus. Nat. Hist., vol. 7, Aug. 31, 1937, p. 68. (Paracoté, 1 mile south of the mouth of the Río Ángulo, Montijo Bay, Veraguas, Panamá.)

These small swifts were seen constantly over the open pastures and around the groves of coconut palms, usually in groups of a dozen or more. They ranged over the entire island, as I saw them also flying high over the unbroken forest. Hundreds of them were present on Coiba. February 4 I recorded many along the shores of Isla Ranchería.

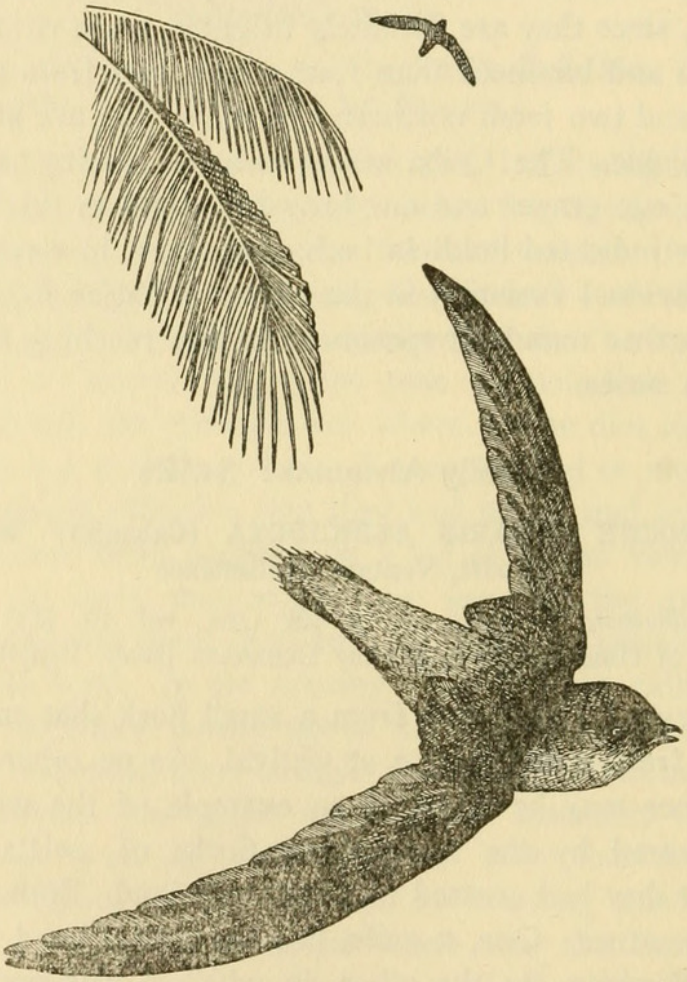


FIG. 4.—Vaux's Swift, Vencejo Oscuro Común.

While on many occasions they flew high in air, near the shores and over the pastures they circled lower, sometimes quartering like swallows barely above the ground. From the regularity with which small groups flew around the coconut palms after the sun had set I had the impression that they sought roosting places in these trees, but this I was not able to ascertain with certainty. Sometimes as they passed I heard low, wheezy, chattering calls that had little volume or carrying power, but ordinarily the only impression of them was of their angular wings, beating rapidly as they passed at high speed.

Three taken on January 10 and 15 are typical of the present race, marked by light-colored rump and upper tail coverts.

Family Trochilidae: Hummingbirds

PHAEOCHROA CUVIERII SATURATIOR (Hartert): Cuvier's Hummingbird, Colibrí de Cuvier

Aphantochroa cuvieri saturatior Hartert, Bull. Brit. Orn. Club, vol. 12, Dec. 30, 1901, p. 33. (Coiba Island, Panamá.)

This large species was found only in the stand of white mangroves in the swampy area bordering the mouths of the San Juan and Catival Rivers. They came so quietly among the other hummers to feed at flowering trees that, with their dull coloration, they attracted little attention, and it was only when they were in clear view that they were distinguished by their size. They were not common, and it required much watching to collect the two males and two females that I obtained.

These four bear out fully the characters assigned in the original description, being decidedly darker both above and below when compared with the two races of this species known respectively from eastern and western Panamá. Measurements are as follows: Males (2 specimens), wing 78.7, 75.8, tail 45.5, 45.0, culmen from base 24.7, 25.6 mm. Females (2 specimens), wing 70.2, 74.1, tail 46.7, 45.2, culmen from base 25.9, 24.7 mm.

Hartert believed that a longer bill might be one of the characters of this race but this is not true.

CHLOROSTILBON ASSIMILIS Lawrence: Allied Emerald, Colibrí Esmeraldino

Chlorostilbon assimilis Lawrence, Ann. Lyc. Nat. Hist. New York, vol. 7, January 1861, p. 292. (Atlantic side of the Isthmus of Panamá, along the line of the Panama Railroad.)

This was the least prominent of the hummingbirds, the few noted being found in the forest, or at the forest border. The three males and two females secured do not differ from mainland specimens. On January 16, when I obtained a pair in swampy woods along the Río Catival, I found that the female was laying.

LEPIDOPYGA COERULEOGULARIS COERULEOGULARIS (Gould): Sapphire-throated Hummingbird, Colibrí Zafirino

Trochilus coeruleogularis Gould, Proc. Zool. Soc. London, pt. 18, 1850 (Feb. 28, 1951), p. 163. (Near David, Chiriquí, Panamá.)

These handsome hummingbirds were encountered only in the borders of the mangrove swamps, where they were feeding at flowering trees. They seemed rather quiet, and also somewhat timid as they

fled from the attacks of the more aggressive goldentail, even though that species is smaller. The series of four males and three females from Coiba does not differ from birds taken on the mainland.

HYLOCHARIS ELICIAE (Bourcier and Mulsant): Blue-throated Goldentail, Colibrí Cola de Oro

Trochilus Eliciae Bourcier and Mulsant, Ann. Sci. Phys. Nat. Agr. Ind. Soc. Roy. Lyon, vol. 9, 1846, p. 314. (Type locality unknown.)

This was a common hummingbird, found in small numbers in the lower level of branches in the high forest, and more abundantly in the mangroves and the swampy woodlands bordering the river mouths. Possibly flowering trees were the attraction that drew them to the latter habitat, as toward the end of my stay on Coiba I found them about blossoming guayabo trees that grew scattered through open pasturelands. They seemed more aggressive than other species of the family here, and especially toward other hummers. The light-colored base of the bill, which is pale reddish in life, shows clearly as they move about, even in the dim light of heavy forest. They seemed to seek shaded haunts, except when lured into the open by especially attractive flowers. The series collected includes one bird from Isla Ranchería. A female taken January 24 was laying.

When compared with mainland series the Coiba birds appear to average very faintly darker, but there is no clear-cut distinction between specimens from the two areas.

Carriker [12] suggests that the type locality of this bird, which was not indicated in the original description, may be Guatemala since the authors of this species describe another hummer from that country in the same paper.

AMAZILIA EDWARD NIVEOVENTER (Gould): Snowy-breasted Hummingbird, Colibrí Pechiblanco

Trochilus niveoventer Gould, Proc. Zool. Soc. London, pt. 18, 1850 (Feb. 28, 1851), p. 164. (Near David, Chiriquí, Panamá.)

This handsomely marked hummingbird was one of the least common kinds of the family. I found it mainly at the borders of the swampy woodlands near the river mouths, where one came occasionally, with other species, to the flowers of white mangroves, or was found alone. The bushy growths of old fields, as at San Juan, were also attractive, and when the guayabo trees in the pastures came into

[12] Proc. Acad. Nat. Sci. Philadelphia, vol. 87, Dec. 27, 1935, pp. 422-423.

bloom the birds congregated about them in some numbers. A female shot January 11 was laying. The three males and three females prepared for specimens agree with mainland examples.

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.)

This species, easily identified by the rufous-brown tail, is the most abundant hummingbird, ranging from the open borders of the lowland swamps back into the heavy shade of the high forest. They were especially abundant at the flowers of the white mangroves, and at the blossoms of the guayabo trees growing in the open, but were observed elsewhere at almost any herbaceous plant or shrub that was in bloom. The flowers of the mangroves were so large that to feed on them easily the hummers usually perched on the ends of the petals, or on adjacent blossoms, and then reached over with long bills to probe the centers. In early morning I found this hummingbird in the warm sun on open branches, often in small dead trees along the beaches. Part at least were nesting during January, and I was interested to have one male scold me with loud chirping calls. On January 8 I found a nest in a small, broad-leafed tree growing beside a coconut palm back of the beach. The bird had built on a shaded horizontal branch about 7 feet from the ground, the entire structure being formed of fine shreds of plant fiber, of coarser form exteriorly on the immediate surface, but aside from this quite uniform. The outer surface was light grayish brown, decorated with a few bits of lichen. The nest measured 42 by 44 millimeters externally, being somewhat flattened by the two well-grown young, a week or more old, that it contained. These had two lines of clay-colored down along the dorsal pteryla. The female perched on the edge of the nest beside them, striking steadily with her bill at large ants that ran back and forth along the branch supporting the nest. This hummer was common also on Isla Ranchería.

The series of 12 adult birds, viewed as a whole, averages very faintly darker on the lower breast and abdomen than the excellent representation available from the mainland. None of the Coiba birds is as light as the average from Panamá proper, but numerous specimens from the mainland are equally dark. The island series also is uniformly deep green above, again being equaled by occasional skins

from the other series, though most of the latter have a distinctly brassy sheen. There seems to be an incipient difference, but not one that would merit a special name.

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.)

A few of these kingfishers ranged along the lower courses of the Río San Juan and the Río Cativa1, where the tidal part of these streams traversed the great lowland swamps.

A male was collected January 12.

CHLOROCERYLE AMERICANA ISTHMICA (Goldman): Green Kingfisher, Martín Pescador Verde

Ceryle americana isthmica Goldman, Smithsonian Misc. Coll., vol. 56, No. 27, Dec. 1, 1911, p. 1. (Río Indio, near Gatun, Canal Zone, Panamá.)

Green kingfishers lived along the lower courses of all the streams, large and small, that flowed into Bahía Damas. In early morning they rested on sticks, or on projecting points of rock exposures where small creeks came down to the beaches, but as soon as the sun was high they retreated inland where the water flowed between shaded banks. Along the larger rivers they ranged through the mangrove swamps. As they fly near the surface of the water in these dimly lighted places it is only the white marking of the tail and lower abdomen that allows the eye to follow them.

CHLOROCERYLE AENEA AENEA (Pallas): Pygmy Kingfisher, Martín Pescador Enano

Alcedo aenea Pallas, *in* Vroeg, Beredeneerde catalogus, . . . Vogelen, Adumbratiunculae, 1764, p. 1. (Surinam.)

A male, taken low down among the roots of the white mangroves in the swamp at the mouth of Río Cativa1, was the only one seen.

Family Picidae: Woodpeckers

CENTURUS RUBRICAPILLUS Cabanis: Wagler's Woodpecker, Carpintero Rayado

Centurus rubricapillus Cabanis, Journ. für Orn., vol. 10, 1862, p. 328. (Barranquilla, Atlántico, Colombia.)

This is the common woodpecker on the island as it is throughout the Pacific lowlands of mainland Panamá from the Costa Rican

border to western Darién. On Coiba I was interested to find it moving regularly over the forest crown throughout the heavy woodland of the interior of the island, in addition to its common mainland habitat of trees in the open pastures and plantations. In the higher branches of the tall forest it finds the same conditions of light and sun that it enjoys around savannas and clearings elsewhere, which suggests that this may have been a considerable part of its original haunt on the mainland, and that because of its life in the open tree-

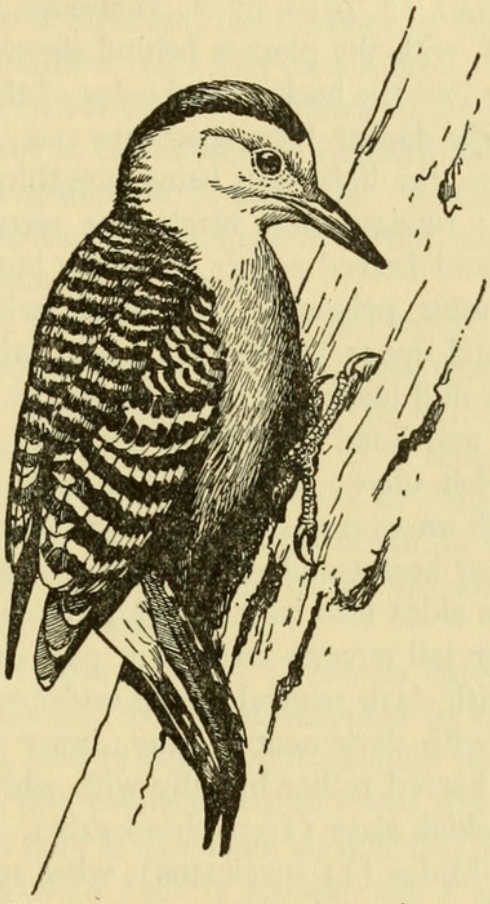


FIG. 5.—Wagler's Woodpecker, Carpintero Rayado.

tops, above the shadowy depths of the lower levels, its manner of living was not unduly disturbed when the great lowland forests of Veraguas and eastern Chiriquí were cut down. The chattering calls and drumming of these birds were a daily accompaniment to my observations, both around our quarters and in the field. In the forests they came down occasionally from the higher levels to scold at me, or to search for food. On February 4 I recorded them on Isla Ranchería.

I was attracted immediately by the darker color of my first specimens, in comparison with the bird of the mainland, a distinction that has merited description as a race that is new to science.

CENTURUS RUBRICAPILLUS SUBFUSCULUS subsp. nov.

Characters.—Similar to *Centurus rubricapillus rubricapillus* Cabanis,[13] but decidedly darker throughout; blacker above, with the white bars reduced in width, and the black bars correspondingly broader; under surface and side of head definitely darker, more grayish olive; crown in male deeper red; white markings on rectrices somewhat reduced in extent.

Description.—Type, U.S.N.M. No. 460784, male, Isla Coiba, Panamá, collected Jan. 18, 1956, by A. Wetmore (orig, No. 20311): Forehead olive-buff, with the plumes behind the nostrils apricot buff, fading immediately into the background color of the forehead; crown and hindneck slightly darker than spectrum red; back black, barred narrowly with white, the light bars being one-third or less the width of the black ones; remiges dull black, the secondaries and inner primaries notched and barred rather narrowly but prominently with white; three outermost primaries dull black, with the outer webs unmarked; rump and upper tail coverts white, with scattered freckling and spotting of dull black; rectrices black, the central pair barred on the inner webs, and lined broadly on the outer webs, with white; side of head grayish olive; throat citrine-drab, changing to light brownish olive, with an overwash of isabella color, on foreneck, this color continuing over breast and sides; center of abdomen dull nopal red, merging at the sides into isabella color which covers the rest of the abdomen; under tail coverts and lower part of flanks dull white, barred narrowly with dark neutral gray; under wing coverts white, barred irregularly with dark neutral gray; inner surface of remiges dark neutral gray, barred rather broadly with white. Bill dull black; tarsus and toes blackish slate (from dried skin).

Measurements.—Males (11 specimens), wing 101.8-108.5 (105.0), tail 48.7-55.9 (52.0), culmen from base 23.1-27.3 (25.2), tarsus 17.8-20.2 (18.9) mm. Females (4 specimens), wing 99.3-101.8 (100.4), tail 49.2-50.5 (49.4), culmen from base 22.0-23.4 (22.9), tarsus 17.5-18.2 (17.7) mm.

Type, male, wing 103.5, tail 50.0, culmen from base 26.8, tarsus 19.0 mm.

Range.—Isla Coiba and Isla Ranchería, off the Pacific coast of Veraguas, Panamá.

Remarks.—The bird in habits and in actions is the counterpart of *Centurus rubricapillus rubricapillus* of the adjacent mainland. A

[13] *Centurus rubricapillus* Cabanis, Journ. für Orn., vol. 10, 1862, p. 328. (Barranquilla, Atlántico, Colombia.)

nearer approach in color is found in *Centurus rubricapillus seductus* of Isla El Rey in the Perlas Islands of the Gulf of Panamá, which differs also from the typical form *rubricapillus* in generally darker color above and below, in heavier bill, and in paler red on the crown of the male. The bird of Coiba Island, *C. r. subfusculus* is separated from *seductus* as it is from *rubricapillus* by still darker coloration, the under surface especially being decidedly darker. In addition the crown in the male *subfusculus* is much darker red. It is interesting to observe that there is a general resemblance in the two island forms, which suggests that darker color may be a more primitive stage which has been preserved in the limited confines of offshore islands while modification has come in the extensive mainland range.

The Romans recognized a brunette as "mulier subfuscula." It seems appropriate to use their adjective as the name for the present form, the darkest race of the species.

Study of the bird from Coiba Island has led to an examination of the series of the species that is now available from the entire range. It may be observed in the beginning that the writer believes it useful to treat the *Centurus* group of species as a separate genus, rather than to merge it with the allied *Melanerpes,* as Peters and some others have done. Aside from the pattern conformation found in the regularly barred back, the feathers of the throat are soft and blended, not hairlike as in typical *Melanerpes.*

As another matter, the races of *Centurus rubriventris* Swainson appear specifically distinct from *rubricapillus* in the much narrower barring of the back, and in the proportionately much longer tail. It may be observed in this connection that *Picus flavifrons* Vieillot appears to belong with true *Melanerpes,* so that this genus thus includes *Picus rubriventris* Vieillot (1818) for the race *Melanerpes flavifrons rubriventris.* With *Centurus* recognized as a distinct genus the specific name *rubriventris* of Swainson (1838) remains available for the Mexican species, and the name *rubricomus* Peters (1948), necessary if *Centurus* is united with *Melanerpes,* is not required.[14]

The following summary outline covers the races of *Centurus rubricapillus.*

Centurus rubricapillus rubricapillus Cabanis:

Centurus rubricapillus CABANIS, Journ. für Orn., vol. 10, 1862, p. 238. (Barranquilla, Atlántico, Colombia.)

Centurus terricolor BERLEPSCH, Ibis, 1880, p. 113. (Orinoco district, or Trinidad.)

[14] See Peters, Check-list of the Birds of the World, vol. 6, 1948, p. 164.

Melanerpes Wagleri SALVIN and GODMAN, Biologia Centrali-Americana., Aves, vol. 2, 1895, p. 416. (Lion Hill, Canal Zone.)

Melanerpes subelegans neglectus RICHMOND, Proc. U. S. Nat. Mus., vol. 18, Aug. 12, 1896, p. 668. (Bogotá, Colombia.)

Melanerpes wagleri sanctae-martae BANGS, Proc. Biol. Soc. Washington, vol. 12, June 3, 1898, p. 134. (Santa Marta, Colombia.)

Centurus rubricapillus costaricensis ALDRICH, Sci. Publ. Cleveland Mus. Nat. Hist., vol. 7, Aug. 31, 1937, p. 81. (El Pozo, 25 feet, Río Terraba, Puntarenas, Costa Rica.)

Characters.—White and black bars on back nearly equal; under surface pale.

Measurements.—Male, wing 100.8-114.5 (108.2), culmen from base 21.6-27.6 (24.7) mm. Female, wing 95.9-112.6 (105.1), culmen from base 19.8-25.1 (22.5) mm.

Range.—Pacific slope from southwestern Costa Rica (Uvita, and the valley of Río Diquis) across Panamá (in western Chiriquí to 5,000 feet elevation) to the mouth of Río Tuyra (Punta de la Sabana), extending northward through the broad depression traversed by the Panamá Canal to the Caribbean coast between the Río Indio (El Uracillo, Coclé; Chilar, Colón) and Porto Bello including the valley of the Río Chagres (to Madden Dam); northern Colombia from the Río Sinú (Tierra Alta) through the drainage of the Río Magdalena (including the Río Cauca and the Río Cesar), the northern slopes of the Sierra Nevada de Santa Marta, and across Norte de Santander (Convención, Ocaña, Cúcuta); through northern Venezuela (except northern Falcón) south to the Río Orinoco, including Margarita Island; and Trinidad and Tobago.

The series now available in the U.S. National Museum covers this extensive range in sufficient detail to show that none of the supposed races that have been separated may be maintained, as there are no constant color differences. Birds from Colombia average slightly smaller, especially in the females, but local variation in measurements is such that no line of demarcation may be drawn. The range in size is shown by the following summary of wing measurements:

MALES

Costa Rica (11 specimens[15]), 105.0-113.0 (109.7) mm.
Panamá (31 specimens), 105.7-114.5 (110.6) mm.
Colombia (23 specimens), 100.8-111.4 (105.1) mm.
Venezuela (12 specimens), 104.4-113.2 (108.1) mm.

[15] From the description of *C. r. costaricensis* by Aldrich.

FEMALES

Costa Rica (4 specimens[15a]), 104.5-113.0 (107.5) mm.
Panamá (25 specimens), 103.7-112.6 (105.1) mm.
Colombia (15 specimens), 95.9-106.7 (100.6) mm.
Venezuela (5 specimens), 104.4-108.8 (106.0) mm.

The range in Panamá, from present information, is separated from that in western Colombia by Darién and the lower Atrato basin.

Centurus rubricapillus subfusculus Wetmore:

Characters.—Decidedly darker above, with the white barring reduced; under surface much darker; red on crown of male darker.

Measurements.—Male, wing 101.8-108.5 (105.0), culmen from base 23.1-27.3 (25.2) mm. Female, wing 99.3-101.8 (100.4), culmen from base 22.0-23.4 (22.9) mm.

Range.—Isla Coiba and Isla Ranchería, off the Pacific coast of Veraguas, Panamá.

Centurus rubricapillus seductus (Bangs):

Malanerpes (sic) *seductus* Bangs, Auk, vol. 18, No. 1, January 1901, p. 26. (San Miguel, Isla El Rey, Archipiélago de las Perlas, Panamá.)

Characters.—Similar to *C. r. subfusculus,* but less dark above, and paler below, but darker both above and below than *C. r. rubricapillus;* lower breast and sides of abdomen distinctly light buff; bill averaging slightly longer and definitely heavier than in any of the other races.

Measurements.—Male (8 specimens), wing 101.0-105.0 (103.5), culmen from base 26.0-27.2 (26.6) mm. Female (7 specimens), wing 101.0-104.0 (102.2), culmen from base 22.4-24.7 (23.7) mm.

Range.—Isla El Rey, Pearl Islands, Panamá.

Centurus rubricapillus paraguanae Gilliard:

Centurus subelegans paraguanae Gilliard, Amer. Mus. Nov., No. 1071, June 5, 1940, p. 7. (Cerro Santa Ana, Paraguaná Peninsula, Venezuela.)

Characters.—Decidedly lighter above than *C. r. rubricapillus,* especially on the upper back and scapulars; red of crown and hindneck in male often broken or completely interrupted across hindneck.

Measurements.—Males (6 specimens), wing 106.5-111.4 (108.3), culmen from base 25.6-28.3 (26.8) mm. Females (3 specimens), wing 101.2-106.0 (103.1), culmen from base 22.4-25.1 (23.6) mm.

Range.—Guajira Peninsula (Riohacha to Nazaret), Colombia; Paraguaná Peninsula and adjacent northern Falcón (Casigua to Cumarebo), Venezuela.

[15a] From the description of *C. r. costaricensis* by Aldrich.

The paler coloration of these birds separates them clearly from the typical form. The tendency toward reduced red on the head of the male is found occasionally in specimens of *C. r. rubricapillus* from the more eastern part of its range in Colombia and from the western section in Venezuela. It seems probable that the area inhabited by *paraguanae* is continuous around the western shore of the Gulf of Venezuela in extreme northern Zulia.

VENILIORNIS KIRKII CECILII (Malherbe): Red-rumped Woodpecker, Carpintero Rabadillaroja

Mesopicos Cecilii MALHERBE, Rev. Mag. Zool., ser. 2, vol. 1, November 1849, p. 538. (Colombia.)

As I found these birds on four occasions only it was my assumption that few were present, though this may be erroneous since they live amid leafy branches where it is difficult to see them. The three secured were shot in the lower forest growth near the shore, as they climbed along the smaller branches. Near Cativa1 two were seen in company, but elsewhere the birds appeared to be alone. Probably they range also through the high woodlands inland, as I saw one at the forest edge above the Colonia Central. In such haunts they would escape detection, except occasionally, because of their subdued colors and quiet movements. I was somewhat troubled to find that the crown feathers were so loosely attached that there was some slipping in spite of every care in preparation of my specimens.

The three taken are identified with the form found in Darién and the Comarca de San Blas in eastern Panamá, which ranges south through Colombia to western Ecuador, an interesting fact since the darker-colored *V. k. neglectus* of western Chiriquí and southwestern Costa Rica geographically is a near neighbor, much closer at hand. The Coiba specimens appear to be slightly smaller, with smaller bills, but are not sufficiently different to warrant separation on basis of the present series. One of the three, taken January 11, is a fully grown juvenile with barring on the lower surface averaging faintly narrower than in the other two.

Family FURNARIIDAE: Ovenbirds, Spinetails

CRANIOLEUCA VULPINA (Pelzeln): Rusty Spinetail, Coli-aguda Rojiza

Synallaxis vulpina PELZELN, Sitzungsb. Kon. Akad. Wiss. Wien, math.-nat. Cl., vol. 20, 1856, p. 162. (Engenho do Gama, Rio Guaporé, Mato Grosso.)

This is a bird of forest tangles and dense undergrowth where it clambers quietly but actively through creepers or matted branches,

searching carefully through the leaves for food. I found them in such areas as the border of swampy woods near the lower Río Catival, in the higher, unbroken forest inland, usually ranging from the undergrowth to the lower branches of the trees, and at the borders of thickets. I noted them also at berry-bearing trees, in company with honeycreepers and fruit-eating flycatchers and manakins. They were solitary in habit, and though apparently fairly common, they remained so closely under cover that it was difficult to see them. Their method of progression was by climbing through dense cover, rather than by hopping about in more open branches, a mode of travel for which their large, strong feet are eminently suited. In general, they resembled *Cranioleuca erypthrops rufigenis* of the mountain forests on the Volcán de Chiriquí.

The species is one that has not been found previously outside South America, where its more northern representatives range north only to the Orinoco Valley in southern Venezuela and southeastern Colombia, so that it is remarkable to find this colony on Coiba Island, where its presence has been wholly unsuspected. The Coiba birds represent a distinct race, which is described herewith.

CRANIOLEUCA VULPINA DISSITA subsp. nov.

Characters.—Similar to *Cranioleuca vulpina alopecias* (Pelzeln)[16] but bill slightly heavier; no indistinct streaking on chest and foreneck; much brighter brown on lower surface.

Description.—U.S.N.M. No. 460809, male, Isla Coiba, Panamá, collected Jan. 21, 1956, by A. Wetmore (orig. No. 20353): A few tiny feathers on forehead, immediately behind nostril, dull white on external webs, dark neutral gray on inner webs, producing a barely distinguishable mottling; pileum russet; hindneck, back, scapulars and wings, including coverts, between tawny and russet; rump snuff brown; tail russet; lores dull white; a very narrow superciliary pinkish buff; sides of head dull cream-buff, with faint edgings of dusky neutral gray, producing slightly indicated streaks; throat white; sides of neck light chamois with a band of tawny along lower edge; breast and abdomen dull chamois; sides dull isabella color; flanks isabella color; under tail coverts tawny; edge of wing and under wing coverts cinnamon-buff, with edgings of tawny; inner webs of primaries and secondaries dark mouse gray, edged widely toward the base with dull

[16] *Synallaxis alopecias* Pelzeln, Sitzungsb. Kon. Akad. Wiss. Wien, math.-nat. Cl., vol. 34, 1859, p. 101. (Forte do São Joaquim, Rio Branco, Brasil.)

tawny. Maxilla fuscous; mandible deep olive-buff; tarsus and toes Chaetura black; claws drab (from dried skin).

Measurements.—Males (3 specimens), wing 62.8-65.8 (64.1), tail 59.6-61.4 (60.3), culmen from base 14.0-15.4 (14.8), tarsus 17.2-18.0 (17.7) mm. Females (3 specimens), wing 61.6-62.4 (61.9), tail 58.2-60.3 (59.5), culmen from base 14.6-15.3 (15.1), tarsus 17.0-17.8 (17.4) mm.

Type, male, wing 65.8, tail 61.4, culmen from base 14.9, tarsus 17.2 mm.

Range.—Isla Coiba, off the Pacific coast of Veraguas, Panamá.

Remarks.—The general appearance of this bird, a remarkable addition to the Panamanian avifauna, is that of the group of forms allocated under the species name *Cranioleuca vulpina* (Pelzeln), though the decidedly brighter brown of the lower surface separates it from them so definitely as almost to warrant species status. The distribution of *C. vulpina* is mainly in Brasil, the most northern of its races previously known, *C. v. alopecias* (Pelzeln) and *C. v. apurensis* Zimmer and Phelps, extending only into the Orinoco Valley. In southern Venezuela, it is recorded from San Fernando de Atabapo and the Apure and Arauco Rivers to the lower Orinoco, coming barely within the limits of eastern Colombia at Maipures, near the mouth of the Río Vichada. The population resident on Isla Coiba thus is separated from its nearest relatives by the entire width of Colombia and the greater part of Panamá.

The name given to the bird found on Coiba is taken from the Latin *dissitus,* lying apart, or remote.

The allocation of the race described above has entailed a survey of *Cranioleuca vulpina* as a species. In the course of this I have noted especially the bird described originally as *Synallaxis vulpecula* by Sclater and Salvin from the Río Ucayali, Perú, now recognized as a member of the genus *Cranioleuca* and currently allocated as a subspecies of *C. vulpina.* Compared with the other geographic races, *vulpecula* differs widely in the decidedly heavier bill, and in the much more distinct pattern of spotting and streaking on the under surface. As a character of lesser value, the rump is nearly concolor with the back, instead of being quite different in color. On the whole it appears that the sum of these differences warrants recognition of *vulpecula* as a separate species, distinct from any others of the genus.

Family Formicariidae: Antbirds

THAMNOPHILUS DOLIATUS (Linnaeus): Barred Antshrike, Pavita Rayada

Lanius doliatus Linnaeus, Museum Adolphi Friderici Regis, vol. 2, 1764, p. 2. (Surinam.)

It was no surprise to find the barred antshrike on Coiba, since the species is one that I had seen earlier on the islands in the Archipiélago de las Perlas, distant from the mainland. They were encountered immediately on my first day afield, usually in pairs, and

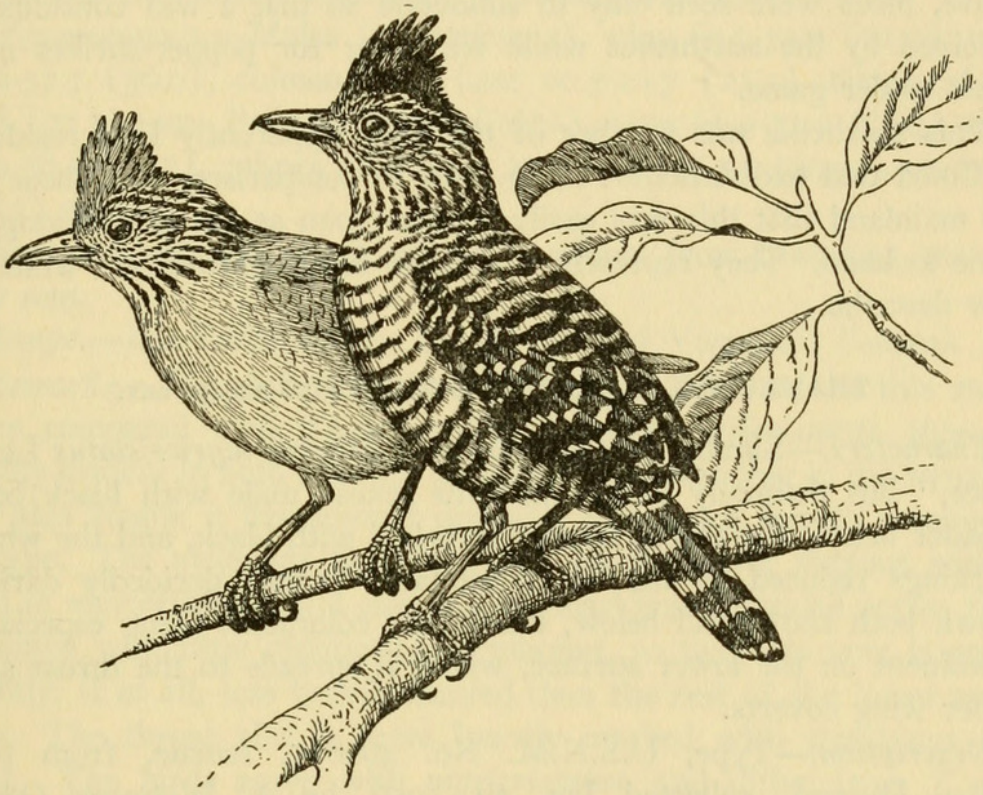


Fig. 6.—Barred Antshrike, Pavita Rayada.

remained as one of the birds that I heard and saw daily during the entire period of my work on the island. I found them in the beginning in tangled growths bordering the vegetable gardens, and in thickets back of the beaches, as well as in the swampy woodland near the river mouths, these being the usual mainland habitats. As I became more familiar with Coiba I learned, to my surprise, that they ranged also in tangles of vines in the crowns of the tallest trees throughout the high upland forest, often so far above the earth that they were beyond gunshot with the heaviest shotgun loads. I came therefore to believe that, like the common woodpecker of Coiba, this may have been a normal home for them on the mainland, from which they were able to descend, when the forests were cut, to live in second-

growth thickets (rastrojo) and other similar ground cover. At the end of January there was such a decided increase in their singing that I believed that their main nesting season was at hand.

They were secretive, but at the same time alert, so that by quietly waiting it was usually possible to draw them out from the denser coverts to places where they could be seen. Usually the pair came together, peering about with neck outstretched and erected crest, presenting a highly attractive appearance. In the higher trees I found them at times somewhat of a bother, since, against the brighter light above, birds were seen only in silhouette so that I was continually deceived by the antshrikes while searching for pepper-shrikes and other wilder game.

This antshrike was another of the birds apparently long resident in Coiba that had darkened so in color in comparison with those of the mainland that this was easily seen as soon as the first examples came to hand. They represent a hitherto unrecognized race which I now describe.

THAMNOPHILUS DOLIATUS EREMNUS subsp. nov.

Characters.—Similar to *Thamnophilus doliatus nigricristatus* Lawrence,[17] but definitely darker in both sexes; male with black bars broader below, the throat heavily streaked with black, and the white markings reduced on the dorsal surface; female decidedly darker brown both above and below, the darker coloration being especially prominent on the lower surface, where it spreads to the throat and under wing coverts.

Description.—Type, U.S.N.M. No. 460815, female, from Isla Coiba, Panamá, collected Jan. 22, 1956, by A. Wetmore (orig. No. 20389): Crown auburn, merging to Mars brown on the tips of the feathers; hindneck russet with indistinct shaft streaks of dark to dusky neutral gray; lower hindneck, back, and scapulars auburn; lower rump cinnamon-buff; inner webs of remiges and of wing coverts dusky neutral gray; outer webs, and a narrow edging on inner webs, russett; upper surface of rectrices russet, lower surface verona brown, with a faintly indicated subterminal central wash of neutral gray forming an indefinite spot; frontal feathers immediately behind nostril light buff, with whitish bases; the rather bristly loral feathers likewise whitish basally, but with dull black tips; somewhat indefinite superciliary and side of head behind eye warm buff, with

[17] *Thamnophilus nigricristatus* Lawrence, Proc. Acad. Nat. Sci. Philadelphia, vol. 17, 1865, p. 107. (Lion Hill, Canal Zone.)

a line of dusky neutral gray along the feather shafts; circlet around edge of eyelids light buff, barred lightly with dusky neutral gray on upper lid; malar region and side of neck warm buff; throat and foreneck warm buff, with the feathers light buff at base, a few with an indistinct shaft streak of dark neutral gray; chest, sides, and under tail coverts ochraceous-tawny; lower breast and abdomen slightly darker than ochraceous-buff; edge of wing russet; under wing coverts ochraceous-buff, the distal ones slightly paler. Maxilla dull black; mandible fuscous, grayer at tip, with the cutting edge drab-gray; tarsus and toes dusky neutral gray (from dried skin).

Measurements.—Males (7 specimens), wing 69.9-72.3 (71.0), tail 54.2-57.7 (56.0), culmen from base 20.3-22.7 (21.1), tarsus 26.4-27.8 (27.1) mm. Females (8 specimens), wing 66.9-71.0 (68.9), tail 53.0-58.5 (54.7), culmen from base 20.9-22.4 (21.5), tarsus 25.7-27.8 (26.7) mm.

Type, female, wing 69.8, tail 55.6, culmen from base 22.4, tarsus 26.7 mm.

Range.—Isla Coiba, off the Pacific coast of Veraguas, Panamá.

Remarks.—The definitely darker coloration that marks this race when compared with *Thamnophilus doliatus nigricristatus,* though readily evident in both sexes, is particularly outstanding in the female. For this reason it has seemed desirable to select a female specimen as type. The male has the black bars of the lower surface wider than in *nigricristatus,* and also has the markings extended across the abdomen with little diminution in amount, so that this area is only slightly, if at all, less heavily barred than the rest of the lower surface. The throat also is more heavily marked with streakings of black. The birds agree with *nigricristatus,* and differ from *T. d. pacificus* in having only a relatively small amount of white concealed in the bases of the black crown feathers.

While comparison in the diagnosis has been made with *T. d. nigricristatus* of the adjacent mainland, the darker coloration is rather more similar to the condition found in the distantly located *T. d. intermedius,* which ranges from eastern Costa Rica and eastern Nicaragua north to Tamaulipas and San Luis Potosí. The male *intermedius,* however, has extensive white markings concealed in the crown, and also averages larger, except in the bill, which is slightly heavier in the birds from Coiba. The female of *eremnus* differs from *intermedius,* as it does from *nigricristatus,* in much darker color.

The subspecific name of the form here described is taken from the Latin adjective *eremnus,* swarthy, or dark.

Family COTINGIDAE: Cotingas

ATTILA SPADICEUS CITREOPYGUS (Bonaparte): Yellow-rumped Attila, Pájaro Gritón

Dasycephala citreopyga BONAPARTE, Compt. Rend. Acad. Sci. (Paris), vol. 38, 1854 (not earlier than April 3), p. 657. (Nicaragua.)

Judging from their calls, attilas were fairly common, both in the swampy areas at the mouth of the Río Catival, and in the high forest inland, but as usual the birds remained hidden. They were less vociferous than is common, and after calling once or twice ordinarily they became quiet so that some time lapsed before I was able to collect one. On January 22 Vicente and I located one somewhere among fairly low branches and after half an hour of intensive scrutiny of the tree, leaf by leaf and twig by twig, Vicente's keen eye detected a slight movement, and with binoculars I could make out the side of the head and part of the bill of the bird through an opening in the screen of leaves. This was a male nearly in breeding condition, and the only one taken. Though we spent much time in looking we saw no others. Some of the men who worked in the edge of the forest were familiar with the excited calls of these birds, but were uncertain as to their source.

The one taken is in greenish phase, with only slight indication of brown on the lower back and tertials, and the fore crown quite gray. The measurements are as follows: Wing 92.2, tail 71.0, culmen from base 28.1, tarsus 24.1 mm. In wing length it agrees with the form of Central America, being larger than *A. s. sclateri* of the eastern half of the Republic of Panamá.

TITYRA SEMIFASCIATA COSTARICENSIS Ridgway: Masked Tityra, Borreguito

Tityra semifasciata costaricensis RIDGWAY, Proc. Biol. Soc. Washington, vol. 19, Sept. 6, 1906, p. 119. (Bonilla, Atlantic slope of Costa Rica.)

These cotingas were found in the higher branches of the forest trees, especially those with dead limbs, where they rested in the sun, or peered into cavities of various sizes. It is probable that they are more common than the few records that I made of their occurrence indicate, since they range regularly on or above the higher tree crowns, where they are hidden from below by the screen of leaves. Most of them were noted along the trails where the forest growth was more open. The two males and one female taken for specimens agree in color with skins from the western half of Panamá. As

they are birds of strong flight it is possible that they cross back and forth to the mainland.

The name "borreguito" is given to them from the light-colored plumage of the male. They are also called puerquito or pájaro chancho, from their curious grunting calls.

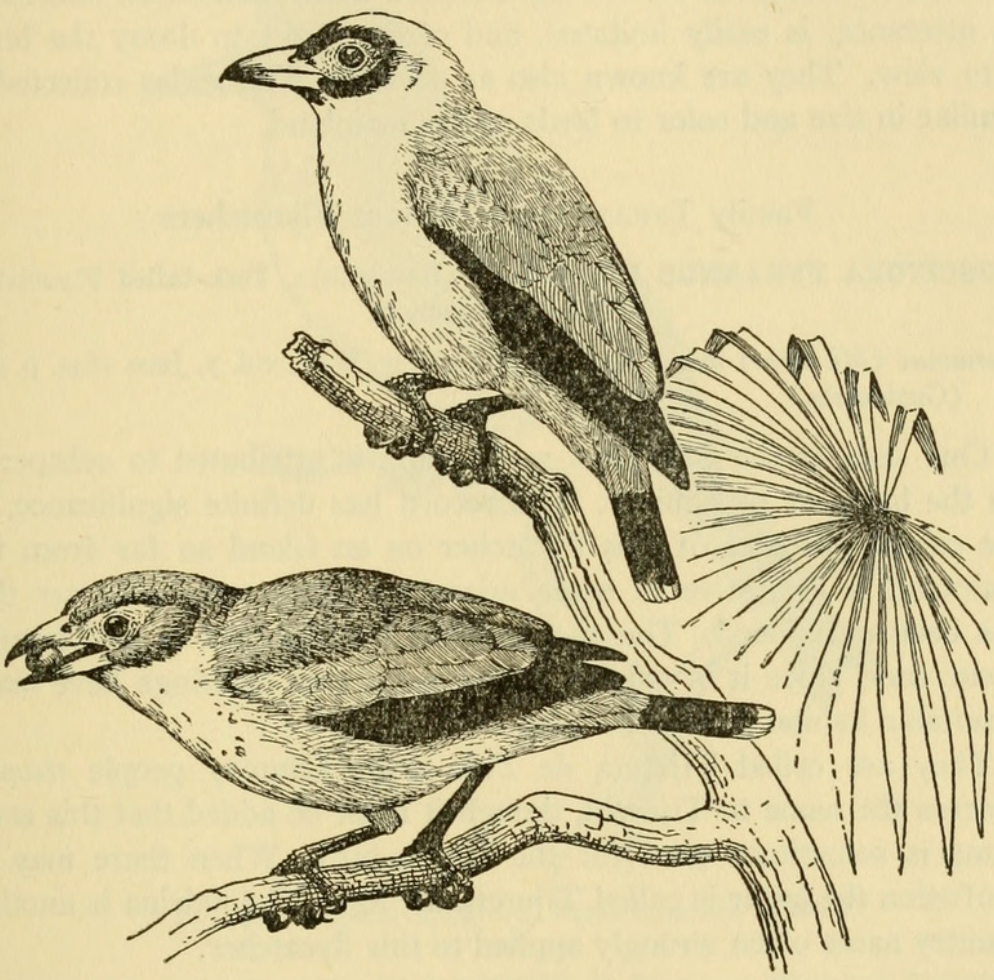


FIG. 7.—Masked Tityra, Borreguito.

Family PIPRIDAE: Manakins

CHIROXIPHIA LANCEOLATA (Wagler): Lance-tailed Manakin, Toledo

Pipra lanceolata J. WAGLER, Isis (of Oken), 1830, col. 931. (Cerro Turumiquire, Sucre, Venezuela.)

The attractive lance-tailed manakin, the only one of its family that I found on Coiba, was common in undergrowth everywhere on the island, ranging through the shadows of the high forest, in brush in the swampy woods near the mouths of the rivers, and in the low rastrojo of abandoned fields. Their musical, whistled calls came to us daily in our work afield, though it was necessary to watch closely to observe the musicians, as they remained behind cover. When not

alarmed they came into open branches where the males postured, called, and drove at one another in harmless threats of combat. In these displays the full skin of the back of the neck is distended by an air sac that fills the space between the shoulders and the base of the skull, so that this region appears greatly enlarged. The musical note *to-le-do,* which gives them their common name, somewhat shortened in utterance, is easily imitated, and often serves to decoy the birds into view. They are known also as soldado. The series collected is similar in size and color to birds of the mainland.

Family TYRANNIDAE: Tyrant Flycatchers

MUSCIVORA TYRANNUS MONACHUS (Hartlaub): Fork-tailed Flycatcher, Tijereta Sabanera

Tyrannus (*Milvulus*) *monachus* HARTLAUB, Rev. Zool., vol. 7, June 1844, p. 214. (Guatemala.)

One seen at the San Juan work camp is attributed to subspecies on the basis of probability. The record has definite significance, as the casual presence of this flycatcher on an island so far from the mainland is indicative of some migratory movement, a matter that has been questioned. The species must be regarded as of irregular occurrence, since it is only in recent years that clearings have made a suitable habitat for it on Coiba.

They are called Tijereta de Palo also. Country people usually shorten the name to Tijereta, though it must be added that this same name is sometimes used for the frigate-bird. When there may be confusion the latter is called Tijereta del Mar. Golondrina is another country name often wrongly applied to this flycatcher.

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

Tyrannus chloronotus BERLEPSCH, Ornis, vol. 14, 1907, p. 474. (Temax, Yucatán.)

The tropical kingbird was found commonly on dead limbs and other perches in the lower brush, among the growths bordering the beaches, resting always when it had a clear view from which to watch for the insects that form an important part of its food. The extensive pastures back of the convict camps were favorite haunts, and it is one of the two species of birds seen regularly in this comparatively new open habitat. Undoubtedly it is more abundant, now that such areas have been opened, than it was formerly when the

forests restricted it mainly to fringing areas near the beaches and around the river mouths. On January 17 I recorded a mated pair in evident search for a nest site.

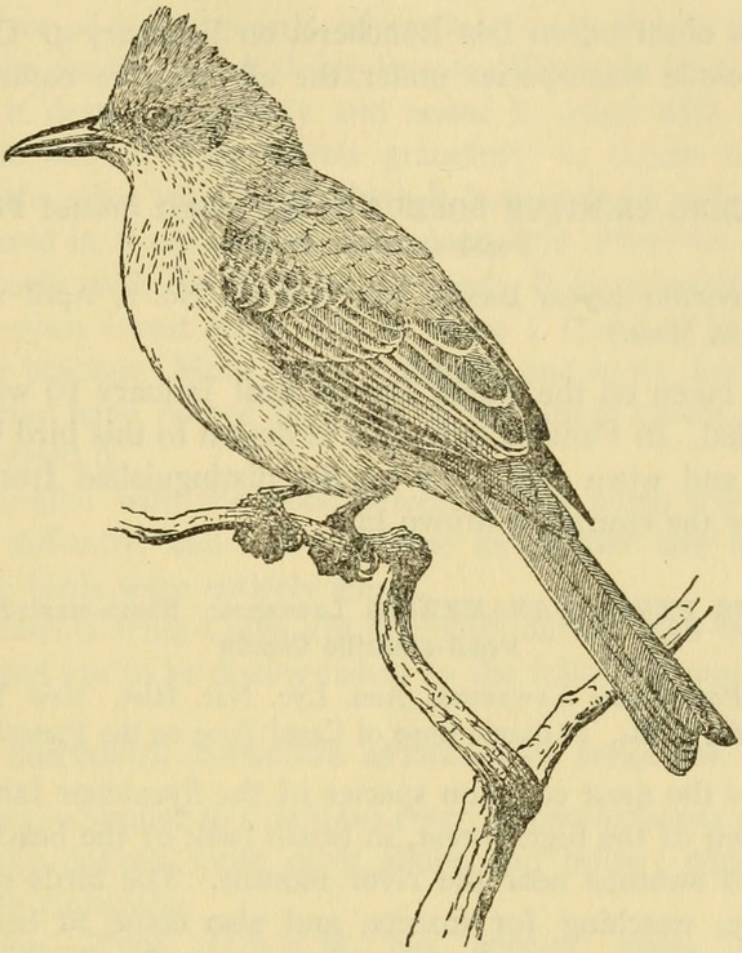


FIG. 8.—Tropical Kingbird, Pechi-amarillo Grande.

MYIODYNASTES MACULATUS DIFFICILIS Zimmer: Streaked Flycatcher, Piquigordo Rayado

Myiodynastes maculatus difficilis ZIMMER, Amer. Mus. Nov., No. 963, Nov. 18, 1937, p. 9. (Bebedero, Costa Rica.)

The streaked flycatcher was found on few occasions, usually in the trees along the forest trails, or occasionally in the border of mangrove swamps at the river mouths. As they called seldom at this season they may have been more common than the five specimens collected may indicate, since it was not easy to see them in the leafy branches amid which they usually rested.

MEGARYNCHUS PITANGUA MEXICANUM (Lafresnaye): Boat-billed Flycatcher, Pico Canoa

Scaphorhynchus mexicanus LAFRESNAYE, Rev. Mag. Zool. (Paris), ser. 2, vol. 3, October 1851, p. 473. (México.)

One was observed on Isla Ranchería on February 4. Countrymen usually include this species under the all-inclusive name of pechi-amarillo.

MYIARCHUS CRINITUS BOREUS Bangs: Great Crested Flycatcher, Pechi-amarillo de Paso

Myiarchus crinitus boreus BANGS, Auk, vol. 15, No. 2, April 1898, p. 179. (Scituate, Mass.)

A male taken on the Punta Damas trail January 19 was the only one recorded. In Panamá, attention is drawn to this bird by its clear call note, and when seen it is readily distinguished from its close relatives by the cinnamon-brown tail.

MYIARCHUS FEROX PANAMENSIS Lawrence: Short-crested Flycatcher, Pechi-amarillo Común

Myiarchus Panamensis LAWRENCE, Ann. Lyc. Nat. Hist. New York, vol. 7, May 1860, p. 284. (Atlantic slope of Canal Zone on the Panama Railroad.)

This was the most common species of the flycatcher family, found in the crown of the high forest, in brush back of the beaches, and in the wooded swamps near the river mouths. The birds move about deliberately, watching for insects, and also come to berry-bearing trees. Though they are active in seizing prey in the air, they regularly search for food, rather than rest in one spot waiting for insects to pass. I saw one fly out at a butterfly which, however, it missed. The call note is a high-pitched *whee-ee-ee,* a sound with little carrying power. Two were taken on Isla Ranchería February 4.

The specimens obtained on Coiba Island resemble those from Veraguas and Chiriquí in being slightly darker, more grayish above, than typical specimens from the Province of Panamá eastward into Colombia, and thus show some approach to the grayish *Myiarchus ferox actiosus* Ridgway of southwestern Costa Rica. All the Panamanian birds, including those of Coiba, are much brighter yellow on the lower breast and abdomen and darker gray on chest and foreneck than *actiosus.*

CONTOPUS CINEREUS (Spix): Tropical Pewee, Cazamoscas Tropical

Platyrhynchus cinereus SPIX, Avium species novae . . . Brasiliam, vol. 2, 1825, p. 11, pl. 13, fig. 2. (Rio de Janeiro, Brasil.)

This friendly little flycatcher rests on low perches in forest areas relatively free of undergrowth, where it can see clearly in order to watch for its food of small flying insects. When its keen eye sights such prey it darts out quickly and seizes it, often with an audible snap of the bill. It then wheels gracefully to return to a perch, frequently the same twig from which it had made its sally. Often it is encountered in shaded areas of subdued light where its dull colors blended closely with the dark background. It is especially common along semi-open forest trails, and at times I found it in the brush back of the beaches. More rarely I sighted one in the high treetops, though it may have ranged regularly in the forest crown, where the leaves concealed it.

Those familiar with the wood pewees of the north will recognize it without difficulty, and will also note its smaller size and darker colors. The birds were entirely silent.

The specimens from Coiba are distinctly darker than those of the mainland, and are to be distinguished by the following name:

CONTOPUS CINEREUS AITHALODES subsp. nov.

Characters.—Similar to *Contopus cinereus brachytarsus* (Sclater)[18] but decidedly darker, more olive above and below; edge of wing washed with cinnamon.

Description.—Type, U.S.N.M. No. 460992, male, Isla Coiba, Panamá, collected Jan. 19, 1956, by A. Wetmore (orig. No. 20326): Pileum fuscous-black; back, rump and upper tail coverts hair brown; wings, including the coverts, Chaetura drab, with middle and greater coverts tipped indistinctly with hair brown, and greater coverts, in addition, edged lightly on ends of outer webs with dull white, the anterior wing bar being indistinct, the posterior one definite; tertials and secondaries edged lightly with dull white, which extends around the distal end; outermost primary also edged with dull white; rectrices Chaetura drab, the outer webs edged with hair brown basally; lores and feathers on margin of lower eyelid white; side of head hair brown; upper foreneck white, with the feathers on chin and throat basally, and on sides, mouse gray, producing indistinct streaks; chest light mouse gray, with a wash of deep olive-buff, shading on lower

[18] *Empidonax brachytarsus* P. L. Sclater, Ibis, vol. 1, October 1859, p. 441. (Córdoba, Veracruz.)

breast to dull cream buff, and in turn to ivory yellow on the abdomen; under tail coverts hair brown, margined with olive-buff; sides hair brown, becoming light grayish olive on the flanks; edge of wing and tips of outermost under wing coverts dull cinnamon; innermost under wing coverts edged with dull cream-buff. Maxilla black; mandible olive-buff, the sides of the rami colonial buff; tarsus, toes, and claws black (from dried skin).

Measurements.—Males (11 specimens), wing 65.2-71.5 (68.7), tail 54.0-61.1 (57.0), culmen from base 14.8-15.9 (15.4), tarsus 11.5-12.9 (11.9) mm. Females (6 specimens), wing 63.2-68.4 (66.4), tail 52.8-57.9 (55.4), culmen from base 14.8-16.1 (15.4, average of 5), tarsus 11.5-12.7 (11.9) mm.

Type, male, wing 71.5, tail 58.6, culmen from base 15.4, tarsus 11.9 mm.

Range.—Isla Coiba, off the Pacific coast of Veraguas, Panamá.

Remarks.—While there is some individual variation, the paler specimens in the series are separable at a glance by definitely deeper olive color from the darker ones in the numerous skins available from the mainland range of *C. c. brachytarsus.* In average size *C. c. aithalodes* is slightly smaller, but there is overlap in the larger measurements with those of *brachytarsus.*

The subspecific name is taken from the Greek αιθαλωδης, sooty, black.

TODIROSTRUM CINEREUM FINITIMUM Bangs: Common Tody-flycatcher, Piqui-ancho Común

Todirostrum cinereum finitimum BANGS, Proc. Biol. Soc. Washington, vol. 17, May 18, 1904, p. 114. (San Juan Bautista, Tabasco, México.)

This tiny tody-flycatcher, marked by its yellow breast and broad, elongated bill, ranged in shrubs, the lower woods, and the trees back of the shoreline. Usually they are found in pairs, male and female hopping about near one another, moving through the branches with the narrow-feathered tail cocked over the back like little wrens. They are active in pursuit of insects and adept at snapping up the prey that they encounter among the twigs and leaves. Occasionally I found them among mangroves. One that I shot in such a location was seized and carried off by a large black lizard the instant it touched the ground.

The six prepared for specimens in series are very faintly deeper yellow on the lower surface than skins from the mainland, but individually they may not be separated.

CAPSIEMPIS FLAVEOLA SEMIFLAVA (Lawrence): Yellow Tyrannulet, Moscareta Amarilla

Elainea semiflava LAWRENCE, Ann. Lyc. Nat. Hist. New York, vol. 8, November 1865, p. 177. (David, Chiriquí.)

In the edge of the forest I found a few coming to low berry-bearing trees in company with other small birds, and also noted them in thickets at the border of mangroves and in old fields that were covered with brush, this being a common habitat with them on the mainland. They move about actively, usually in the lower branches or near the ground, often twitching the long tail like a gnatcatcher.

The four taken resemble specimens from the mainland.

ELAENIA CHIRIQUENSIS CHIRIQUENSIS Lawrence: Lesser Elaenia, Moñoncita

Elainea chiriquensis LAWRENCE, Ann. Lyc. Nat. Hist. New York, vol. 8, November 1865, p. 176. (David, Chiriquí.)

I found this small elaenia visiting berry-bearing trees in company with manakins and other small birds, feeding in guarumo trees in the forest, and also ranging in low second growth bordering the cultivated fields, these being usual haunts of the species. In addition, they ranged over the forest crown in the summits of the tallest trees, where it was only occasionally that I could secure one for a specimen because of the great distance above the ground.

The nine specimens obtained agree in color with skins from Veraguas and Chiriquí. Two taken have the merest trace of white in the crown. In more or less worn plumage in the nesting season they become much darker above than when freshly molted.

ELAENIA FLAVOGASTER SILVICULTRIX Wetmore: Yellow-bellied Elaenia, Moñona Pechi-amarilla

Elaenia flavogaster silvicultrix WETMORE, Proc. Biol. Soc. Washington, vol. 59, Mar. 11, 1946, p. 51. (Isla San José, Archipiélago de las Perlas, Panamá.)

These elaenias were more common than the smaller species, and also were more prominent because of their louder calls. I found them regularly at trees bearing small ripening drupes, also in the thickets around the cultivated fields, and in the swampy forests along the lower courses of the rivers. Inland they were seen in the forest crown high above the ground, descending lower at times to feed in the guarumo trees. They are easily distinguished from the smaller moñona of the same genus by yellower abdomen and more prominent crest. The larger size also is evident on many occasions.

The excellent series of 16 skins from Coiba agrees so closely with the race that I have named earlier from the Pearl Islands in the Gulf of Panamá that they must be identified under that name. The Coiba birds, when compared in series with birds from Isla San José, Isla Pedro González, and Isla El Rey in the Archipiélago de las Perlas, average slightly darker but not sufficiently so to warrant their separation. It is interesting, however, to observe that this heavier pigmentation, when compared with the race of the adjacent mainland *Elaenia flavogaster pallididorsalis,* follows the pattern of darker coloration that marks other resident forms found on Coiba.

MYIOPAGIS VIRIDICATA ACCOLA Bangs: Orange-crested Elaenia, Moñona Copete-anaranjada

Myiopagis placens accola BANGS, Proc. New England Zoöl. Club, vol. 3, Jan. 30, 1902, p. 35. (Boquete, Chiriquí.)

This is primarily a forest species, found from the lower undergrowth to the intermediate branches of the higher trees, though I saw it occasionally in the platano plantations, in more open localities along the forest trails, and in fruiting trees with other small birds. It moves methodically among the smaller twigs, usually alone, and is often overlooked because its greenish and yellowish colors are not at all conspicuous in the subdued light of its forest haunts. There is seldom any hint of the brilliant orange of the crest until the bird is in the hand. It was fairly common.

The 12 skins taken on Coiba agree in color with birds from Chiriquí.

SUBLEGATUS ARENARUM ARENARUM (Salvin): Scrub Flycatcher, Moñona Ceniza

Elainea arenarum SALVIN, Proc. Zool. Soc. London, August 1863, p. 190. (Puntarenas, Costa Rica.)

These flycatchers were found in scrub growth back of the beaches, and in the border of mangroves, never in the densely shaded high forest. They were encountered alone, resting on leafy twigs, or occasionally feeding in fruiting trees with other birds. They moved quietly among the thickets, flying across small openings with undulating flight, and were silent. Though not timid it was difficult to see them because of their subdued colors.

The over-all similarity in color in this species throughout its extensive range makes careful study necessary to determine the geographic races. Twelve years ago, when I was studying collections

from San José and Pedro González Islands in the Perlas group, the comparative material available from the mainland and from Colombia was so meager that my identification of skins from the island localities as *arenarum* was purely tentative. In the interim a fair series has been assembled through my own work in Panamá and through the collections made by M. A. Carriker, Jr., across northern Colombia, so that now it is possible to deal with these birds with some certainty.

In brief, the 19 skins from Panamá now at hand are quite uniformly gray on the dorsal surface, clear, light gray on the chest and foreneck, and paler yellow on the sides, with the axillars somewhat more yellow, being similar in these colors to typical *S. a. arenarum* from southwestern Costa Rica. The six obtained from Coiba Island agree with *arenarum,* as do also two from Taboguilla Island. The mainland series, which is uniform, includes skins from the eastern side of the Azuero Peninsula (Paris, Parita, Monagrillo, Los Santos), Canal Zone (Farfan, Corozal) and the eastern half of the Province of Panamá (Chico, Chepo, Majé).

The race *S. a. atrirostris* (Lawrence), with type locality Cartagena, northern Bolívar, Colombia, compared with *arenarum,* has the dorsal surface darker, slightly olive-gray, the crown cap slightly darker, and the sides darker, more grayish yellow. The fresh material now at hand in the National Museum collections includes a pair of topotypes from Cartagena, and a series of 12 others from Bolívar and northern Magdalena. The 10 adults that I took on San José and Pedro González Islands, Archipiélago de las Perlas, in 1944 agree with *atrirostris* and are so identified. They would seem therefore to represent an ancient establishment of the species, perhaps from the time when the formicariid *Formicivora grisea,* common across northern Colombia but found nowhere on the mainland of Panamá, also reached the same islands.

CAMPTOSTOMA OBSOLETUM (Temminck): Southern Beardless Flycatcher, Moñona Lampiña

Muscicapa obsoleta Temminck, Nouveau recueil de planches coloriées d'oiseaux, livr. 46, 1824, pl. 275, fig. 1. (Curytiba, Paraná, Brasil.)

The moñona lampiña is so small that it is probably more common on Coiba than is indicated by the four specimens obtained. One of these was secured in high virgin forest, the others in or near the mangroves along the beaches. Apparently they range across the high forest crown, as well as in the lower growth. They move rather quietly among the leaves, and when they fly usually disappear behind

cover. The Coiba specimens are so much darker than those of the adjacent mainland that they require a name.

CAMPTOSTOMA OBSOLETUM ORPHNUM subsp. nov.

Characters.—Similar to *Camptostoma obsoletum flaviventre* Sclater and Salvin,[19] but darker, more olive, above, particularly on the crown.

Description.—Type, male, Isla Coiba, Panamá, collected Jan. 29, 1956, by A. Wetmore (orig. No. 20521): Pileum and upper hindneck Chaetura black, the tips of the longer feathers edged lightly with deep olive; lower hindneck, back, and scapulars deep olive; rump and upper tail coverts grayish olive; wing coverts and remiges blackish mouse gray; lesser wing coverts edged lightly with deep olive; middle and greater wing coverts tipped with white, forming two well-marked wing bars; tertials edged narrowly with white; secondaries edged lightly with Marguerite yellow; rectrices dark mouse gray, edged faintly with deep olive toward the base, and tipped narrowly with dull white; throat and upper foreneck dull white; lower foreneck and chest primrose yellow, changing to dull naphthalene yellow on lower breast and abdomen; sides of breast grayish olive; under tail coverts, edge of wing, and under wing coverts Marguerite yellow, the outer series of the last-mentioned being mouse gray centrally; inner webs of primaries and secondaries edged narrowly with dull white. Bill fuscous, except for the base of the mandible, which is wood brown, and the gape, which is honey yellow; tarsus and toes dull black (from dried skin).

Measurements.—Males (2 specimens), wing 52.0-52.1 (52.0), tail 39.2-39.3 (39.2), culmen from base 9.9-10.1 (10.0), tarsus 13.2-13.9 (13.5) mm. Females (2 specimens), wing 47.1-47.2 (47.1), tail 35.0-35.2 (35.1), culmen from base 9.7-10.4 (10.0), tarsus 13.6-14.0 (13.8) mm.

Type, male, wing 52.0, tail 39.3, culmen from base 9.9, tarsus 13.9 mm.

Range.—Isla Coiba, off the Pacific coast of Veraguas, Panamá.

Remarks.—Darker coloration sets the four specimens of this race off definitely from the series of 37 *Camptostoma o. flaviventre* that I have had available for comparison. In addition the bill appears very faintly larger, a minor difference that perhaps would disappear in a larger series of measurements, since it is equaled by the larger specimens of *flaviventre.*

The subspecific name is taken from the Latin *orphnus,* dark, dusky.

[19] *Camptostoma flaviventre* P. L. Sclater and O. Salvin, Proc. Zool. Soc. London, 1864 (February 1865), p. 358. (Panamá.)

LEPTOPOGON AMAUROCEPHALUS Tschudi: Brown-capped Leptopogon, Moñona Coronimorena

Leptopogon amaurocephalus TSCHUDI, Fauna Peruana, Aves, 1846, p. 162. (São Paulo, Brasil.)

These birds were found on only two occasions, on January 31 and February 3, inland in high forest, on a broad ridge at about 500 feet elevation. On the first day two moved rather slowly through the middle branches, where it was difficult to see them in the dim light filtering through the leaves high overhead. One, that in the hand proved to be a male in breeding condition, called at intervals, a low trilling *pree-ee-ee,* while it trembled its partly open wings. On the second occasion another breeding male was taken in the same general area as it moved quietly among the branches above the higher undergrowth. In life, from this limited observation, there was little to distinguish these birds from the orange-crested elaenia (*Myiopagis viridicata*) that also ranged in this dimly lighted zone in the forest, as the two are quite similar in form and movement. In the hand, the relatively small feet of the leptopogon immediately attract attention.

Following is a description of bill, feet, and eyes taken from the adult male shot January 31: Iris light brownish yellow; maxilla and tip of mandible dusky neutral gray; base of mandible dull Marguerite yellow; tarsus and toes neutral gray; claws fuscous. I was interested to note that the elongated median apterion, characteristic of birds of this and related groups, found down the center of the expanded dorsal feather tract, was so narrow that close scrutiny was required to distinguish it.

The two specimens differ so definitely from the race of this species found on the mainland of Panamá that I have no hesitance in describing the Coiba Island bird as a race new to science.

LEPTOPOGON AMAUROCEPHALUS IDIUS subsp. nov.

Characters.—Generally similar to *Leptopogon amaurocephalus faustus* Bangs [20] but decidedly grayer throughout; much paler yellow below, and more grayish green above; no prominent dark area on the auriculars; wing bars paler; under wing coverts lighter.

Description.—Type, U.S.N.M. No. 460975, male, Isla Coiba, Panamá, collected Feb. 3, 1956, by A. Wetmore (orig. No. 20587): Small feathers immediately behind nostrils dull white; pileum clove brown, the feathers margined indistinctly with sepia; hindneck, back, scapulars, and rump grayish grape green; upper tail coverts light

[20] *Leptopogon amaurocephalus faustus* Bangs, Auk, vol. 24, no. 3, July 1907, p. 300. (Boruca, Costa Rica.)

brownish olive; lesser wing coverts grape green; middle and greater coverts varying from hair brown to Chaetura drab, tipped with dull cream-buff to form two prominent wing bars; outer web of the large alula buffy brown; primaries and secondaries Chaetura drab, with the outer web edged with light yellowish olive; innermost tertial light brownish olive at tip and in a narrow line along shaft, varying through cream-buff to cartridge buff on the outer margins of the webs; rectrices dull light brownish olive, with the outer webs margined lightly with buffy olive; anterior lores deep olive-buff, with the bristly feather tips dark neutral gray; loral area immediately in front of the eye indistinctly hair brown, with shaft lines of dull Marguerite yellow; anterior segment of eye ring dull chamois, posterior segment dull Marguerite yellow, produced slightly as an indistinct line behind the eye; side of head grayish olive, the tips of the feathers very faintly darker, and the shafts faintly paler, not, however, producing a distinct patch or spot; throat and upper foreneck light olive-gray, with the sides of the feathers spotted indefinitely with dull Marguerite yellow, producing an appearance of irregular streaks: lower foreneck and chest light grayish olive, washed with light yellowish olive; lower breast, abdomen, and under tail coverts primrose yellow, becoming Marguerite yellow at sides of abdomen; sides dull vetiver green merging gradually into the lighter color of lower breast and abdomen; edge of wing dull colonial buff; under wing coverts between cartridge buff and cream-buff; inner webs of secondaries cream-buff, becoming light vinaceous-buff in the inner webs of the secondaries. Bill dusky neutral gray, becoming dull olive-buff on the mandibular rami; tarsus and toes fuscous (from dried skin).

Measurements.—Males (2 specimens), wing 64.3-65.3, tail 57.4-57.5, culmen from base 13.7-13.8, tarsus 14.4-14.5 mm. (The first measurement in each case is that of the type.)

Range.—Isla Coiba, off the Pacific coast of Veraguas, Panamá.

Remarks.—Endemism found in the birds of Coiba Island, where these differ subspecifically from their respective mainland populations, is expressed in the main in definitely darker coloration, or in greater extension of the more heavily pigmented part of the plumage pattern. It is therefore of especial interest to note in the present bird a paler, grayer appearance when it is compared with its nearest mainland congener. Actually the two skins from Coiba are more similar in appearance to *L. a. orenocensis* Zimmer and Phelps from the Río Orinoco in southern Venezuela, from which however they are easily separated by lighter color.

The specific name is taken from the Greek, ἴδιος, peculiar, distinct.

PIPROMORPHA OLEAGINEA LUTESCENS Griscom: Ochre-bellied Flycatcher, Moscareta Vientre Canelo

Pipromorpha oleaginea lutescens Griscom, Amer. Mus. Nov., No. 280, Sept. 10, 1927, p. 9. (Santa Fé, Veraguas.)

These small birds rest on open perches in the tops of the undergrowth, or in the lower branches of trees. As they are found in shaded forest, their subdued colors make them inconspicuous in their shadowed haunts, particularly since they tend to rest quietly for minutes at a time. On Coiba I saw them in heavy forest, and in more open woodland behind the mangroves.

The four specimens from Coiba are very faintly duller green above than mainland examples. The three males also have very slightly longer wings and tails than those from Veraguas and eastern Chiriquí. The differences however are too tenuous to warrant a name.

Family Hirundinidae: Swallows

PROGNE CHALYBEA CHALYBEA (Gmelin): Gray-breasted Martin, Golondrina de Iglesia

Hirundo chalybea Gmelin, Systema naturae, vol. 1, pt. 2, 1789, p. 1026. (French Guiana.)

The gray-breasted martin was seen regularly in and around dead trees standing in the clearings behind the convict camps, or flying about the plantations of coconut palms. On February 4, while in a cayuco a mile offshore and to the south of Isla Ranchería, one flew past in a line that led back to distant Isla Canal de Afuera, indicating that these birds of strong flight cross easily between the widely separated islands of these waters. Three males in nonbreeding stage were prepared as specimens.

HIRUNDO RUSTICA ERYTHROGASTER Boddaert: Barn Swallow, Golondrina de Paso

Hirundo erythrogaster Boddaert, Table des planches enluminéez, 1783, p. 45. (French Guiana.)

The barn swallow, an abundant migrant and visitor from the north on the mainland of Panamá, appears to wander over the adjacent waters. On Coiba Island I collected a female bird from the telephone wire near Bajo España January 12. Another appeared January 25 at the Colonia Central during a rain, and January 27 I saw two near the mouth of the Río Cativa. Since I had these areas under regular observation and saw no others, it appears that these swallows are of only casual occurrence.

IRIDOPROCNE ALBILINEA (Lawrence): Mangrove Swallow, Golondrina Manglatera

Petrochelidon albilinea LAWRENCE, Ann. Lyc. Nat. Hist. New York, vol. 8, May 1863, p. 2. (Atlantic slope near the Panama Railroad, Canal Zone, Panamá.)

These small swallows, of pleasing color in their contrast of white lower surface and rump and steely blue-green head, wings, tail, and back, are found always near or over water. On Coiba I recorded two January 27 on the flats laid bare by the tide at the mouth of the Río Cativa1, and February 2 I collected a pair flying over a wet meadow at Bajo España.

A race of the mangrove swallow has been described by van Rossem [21] from southern Sonora with range south to Nayarit. I am not able to recognize this from the fair series in the National Museum and the American Museum of Natural History. The material that should represent *rhizophorae* includes seven specimens from southern Sinaloa (Mazatlán, Los Lates near Rosario, Escuinapa) and seven from near the coast of Nayarit (Tuxpan, San Blas). From Panamá, the type locality of *albilinea,* there is a good series, including birds collected personally that I know to be breeding, so that with these the possibility of migrants from northwestern México is eliminated. Three birds from Los Lates near Rosario, Sinaloa, in freshly molted dress, are very distinctly greenish above, being equaled in this only by a skin in similar stage from Aguadulce, Province of Coclé, Panamá. As the season advances the dorsal color, through wear, becomes steadily bluer. A pair from the Río San Pablo, near Soná, Veraguas, Panamá, that represent the breeding stock of that area, are slightly bluer than any I have seen from Sinaloa, so that the difference in darker blue of the northern birds, listed by van Rossem, does not hold.

The distinction of greater amount of frontal and loral white proposed as one of the prominent characters of the northwest Mexican race varies decidedly in the Panamanian series, several from the latter group being as white as the northern birds, others less so. In some the frontal feathers are pure white at the base, this color becoming exposed by wear. Specimens with this character include birds shot in Panamá December 16, February 2 and 23, May 29, and June 2, so all of them could not be considered migrants from the north. There is similar individual variation in the rump color, and in size of the bill. I am forced to conclude that the population of northwestern México may not be separated by name.

[21] *Iridoprocne albilinea rhizophorae* van Rossem, Proc. Biol. Soc. Washington, vol. 52, Oct. 11, 1939, p. 155. (Tóbari Bay, Sonora.)

The status of the little-known *Iridoprocne stolzmanni* (Philippi), described from the coast of Perú, also requires further study, since the characters ascribed to it appear to represent such a considerable difference from *albilinea,* that it should be treated as a separate species. I have therefore listed the Panamanian birds under the specific name, since no subspecies are apparent.

Family Troglodytidae: Wrens

TROGLODYTES AEDON Vieillot: House Wren, Ruiseñor

Troglodytes aedon Vieillot, Histoire naturelle des oiseaux de l'Amérique septentrionale, vol. 2, 1807 (1808?), p. 52, pl. 107. (New York, N. Y.)

The house wren was widely distributed since on Coiba it is a forest inhabitant, as it is on the islands in the Archipiélago de las Perlas.

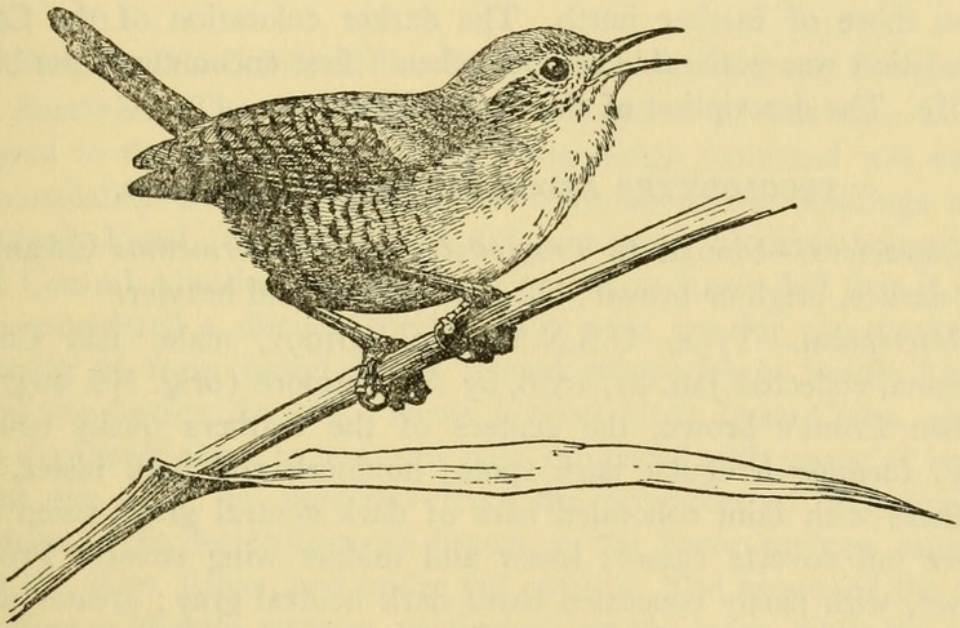


Fig. 9.—House Wren, Ruiseñor.

It was common in the brush near the beach line, also in the swampy woods back of the mangroves, and was encountered regularly throughout the high interior forest. Normally, I found the birds around fallen trees or in masses of vines in the undergrowth. When they ranged occasionally in the higher branches this seemed to be unusual. In the forest areas they were shy and often difficult to find, though they might call near at hand; but they had learned to come about the buildings of the headquarters and the penal camps to search around the roofs and walls and the crowns of the coconut palms, and then were more confiding.

It has long been my opinion that the southern house wrens are better songsters than their representatives in the United States, as their songs include fewer harsh, rattling sounds, and the bird on Coiba definitely excells its mainland relatives. Their rolling, trilling notes were pleasing to the highest degree, and as they sang regularly their music was a constant delight to me, both in my morning excursions afield, and in the afternoons when I was occupied in our quarters. The birds truly merited their name of ruiseñor, borrowed from the nightingale, famous for its song in Spain. The wrens were nesting at this season, and well-grown fledglings were brought to me on January 26.

With the considerable increase in information in recent years on house wrens as a group there is no longer reason or value for the separation of the southern races under the specific name *musculus,* since there is no clear-cut character that distinguishes these birds from those of farther north. The darker coloration of the Coiba population was noticeable at once when I first encountered the birds in life. The description of this race follows.

TROGLODYTES AEDON CARYCHROUS subsp. nov.

Characters.—Similar to *Troglodytes aedon intermedius* Cabanis,[22] but darker, brighter brown; bill much larger and heavier.

Description.—Type, U.S.N.M. No. 461091, male, Isla Coiba, Panamá, collected Jan. 21, 1956, by A. Wetmore (orig. No. 20373): Crown Prout's brown, the centers of the feathers dusky neutral gray, forming irregular dark spots; hindneck and back bister, the feathers with faint concealed bars of dark neutral gray; rump and upper tail coverts russet; lesser and middle wing coverts Prout's brown, with partly concealed bases dark neutral gray; greater wing coverts and outer webs of secondaries russet, barred with dusky neutral gray; primaries dull black, barred narrowly on outer webs with clay color; tail Mars brown, becoming Verona brown on the outer rectrices, barred narrowly and irregularly with dull black; lores pinkish buff, the feathers with very faint tippings of Saccardo's umber; circlet of feathers around edges of eyelids pinkish buff; an indistinct superciliary, more plainly indicated behind the eye, dull cinnamon-buff, bordered below, behind the eye, by a line of bister; rest of side of head dull pinkish buff, with the feathers tipped and edged narrowly with bister; throat, upper foreneck, and abdomen

[22] *Troglodytes intermedius* Cabanis, Journ. für Orn., vol. 8, 1860 (May 30, 1861), p. 407. (San José, Costa Rica.)

white, washed with pinkish buff; sides of neck and breast pinkish buff; sides tawny-olive; flanks sayal brown bordering abdomen, changing to snuff brown toward the rump, barred faintly and sparingly with neutral gray; under tail coverts clay color, barred broadly with dusky neutral gray; under surface of tail olive-brown, with indistinct bars of dark neutral gray; edge of wing and under wing coverts pinkish buff, the latter white distally. Maxilla fuscous-black; tip of mandible hair brown, base pale olive-buff; tarsus and toes dark hair brown (from dried skin).

Measurements.—Males (11 specimens), wing 51.5-53.5 (52.2), tail 34.0-37.1 (35.5), culmen from base 16.9-19.1 (17.8), tarsus 18.6-20.5 (19.4) mm. Females (2 specimens), wing 49.0-50.1 (49.5), tail 31.5-33.2 (32.3), culmen from base 17.3-17.4 (17.3), tarsus 19.4-19.9 (19.6) mm.

Type, male, wing 52.4, tail 35.2, culmen from base 17.8, tarsus 19.1 mm.

Range.—Isla Coiba, off the Pacific coast of Veraguas, Panamá.

Remarks.—The decidedly darker coloration of this race as compared to the house wren of the Panamanian mainland was evident immediately when I first saw the birds about the buildings at the Colonia Penal. In fact, it is so different from the other house wrens of Central America not only in color but in larger bill that it might be considered a distinct species, if it were not for the marked diversity of form found in the related subspecies in South America and the Lesser Antilles. Three juvenal birds from Coiba, secured as they were about to leave the nest, compared with young of equivalent age of *T. m. inquietus* from the provinces of Veraguas and Panamá, are decidedly more brown on the lower surface, especially on the sides, flanks, and under tail coverts. The brown of the upper surface is slightly warmer, particularly on the rump, while the crown is slightly darker than the back instead of equivalent in color. Compared with juvenals of *T. m. intermedius* from Costa Rica the Coiba birds are more similar but differ in somewhat warmer brown on the sides, flanks, and under tail coverts, lighter, brighter color on the rump, and darker crown color.

The new form in color, as indicated in the diagnosis, appears somewhat similar to *T. m. intermedius,* but has the bill very much larger and heavier.

The subspecific name *carychrous* is taken from the Greek καρύχροος, nut brown.

Family TURDIDAE: Thrushes

TURDUS ALBICOLLIS COIBENSIS Eisenmann: White-throated Robin, Zorzal Gargantiblanco

Turdus assimilis coibensis EISENMANN, Auk, vol. 67, No. 3, July 1950, p. 365. (Coiba Island, Panamá.)

The white-throated robin is the most common bird in the forest undergrowth, ranging into the intermediate branches of the trees, but

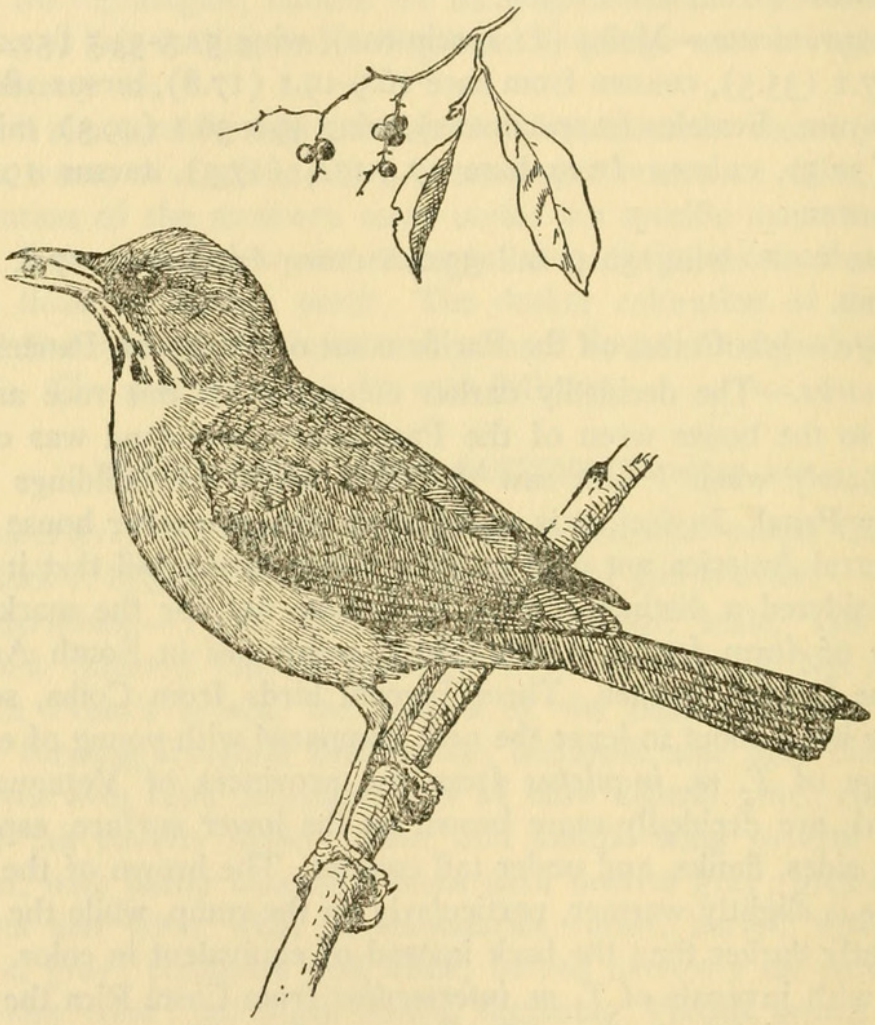


FIG. 10.—White-throated Robin, Zorzal Gargantiblanco.

seldom going higher. They were encountered from the borders of the mangroves inland, but always in forest cover. One was taken on Isla Ranchería February 4. Sometimes, when I called with the usual "squeaking" technique, as many as a dozen came flying into the branches about me, where they remained motionless until they detected some movement, when they flew to some denser cover. Their flight is direct and rapid. When at all alarmed they remain closely hidden among leaves, more often in the lower undergrowth than in higher cover. It was interesting to find them common in these

tropical lowlands, since elsewhere in Panamá the species inhabits the mountain areas in the high tropical or subtropical zone, though there are exceptions, as for example at San Félix in eastern Chiriquí, where I found them at an elevation of a little over 100 meters.

On Coiba, as elsewhere, these robins came to feed in berry-bearing trees, and at such times might range much higher above the ground than is their normal custom. Occasionally I noted them searching for food among dry, fallen leaves on the forest floor. Often I heard their complaining notes from the undergrowth, a low whining *pree-ee-er* or a slightly harsher *chur-r-r.* In the latter part of January they began to sing, the song suggesting that of the mainland clay-colored robin (*Turdus grayi casius*), but with notes higher and delivery slower.

As Dr. Eisenmann remarked in his original description, this race, peculiar to Coiba, is most similar in color and size to *Turdus a. daguae,* found from the highlands of eastern Darién through western Colombia to northwestern Ecuador. *T. a. coibensis* is larger, more olive above and grayer below, with the unmarked white area on the foreneck less in extent. The Coiba form is completely different from *T. a. cnephosus* of western Panamá, which is its near neighbor geographically, that bird being decidedly grayer above and on the sides, whiter on the abdomen, and decidedly larger. In life the bare edge of the eyelid in *coibensis* is dull yellow, as it is in the mainland race.

Since *coibensis* was described from only two specimens it is useful to give measurements from the series that I collected:

Males (8 specimens), wing 107.5-117.5 (111.7), tail 76.8-89.1 (84.0), culmen from base 20.5-22.9 (21.6), tarsus 29.7-31.8 (30.4) mm. Females (6 specimens), 108.0-113.4 (112.1), tail 79.5-86.8 (82.6), culmen from base 21.0-23.3 (22.2), tarsus 29.0-31.0 (30.3) mm.

As material of these white-throated robins has accumulated in museums, supposed distinct species have been found to merge, until now it is evident that there is no clear-cut line on which to divide them in the vast area between México and northern Argentina, though variation geographically is extensive. All are to be included under the specific name *Turdus albicollis.*

Family Sylviidae: Old World Warblers, Gnatcatchers

POLIOPTILA PLUMBEA (Gmelin): Tropical Gnatcatcher, Cazajején

Todus plumbeus Gmelin, Systema naturae, vol. 1, pt. 1, 1788, p. 444. (Surinam.)

This was another common species found in leafy cover that ranged indifferently from low second-growth thickets near the shore to the

summits of the tallest forest trees in the interior of the island. Invariably they were moving about among the twigs and leaves in unceasing activity in pursuit of tiny insects, often so high above the ground that I could barely detect their tiny forms. The slender body, with long, narrow tail held at an angle above the back, and their quick, nervous movements, mark them even when the gray and white plumage is not clearly seen. I found them in pairs, and near breeding at this season. January 21 one male was much excited by

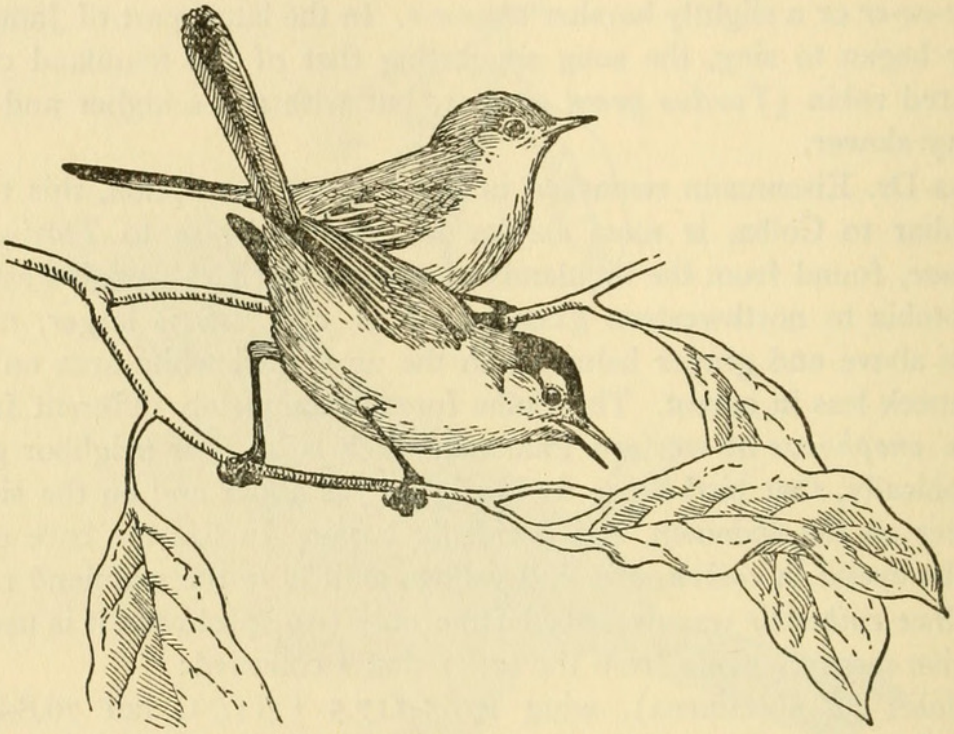


FIG. 11.—Tropical Gnatcatcher, Cazajején.

my squeaking, and came to perch within a dozen feet of me while it sang repeatedly a series of high-pitched notes of the usual gnatcatcher quality, barely audible to my aging ears, mingled with beautifully clear, warbling phrases of much louder sound that would have graced the gifted song of a mockingbird.

Darker coloration separates the birds of Coiba definitely from their mainland neighbors, as shown by the following description.

POLIOPTILA PLUMBEA CINERICIA subsp. nov.

Characters.—Similar to *Polioptila plumbea bilineata* (Bonaparte)[23] but dorsal surface, including the wings, decidedly darker gray; lower

[23] *Polioptila bilineata* Bonaparte, Conspectus generum avium, vol. 1, 1850, p. 316. (Cartagena, Colombia.)

foreneck and breast gray (instead of white as in *bilineata*); sides darker gray; bill averaging broader.

Description.—Type U.S.N.M. No. 461129, male, Isla Coiba, Panamá, collected Feb. 1, 1956, by A. Wetmore (orig. No. 20558): Pileum, hindneck, and upper parts of sides of neck black, with a tiny white feather or two behind the nostril; back, scapulars, rump, and wing coverts somewhat darker than slate-gray; tips of the gray upper tail coverts faintly white; primaries and secondaries dusky neutral gray, with outer webs edged with slate-gray, except for the two outer primaries; tertials edged broadly with white on outer webs, the edging becoming pale neutral gray toward the tip; tail black centrally, the two outermost rectrices white, except for the base, the next ones tipped broadly, and the fourth narrowly, with white; lores and a broad superciliary white; eye ring black on lower eyelid, white on upper; a conspicuous black line extending from the eye to the back of the nape; rest of side of head, throat, ventral area of sides of neck, abdomen, and under tail coverts white; lower foreneck, breast, and sides pale neutral gray; edge of wing white, mixed with dusky neutral gray; under wing coverts, and inner webs of primaries and secondaries, toward the base, white. Maxilla and tip of mandible dusky neutral gray; base of mandible neutral gray, becoming pallid neutral gray from the anterior part of the gonys back along the lower margins of the rami; tarsus and toes black (from dried skin).

Measurements.—Males (9 specimens), wing 46.2-49.7 (48.5), tail 41.8-46.3 (44.1), culmen from base 13.0-14.9 (14.0), tarsus 16.6-17.8 (17.2) mm. Females (6 specimens), wing 45.1-47.4 (46.6), tail 41.9-45.3 (44.0), culmen from base 13.8-14.8 (14.4), tarsus 16.2-17.5 (17.0) mm.

Type, male, wing 49.7, tail 44.9, culmen from base 14.7, tarsus 16.9 mm.

Range.—Isla Coiba, off the Pacific Coast of Veraguas, Panamá.

Remarks.—Females, like the males, differ from the same sex of *bilineata* in darker color above. Below, the distinction is less striking, but still is evident.

In citing these birds as races of *Polioptila plumbea* I have followed current usage, though not entirely satisfied that this is the proper treatment. The birds of this section of the genus are in need of detailed study.

The subspecific name of the race described above is from the Latin *cinericius,* ash colored.

Family Cyclarhidae: Pepper-Shrikes

CYCLARHIS GUJANENSIS COIBAE Hartert: Yellow-breasted Pepper-shrike, Pájaro Perico

Cyclorhis coibae Hartert, Bull. Brit. Orn. Club, vol. 12, Dec. 30, 1901, p. 33. (Coiba Island, Panamá.)

The pepper-shrike was fairly common but on my arrival at the beginning of the dry season their songs had become infrequent, and without these notes as a guide they are difficult to find. While they are robust in body, they move about behind leafy cover in such leisurely manner, resting for minutes with only slight movements of

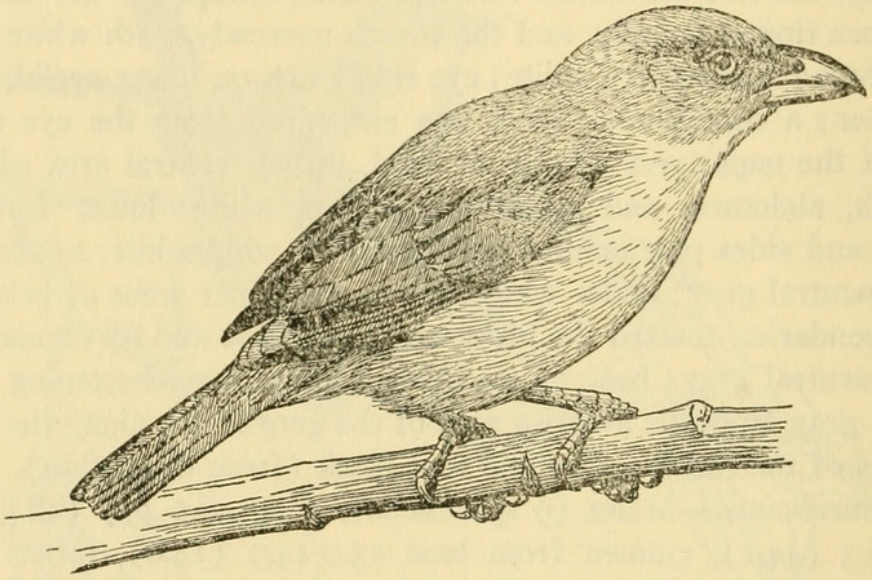


Fig. 12.—Yellow-breasted Pepper-shrike, Pájaro Perico.

the head, that it is only casually that one is seen. They are birds of the high forest crown, but come also about clearings, even into the low second growth called rastrojo, or to the borders of mangrove swamps. At the María work camp I found one feeding in mango trees and cocoanut palms standing isolated in the extensive clearing.

The song is loud with strongly accented notes, and ends abruptly, when there is a pause of varying length, often of several minutes, before it is repeated. The first two or three syllables are uttered rather slowly, followed by a rapidly given louder phrase. The notes carry for several hundred yards, and, if the song is continued, eventually the bird may be located, though the process of finding one may require half an hour. The three males that I collected represent many hours of search, since, as already stated, during January the birds were not singing steadily.

In the original description, written 55 years ago, when relatively few specimens were available, Hartert compared the Coiba bird with the race of Cozumel Island, off the coast of Quintano Roo, México, which was suggested by the duller colors of *coibae*. Actually, the subspecies of Coiba Island is more closely similar to the forms of the Panamanian mainland from which it differs in very decidedly darker, duller colors, the breast and sides being distinctly greenish instead of bright yellow, the dorsal surface duller green, and the crown browner.

A male taken February 3 had the soft parts colored as follows: Iris wax yellow; maxilla mouse brown; mandible neutral gray; tarsus and toes avellaneous. Following is a summary of measurements based on males, including the two in the type series, now in the American Museum of Natural History. No females have been collected.

Males (5 specimens), wing 70.4-73.0 (71.8), tail 51.7-53.4 (52.5), culmen from base 17.5-18.6 (18.1), tarsus 20.7-23.1 (21.8) mm.

The type specimen, taken by Batty April 20, 1901, an immature bird as is shown by the dark, almost black, bill, is browner on the crown than adult specimens. The Batty collection contains another skin (Amer. Mus. Nat. Hist. No. 505408) labeled "Hicaron Island, ♂, Jan. 14, 1902." As this is an unmistakable specimen of *Cyclarhis gujanensis subflavescens,* found in the lower mountains of Chiriquí, the locality given certainly is erroneous. Isla Jicarón lies immediately to the south of Coiba, distant about 4 miles, with Coiba between it and the mainland, so that if *Cyclarhis* occurs there it would be expected to find it the same as, or at least closely allied to, *C. g. coibae.*

Family Vireonidae: Vireos

VIREO FLAVOVIRIDIS (Cassin): Yellow-green Vireo, Julián Chiví

The yellow-green vireo reached Coiba on its return from "winter" quarters in northern South America on January 19, when a small flight arrived, so that singing males were scattered at sunrise through the woods along the Punta Damas trail. Two days later several were found in the low forest back of the beach near the mouth of the Río Catival, and from that time they were recorded almost daily throughout the forest, ranging in the high tree-crown area of the taller trees as well as in the lower woodland near the river mouths. They were common on Isla Rancheriá February 4. Two races are represented in the eight specimens taken.

VIREO FLAVOVIRIDIS FLAVOVIRIDIS (Cassin)

Vireosylva flavoviridis CASSIN, Proc. Acad. Nat. Sci. Philadelphia, vol. 5, June 30, 1851, p. 152, pl. 11. (San Juan, Nicaragua.)

Four from Isla Coiba were shot January 20, 29, 30, and 31. One secured January 29 in high forest was evidently on its breeding ground as it was displaying and pursuing another.

The problem of the identity of the yellow-green vireos that breed in western Panamá still is not clear. The birds available that appear to have been on their nesting grounds, including those from Coiba, seem brighter colored than *V. f. insulanus* from the islands in the Gulf of Panamá, the Canal Zone, and the area to the eastward. They thus seem closer to typical *flavoviridis,* and are so identified.

VIREO FLAVOVIRIDIS HYPOLEUCUS van Rossem and Hachisuka

Vireo olivaceus hypoleucus VAN ROSSEM and HACHISUKA, Proc. Biol. Soc. Washington, vol. 50, Sept. 30, 1937, p. 159. (1,200 feet elevation in San Francisco Canyon, lat. 27° N., eastern Sonora, México.)

The two birds taken on January 19, on the first day of the return of this vireo from the south, have the characters of this race, particularly in the lighter, brighter yellowish green of the sides and flanks. They thus resemble the breeding bird of northwestern México, and are so identified.

VIREO PHILADELPHICUS (Cassin): Philadelphia Vireo, Virio de Filadelfia

Vireosylvia philadelphica CASSIN, Proc. Acad. Nat. Sci. Philadelphia, vol. 5, June 30, 1851, p. 153, pl. 10, fig. 2. (Philadelphia, Pa.)

A female of this migrant from the north was shot January 23 at the border of a mangrove swamp.

HYLOPHILUS FLAVIPES Lafresnaye: Scrub Greenlet, Verdecillo Común

Hylophilus flavipes LAFRESNAYE, Rev. Zool., vol. 8, September 1845, p. 342. (Bogotá, Colombia.)

These were among the more common of the small birds, though seen infrequently because they ranged among screening leaves and creepers. They were found in the scrub growths back of the beaches and at the borders of mangroves, and came also into the brushy rastrojo of old fields, habitats similar to those inhabited by other forms of the species in mainland localities. On Coiba I found that they lived also in the high crown of the inland forests, though it was near the end of my stay before I verified this, owing to the difficulty of detecting small birds in such situations. They move actively among

the leaves and twigs, almost as quickly as wood warblers, and when seen often appear very close at hand. Occasionally I found them feeding on small drupes of fruiting trees. The yellowish-white iris of the adult birds is often apparent as they climb and hop among the smaller branches. The darker colored immature birds have dark eyes. The song, given in low tones, usually has three similar notes, *swee, swee, swee,* which are easily imitated by whistling.

The birds of Coiba described below are so much darker than the nearby mainland race that they might almost be treated as a distinct species.

HYLOPHILUS FLAVIPES XUTHUS subsp. nov.

Characters.—Similar to *Hylophilus flavipes viridiflavus* Lawrence [24] but bill heavier; much darker below, being definitely buffy instead of yellow; sides decidedly darker; darker green above.

Description.—Type, U.S.N.M. No. 461170, male, Isla Coiba, Panamá, collected Jan. 11, 1956, by A. Wetmore (orig. No. 20155): Pileum, hindneck, back, and scapulars dark citrine; rump citrine; wing coverts dull citrine; primaries and secondaries Chaetura black, the outer webs edged with serpentine green; tail olive-citrine; lores faintly olive-buff; sides of head citrine-drab; chin dull white; throat and upper foreneck light yellowish olive, merging with the light olive lake of the chest; lower breast, abdomen, and under tail coverts between primuline yellow and wax yellow; flanks between strontian yellow and yellowish citrine; edge of wing, under wing coverts, and margins of inner webs of remiges barium yellow. Maxilla buffy brown; mandible deep olive-buff; tarsus and toes wood brown (from dried skin).

Measurements.—Males (7 specimens), wing 55.8-58.3 (57.5), tail 47.0-50.9 (48.4), culmen from base 14.3-15.0 (14.7), tarsus 17.4-19.0 (18.6) mm. Females (6 specimens), wing 54.4-56.7 (55.9), tail 45.2-49.3 (47.8), culmen from base 14.6-16.1 (15.1), tarsus 18.2-19.4 (18.6) mm.

Type, male, wing 57.9, tail 48.1, culmen from base 14.3, tarsus 17.4 mm.

Range.—Isla Coiba, off the Pacific coast of Veraguas, Panamá.

Remarks.—A juvenile female with wings and tail not quite fully grown is more highly pigmented than the adults, being darker above and below, with a wash of ochraceous-orange on the abdomen and

[24] *Hylophilus viridiflavus* Lawrence, Ann. Lyc. Nat. Hist. New York, vol. 7, 1861, p. 324. (Atlantic slope near Panama Railroad, Canal Zone, Panamá.)

under tail coverts, and a fainter indication of this color on the breast and back. The nearly grown bill in this bird is dark in color, and I noted that the iris was dark. Another female, fully grown, with light-colored bill, shows this same suffusion of ochraceous orange, and I believe that this also is immature. The bill is actually heavier at the base than in *viridiflavus* in addition to being slightly longer. In 15 males of *viridiflavus* the culmen from base varies from 13.1 to 14.2 mm., with an average of 13.6 mm. The iris in the adult *H. f. xuthus* is light colored, as in the other races of *flavipes*.

The subspecific name comes from the Greek ξουθός, brownish yellow, tawny.

Family Coerebidae: Honeycreepers

CYANERPES CYANEUS CARNEIPES (Sclater): Red-legged Honeycreeper, Azulito

Coereba carneipes P. L. Sclater, Proc. Zool. Soc. London, 1859 (February 1860), p. 376. (Playa Vicente, Oaxaca, México.)

Conditions on Coiba seem especially favorable to the blue honeycreeper as it is one of the more common birds. Dozens were found at flowering trees in the mangrove swamps, dozens about fruiting trees in the forests, and other dozens crowded the guayabo trees in the pastures, when these came into bloom at the close of January. The birds fly about in small bands, probe actively in flowers for nectar and small insects, and then may rest quietly on dead twigs for a brief period. They are birds of strong flight seen often passing over or through tall trees. As they pass overhead the blue color of the males is lost against the sky, and they appear black except for a flash of lighter color from the yellow of the underside of the wings.

Commonly, they are called verdón, a name that may apply to the female but is hardly applicable to the brilliant blue of the male.

COEREBA FLAVEOLA MEXICANA (Sclater): Common Honeycreeper, Reinita Común

Certhiola mexicana P. L. Sclater, Proc. Zool. Soc. London, pt. 24, 1856 (Jan. 26, 1857), p. 286. (Southern México.)

The active little yellow-breasted honeycreepers were common, though not so abundant as the blue species. They were distributed universally, ranging from the mangrove swamps and adjacent wet woodlands back into the high forest, and at times I saw them in shrubbery and palms around clearings. Males taken January 9 and

15 were in breeding condition, and the birds were observed building nests on January 27 and 30. One bird was taken and others seen on Isla Ranchería February 4.

The Coiba birds in series are very faintly darker when compared with skins from the Pacific slope of Panamá and Costa Rica, but are similar to specimens from Bocas del Toro. The heavier pigmentation common to Coiba residents thus is slightly indicated, but insufficiently to merit a name.

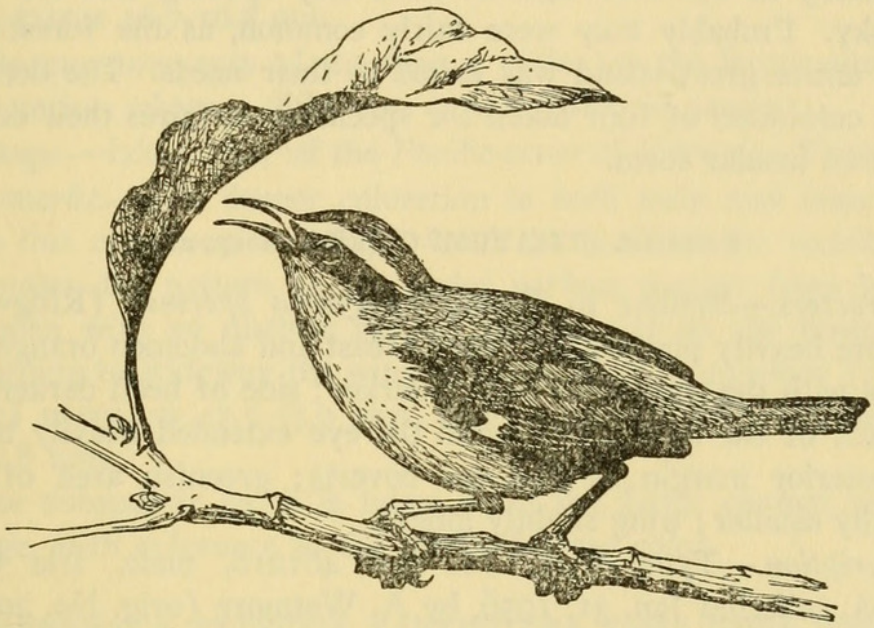


FIG. 13.—Common Honeycreeper, Reinita Común.

Family PARULIDAE: Wood Warblers

PROTONOTARIA CITREA (Boddaert): Prothonotary Warbler, Canario Protonotario

Motacilla citrea BODDAERT, Table des planches enluminéez, 1783, p. 44. (Louisiana.)

This handsome warbler, fairly common as a winter resident, was found near the sea, mainly in the mangroves and adjacent thickets, and also in the coconut palms. Specimens were collected January 8, 12, and 20.

VERMIVORA PEREGRINA (Wilson): Tennessee Warbler, Reinita Peregrina

Sylvia peregrina WILSON, American ornithology, vol. 3, 1811, p. 83, pl. 25, fig. 2. (Cumberland River, Tenn.)

This migrant warbler was seen January 12, 16 (specimen), and 28, in thickets near the sea.

PARULA PITIAYUMI (Vieillot): Tropical Parula Warbler, Mariquita

Sylvia pitiayumi VIEILLOT, Nouveau dictionnaire d'histoire naturelle, nouv. éd., vol. 11, June 21, 1817, p. 276. (Paraguay.)

On three occasions I saw pairs of these warblers moving quickly among leafy twigs in the high branches of tall forest trees, so high above the ground that they were barely within gunshot. Except for their restless movements they would never have been detected in the shaded light of these forest haunts. Only occasionally did they appear briefly in silhouette against some tiny opening that led to the open sky. Probably they were fairly common, as the forest cover of the entire great island was suited to their needs. The decidedly darker coloration of four taken for specimens requires their description as an insular form.

PARULA PITIAYUMI CIRRHA subsp. nov.

Characters.—Similar to *Parula pitiayuma speciosa* (Ridgway)[25] but more heavily pigmented; lower breast and abdomen orange, continuous with the chest color; sides darker; side of head darker, with the black of the lores and around the eye extended heavily beyond the posterior margin of the ear coverts; greenish area of back decidedly smaller; wing slightly longer.

Description.—Type, U.S.N.M. No. 461218, male, Isla Coiba, Panamá, collected Jan. 31, 1956, by A. Wetmore (orig. No. 20542): Line across forehead, lores, space about eye, and a narrow line on side of neck black; auricular area black, with an overwash of deep orient blue; forepart of crown Alice blue; back of crown and hindneck Columbia blue; back, scapulars, and upper tail coverts Tyrian blue to dark Tyrian blue; patch in center of back Roman green; rump cadet gray; lesser and middle wing coverts black basally, the tips Columbia blue; greater wing coverts black, edged with light Tyrian blue, except the central ones, which are edged and tipped with white to form a conspicuous spot; remiges black, edged with light Tyrian blue; rectrices also black, edged with light Tyrian blue, with a broad subterminal patch of white in the inner web of the two outermost; throat and upper foreneck lemon chrome; lower foreneck and chest light raw sienna, a light wash of this extending farther foreward toward the throat; lower breast and abdomen light cadmium, merging without a break into the darker color of the chest; feathers of sides bordering the chest black with the tips dark Tyrian blue; re-

[25] *Compsothlypis pitiayumi speciosa* Ridgway, Auk, vol. 19, No. 1, January 1902, p. 69. (Boquete, Chiriquí.)

mainder of sides and flanks Delft blue, with a wash of yew green where this meets the yellow of the abdomen; under tail coverts white, this color spreading to the posterior part of the flanks; under wing coverts and a narrow margin on inner webs of remiges white. Maxilla black; mandible colonial buff; tarsus and toes olive brown (from dried skin).

Measurements.—Males (2 specimens), wing 56.9-58.5, tail 40.5-41.7, culmen from base 12.8-12.8, tarsus 16.9-16.9 mm. Females (2 specimens), wing 53.5-54.7, tail 39.2-39.8, culmen from base 11.7-12.6, tarsus 16.7-16.8 mm.

The measurements of the type, a male, are the larger ones in the male series, where a difference in dimension is present.

Range.—Isla Coiba, off the Pacific coast of Veraguas, Panamá.

Remarks.—The deeper coloration in both male and female separates this new form strikingly from the birds of the mainland. In the males, the pattern of the under surface merges from breast to abdomen with no distinct line of demarcation in the central area. According to Ridgway the wing in males of *C. p. speciosa* (11 specimens) measures 47.5-55.0 mm., and in females (2 specimens) 47.5 to 51.8 mm.

The subspecific name is taken from the Latin *cirrhus,* yellowish orange, with reference to the predominating color.

DENDROICA PETECHIA XANTHOTERA Todd: Golden Warbler, Canario Mangletero

Dendroica bryanti xanthotera Todd, Proc. Biol. Soc. Washington, vol. 37, July 8, 1924, p. 123. (Puntarenas, Costa Rica.)

I found these warblers fairly common in growths of red mangroves on the shores of Bahía Damas, from the mouth of the Río Catival to near Boca Grande, beyond Playa Blanca, this being the area in which mangrove swamps were extensive. They did not range inland in stands of other forest as the allied *Dendroica p. aequatorialis* does on some of the smaller islands, e.g., on Taboguilla, and on San José and Pedro González in the Perlas group. On Coiba, during January these birds were in resting stage, some in molt, and were not singing. I found also that they would not decoy, though in the display and nesting period they come quickly to a squeak, so that my series of nine males and six females was obtained only by close and careful watching. Rarely I found one or two in low trees or shrubs immediately adjacent to the mangrove border, but most were obtained directly in the swamps.

While the Coiba series is listed under the subspecific name *xanthotera* this allotment for the present is tentative. For several years I have obtained specimens of this warbler wherever practicable. On the Pacific coast of Panamá birds that represent *D. p. aequatorialis* are available from the mouth of Río Majé, near the western boundary of Darién, west to the swamps of the Río Chame below Bejuco, at the western border of the Province of Panamá. Beyond this point, to the west, there is a different population. Specimens from the eastern side of the Azuero Peninsula, from the mouth of the Río Vidal, near the eastern boundary of Chiriquí, and from Isla Coiba, are intermediate between *aequatorialis* and *xanthotera.* Males resemble the latter in the darker brown of the head cap and the ventral streaking, and the former in the heavier streaking of the breast and sides, and the greater extension of the brown on the foreneck. They differ thus from *xanthotera* in the decidedly greater extent of the brown streaks and brown foreneck. It may be desirable to separate this intermediate population by name, but judgment on this is held until it has been possible to secure specimens from farther west, along the coasts of Chiriquí.

DENDROICA PETECHIA AESTIVA (Gmelin): Yellow Warbler, Canario de Paso

Motacilla aestiva GMELIN, Systema naturae, vol. 1, pt. 2, 1789, p. 996. (City of Quebec, Canada.)

While the yellow warblers of the United States and Canada are placed currently in the same species as the golden warblers of the American Tropics it is convenient to list them separately, and to recognize them as "yellow warblers" in the Republic of Panamá, where they are common during the period of northern winter, in order to distinguish them from the quite different resident canarios mangleteros. They were found in small numbers during my stay on Coiba, mainly in low growth back of the beaches, and bordering mangrove swamps, and also in abandoned fields grown to brush. The English name expresses the yellow color that marks them from others of like size as they appear momentarily among the leaves. When encountered in the swamps they may usually be distinguished from the golden warbler by smaller size and more active movements.

The seven taken include two geographic races, which ranged together. Specimens of the present subspecies were taken January 8, 11, 21, and 26.

DENDROICA PETECHIA AMNICOLA Batchelder

Dendroica aestiva amnicola BATCHELDER, Proc. New England Zoöl. Club, vol. 6, Feb. 6, 1918, p. 82. (Curslet, Newfoundland.)

The two secured were shot January 16 and 27. The present form is distinguished by darker color, particularly on the back.

DENDROICA PENSYLVANICA (Linnaeus): Chestnut-sided Warbler, Reinita de Lados Castaños

Motacilla pensylvanica LINNAEUS, Systema naturae, ed. 12, vol. 1, 1766, p. 333. (Philadelphia, Pa.)

Specimens of this warbler were taken January 12 and 29. No others were identified.

SEIURUS NOVEBORACENSIS NOTABILIS Ridgway: Northern Waterthrush, Pizpita Mangletera

Seiurus naevius notabilis RIDGWAY, Proc. U. S. Nat. Mus., vol. 3, 1880, p. 12. (Como Lake, Carbon County, Wyo.)

Waterthrushes ranged singly among the mangroves near the river mouths, and in the low shrubbery in the swampy areas adjacent at high tide when much of their usual range was covered with water. Their habit is to walk quickly along the ground with rapidly vibrating tail. When alarmed they call with a sharp note, and when flushed often light on logs or low branches, still continuing the nervous tail movement. It is this motion that brings them to attention as the dark dorsal surface matches the background over which they range.

The seven specimens taken from January 8 to 28 are all of this northern and western race.

OPORORNIS FORMOSUS (Wilson): Kentucky Warbler, Reinita Hermosa

Sylvia formosa WILSON, American ornithology, vol. 3, 1811, p. 85, pl. 25, fig. 3. (Kentucky.)

On January 19 I shot a female in low undergrowth along the Punta Damas trail.

SETOPHAGA RUTICILLA RUTICILLA (Linnaeus): American Redstart, Candelita

Motacilla Ruticilla LINNAEUS, Systema naturae, ed. 10, vol. 1, 1758, p. 186. (Virginia.)

Occasional individuals of this migrant were seen in high forest, moving about as actively as when in their northern nesting grounds. The bright patches of color in the tail and wings, yellow in females,

orange in males, that flash as they dart out or drop through the branches after flying insects, is attractive, and is the basis for the name in Spanish. Females collected January 19 and 21 have the lighter color that marks the typical race. Two adult males were secured January 13 and 15.

BASILEUTERUS DELATTRII Bonaparte: Chestnut-capped Warbler, Reinita Cabecicastaña

Basileuterus delattrii BONAPARTE, Compt. Rend. Acad. Sci. Paris, vol. 38, 1854, p. 383. (Nicaragua.)

These warblers are inhabitants of undergrowth, where they feed in low branches, or occasionally on the ground. On Coiba I encountered them from near the shoreline back through high forest in the interior of the island. They also came into thickets in abandoned fields near the work camps. They were common, but of secretive habit, keeping behind cover. As they frequently carry the tail at an angle over the back they often suggest wrens as they move about behind the screening twigs and leaves. At this season they were silent except for an occasional chipping call. Usually they are found in pairs, and during January most of those that I killed for specimens were nearly ready to breed. The Coiba population is so different from that of the mainland that it requires the following name:

BASILEUTERUS DELATTRII ACTUOSUS subsp. nov.

Characters.—Similar to *Basileuterus delattrii mesochrysus* Sclater,[26] but bill larger, and coloration darker; back duller green; gray of hindneck slightly darker; under surface duller yellow; sides and flanks darker green.

Description.—Type, U.S.N.M. No. 461248, male, Isla Coiba, Panamá, collected Jan. 23, 1956, by A. Wetmore (orig. No. 20409): Forehead black, with the feathers tipped lightly with deep neutral gray; crown dark russet; hindneck between deep and dark olive-gray; back and scapulars Roman green; lower rump, upper tail coverts and wing coverts serpentine green; remiges and primary coverts between deep and dark mouse gray, edged with serpentine green; rectrices deep mouse gray, edged with light serpentine green; lores black; a broad superciliary, extending to the nape, white; chin and malar region, extending back beneath eye, white; feathers on edge of eyelids, and a line extending posteriorly to above the ear coverts, black; ear

[26] *Basileuterus mesochrysus* P. L. Sclater, Proc. Zool. Soc. London, vol. 28, 1860, p. 251. (Bogotá, Colombia.)

coverts and remainder of side of head dark russet; foreneck lemon chrome; center of breast and abdomen strontian yellow; sides of neck olive-gray, continuous with the hindneck; sides dull citrine; flanks olive lake; under tail coverts yellowish citrine, tipped lightly with citron yellow; edge of wing mixed serpentine green and strontian yellow; outermost under wing coverts olive-citrine, innermost and axillars yellowish citrine; inner margins of primaries and secondaries edged lightly with tilleul buff. Bill black; tarsus and toes buffy brown (from dried skin).

Measurements.—Males (11 specimens), wing 57.6-62.5 (60.1), tail 51.1-55.8 (53.3), culmen from base 13.3-14.4 (13.8), tarsus 20.5-22.5 (21.3) mm. Females (5 specimens), wing 56.1-60.2 (57.5), tail 50.0-53.5 (51.8), culmen from base 13.5-13.9 (13.6), tarsus 20.0-21.6 (21.0) mm.

Type, male, wing 60.0, tail 51.6, culmen from base 13.7, tarsus 20.8 mm.

Range.—Isla Coiba, off the Pacific coast of Veraguas, Panamá.

Remarks.—While the total length of the bill in the Coiba Island birds is only slightly greater than in mainland individuals, breadth and general bulk are appreciably more. The generally darker color of the new race is in line with the general tendency of the resident races on Coiba.

The subspecific name *actuosus,* lively, active, has been chosen to indicate the sprightly actions of these attractive birds.

Family Icteridae: Blackbirds and Orioles

CASSIDIX MEXICANUS PERUVIANUS (Swainson): Boat-tailed Grackle, Changamé

Quiscalus Peruvianus Swainson, Animals in Menageries, pt. 3, Dec. 31, 1837, p. 354. (Perú.)

There appear to be few of these grackles present, and those few during January ranged only in the southern section of the Bahía Damas. We saw the species first on January 18 in the outer mangroves at the mouth of Río Cativa1, when we encountered a pair and secured the female. Two days later we shot a male at this same point, presumably the one seen on the first occasion. The guards stationed at the María work camp told me that there was a morning and evening flight of a few small flocks from a roost somewhere near Playa Blanca to feeding grounds around the swamps at the mouth of the Río San Juan.

ICTERUS GALBULA (Linnaeus): Baltimore Oriole, Calandria Grande Pasajera

Coracias Galbula LINNAEUS, Systema naturae, ed. 10, vol. 1, 1758, p. 108. (Virginia.)

Specimens were taken January 8 and 16, and two others were seen on January 19 and 20. This is a common migrant on the mainland.

Family THRAUPIDAE, Tanagers

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

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

This well-known tanager was not abundant on Coiba, being common only along the southern side of Bahía Damas near Salinas and María, and seen only casually elsewhere. In accordance with their usual habits, they often were noted flying for considerable distances across the high forest crown, or over the clearings. One was seen on Isla Ranchería February 4. They are birds of such strong flight that it did not occur to me in the field that they would not cross regularly to the distant mainland, so it has been a great surprise to determine that they represent a distinct subspecies, as is indicated in the following paragraphs.

THRAUPIS VIRENS CUMATILIS subsp. nov.

Characters.—Similar to *Thraupis virens quaesita* Bangs and Noble,[27] but with sides and flanks darker blue; under wing coverts, especially the outer ones, darker.

Description.—Type, U.S.N.M. No. 416334, male, Isla Coiba, Panamá, collected January 23, 1956, by A. Wetmore (orig. No. 20419): Top and sides of head and hindneck light glaucous-blue; lores pale glaucous-blue, distinctly outlined from the darker color of the adjacent forehead; upper back neutral gray basally, with the barbs tipped and edged with Alice blue, this area appearing blue but with the darker basal color showing through irregularly; lower back, rump, and upper tail coverts Venetian blue; lesser wing coverts diva blue, the feathers having a distinct sheen; middle coverts basally Delft blue, becoming diva blue at the tips; greater coverts Payne's gray basally, edged with King's blue; primaries and secondaries dull black, edged widely with Vanderpoel's blue; primary coverts edged with cadet blue; rectrices blackish along the shaft, merging gradually

[27] *Thraupis cana quaesita* Bangs and Noble, Auk, vol. 35, No. 4, Oct. 16, 1918, p. 460. (Sullana, Depto. Piura, Perú.)

on the webs to Venetian blue; abdomen and under tail coverts pale glaucous-blue; rest of under surface of body Alice blue, except the posterior parts of the sides and the flanks, which are orient blue; under wing coverts gray No. 9 (light gull gray), somewhat paler internally. Bill, tarsi, and feet dull black (from dried skin).

Measurements.—Males (2 specimens), wing 87.4-89.0 (88.2), tail 63.0-63.4 (63.2), culmen from base 14.4-14.7 (14.5), tarsus 19.0 mm. Females (3 specimens), wing 82.6-86.8 (84.1), tail 59.6-60.4 (59.9), culmen from base 13.7-14.8 (14.2), tarsus 18.8-19.5 (19.2) mm.

Remarks.—The six specimens of this race taken include one immature male with wings and tail so worn that it is not included in the measurements listed above. The darker coloration of the Coiba birds when compared with our long series of *Thraupis virens diaconus,* found from southern México to Panamá, is evident on the most casual inspection, and it is only with *quaesita,* which ranges from Nariño in southwestern Colombia to northwestern Perú, that the form here described shows any similarity. *T. v. cana,* distributed through northern Colombia and northern Venezuela, differs from *cumatilis* more than does *diaconus.* The subspecific name *cumatilis* signifies the dark blue of the sea.

PIRANGA OLIVACEA (Gmelin): Scarlet Tanager, Cardenal Alinegro Pasajero

Tanagra olivacea GMELIN, Systema naturae, vol. 1, pt. 2, 1789, p. 889. (New York.)

A male taken at the edge of the high forest on January 7 is an individual less than a year old, as shown by the dull grayish-brown tail feathers, edged extensively with green. It was about to start the molt to adult dress, as is indicated by a single, tiny, new feather only partly grown, in one eye-ring. The main migration route of this tanager crosses the Caribbean Sea from Yucatán and Cuba to Colombia, with only occasional individuals wandering to the westward. The few previous records from Panamá have been of migrants bound northward in spring between March 25 and April 9, except for one sight record on March 16, 1911. The bird from Coiba is the first one for the wintering season, a period when the species regularly is found from Colombia to Bolivia.

PIRANGA RUBRA RUBRA (Linnaeus): Summer Tanager, Come-Abejas

Fringilla rubra LINNAEUS, Systema naturae, ed. 10, vol. 1, 1758, p. 181. (South Carolina.)

This winter resident from the north, fairly common in Panamá, was taken twice on Coiba, a female January 20, and a male in highly

colored female dress on February 1. One came each evening to sleep in a mango tree below my living quarters, calling briefly as it moved through the adjacent trees. While the nonobservant often confuse the brightly colored males with the crimson-backed tanager, and call it "Sangretoro," those more familiar with the summer tanager recognize the male and female as being of the same species, and know it as the come-abejas from the constant habit of feeding at the nests of small wild bees.

RAMPHOCELUS DIMIDIATUS Lafresnaye: Crimson-backed Tanager, Sangretoro Común

Ramphocelus dimidiatus LAFRESNAYE, Mag. Zool., vol. 7, cl. 2, 1837, pl. 81 and text. (Cartagena, Colombia.)

This is another of the common birds on the island that came frequently into the trees and shrubbery around the habitations but was

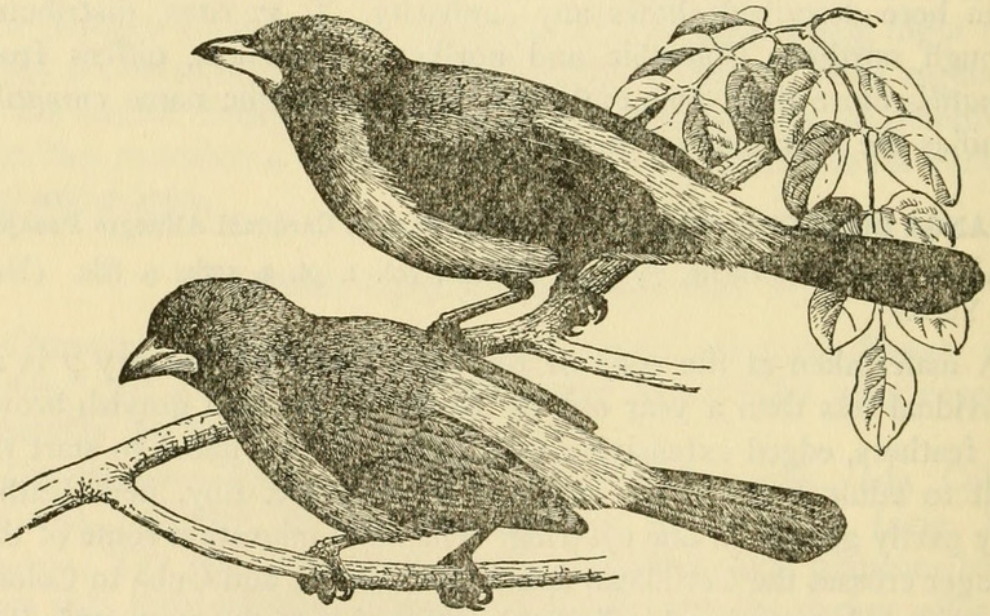


FIG. 14.—Crimson-backed Tanager, Sangretoro Común.

seen more usually in the lower woodlands back of the beaches and near the river mouths. I was interested to find them equally common in the high crown of the tall virgin forest inland. They may come out in the open to feed but at any alarm retreat to cover behind leaves and creepers. At the same time they have considerable curiosity and are easily called by squeaking.

The differences that distinguish the birds of Coiba from those of other parts of the range of the species are outlined in the following description.

RAMPHOCELUS DIMIDIATUS ARESTUS subsp. nov.

Characters.—Darkest of the races of *Ramphocelus dimidiatus;* male similar to *Ramphocelus dimidiatus limatus* Bangs,[28] but red deeper throughout, especially on the abdomen; female decidedly darker.

Description.—Type, U.S.N.M. No. 461317, male, Isla Coiba, Panamá, collected Jan. 8, 1956, by A. Wetmore (orig. No. 20095): Crown, side of head, hindneck, and foreneck maroon; upper back garnet brown; lower back, rump, and upper tail coverts slightly darker than spectrum red; wing black, with the outer webs of the wing coverts and the tertials maroon; tail black; chest carmine; lower breast, sides, abdomen, and under tail coverts between nopal red and garnet brown; tibia and a lightly marked band down center of lower breast and abdomen black; under wing coverts black. Maxilla and tip of mandible black; base of mandible plumbeous centrally, margined with gray; tarsus and toes black (from dried skin).

Measurements.—Males (8 specimens), wing 74.3-78.9 (77.3), tail 65.5-70.0 (67.9), culmen from base 16.6-19.6 (17.4), tarsus 19.3-21.3 (20.6) mm. Females (7 specimens), wing 73.3-75.2 (74.3), tail 65.6-69.7 (67.5), culmen from base 17.6-18.5 (18.2), tarsus 20.2-21.8 (21.0).

Type, male, wing 77.5, tail 70.0, culmen from base 17.2, tarsus 17.0 mm.

Range.—Isla Coiba, off the Pacific coast of Veraguas, Panamá.

Remarks.—The notably darker coloration that marks this geographic race is more readily apparent in the female than in the male, as is especially noticeable when comparison of *arestus* is made with the female of *R. d. limatus* of the Pearl Islands, this being the darkest of the other forms. The under surface of *arestus* is duller than that of the female of *R. d. dimidiatus,* while the crown is darker, and the back duller.

The male of the new form agrees with that of *limatus* in the restricted black area on the center of the lower breast and abdomen, this being decidedly less than in the mainland races.

The subspecific name is from the Greek ἀρεστός, pleasing, in allusion to the attractive coloration of these tanagers.

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[28] *Rhamphocelus limatus* Bangs, Auk, vol. 18, No. 1, January 1901, p. 31. (San Miguel Island, Bay of Panamá = Isla El Rey, Archipiélago de las Perlas.)

Family FRINGILLIDAE: Finches, Grosbeaks, and Buntings

SALTATOR ALBICOLLIS Vieillot: Streaked Saltator, Lechosero Pechirrayado

Saltator albicollis VIEILLOT, Nouveau dictionnaire d'histoire naturelle, nouv. éd., vol. 14, Sept. 13, 1817, p. 107. (Martinique.)

Streaked saltators were found in undergrowth throughout the high forest, where they lived in such subdued light that often it was difficult to see them. Sometimes they were in pairs, but at this season they were not breeding, so the males were not in song. They remained under cover, moving about quietly even when feeding, but could be called into sight readily. While not abundant, they were widely distributed, so the total number of individuals found on the island is considerable. The Coiba birds are so heavily pigmented in comparison with those of the mainland that they require separation as a distinct form.

SALTATOR ALBICOLLIS SCOTINUS subsp. nov.

Characters.—Darkest of the subspecies of *Saltator albicollis;* similar to *Saltator albicollis isthmicus* Sclater [20] but darker, grayer green above; sides of head and streaks on lower surface definitely darker; sides of breast darker; edge of wing brighter yellow; under tail coverts slightly deeper buff.

Description.—Type, U.S.N.M. No. 461415, male, from Isla Coiba, Panamá, collected Jan. 26, 1956, by A. Wetmore (orig. No. 20457): Crown and hindneck dark greenish olive; back and scapulars yellowish olive; rump deep olive; upper tail coverts deep mouse gray; wing coverts yellowish olive; primaries, secondaries, and alula Chaetura drab, with outer webs of innermost secondaries yellowish olive, and of outermost secondaries and primaries yellowish citrine; outer web of alula dark greenish olive; rectrices Chaetura drab, with the exposed webs dull storm gray; edge of upper eyelid and a narrow line on edge of lower eyelid at its center Marguerite yellow, with traces of this color extending to the base of the nostril, forming an indistinct light line; loral area, extending to below center of eye, deep mouse gray; an indefinite whitish malar streak; rest of side of head dark greenish olive; center of throat and foreneck white, bordered by a broad line of dark greenish olive that broadens behind to merge with the same color on the side of neck and the chest; breast Marguerite yellow, becoming white on the abdomen; chest streaked

[20] *Saltator isthmicus* P. L. Sclater, Proc. Zool. Soc. London, August 1861, p. 130. (Isthmus of Panamá.)

heavily with dark greenish olive, the streaks becoming narrower on lower breast until they are reduced to lines on the upper abdomen and on its sides; center of abdomen white; sides dark greenish olive; flanks and under tail coverts between cartridge buff and cream-buff, streaked indefinitely with Chaetura drab; edge of wing citron yellow; outer under wing coverts primrose yellow; inner series and axillars cream-buff. Bill black; tarsus and toes fuscous-black (from dried skin).

Measurements.—Males (6 specimens), wing 84.6-90.5 (87.8), tail 76.4-78.7 (77.6), culmen from base 17.3-18.8 (18.3), tarsus 23.4-24.0 (23.6) mm. Females (7 specimens), wing 84.3-88.8 (86.8), tail 74.5-79.8 (77.3), culmen from base 17.7-19.0 (18.4), tarsus 22.0-24.2 (23.0) mm.

Type, male, wing 90.1, tail 87.6, culmen from base 17.5, tarsus 23.4 mm.

Range.—Isla Coiba and Isla Ranchería, off the Pacific coast of Veraguas, Panamá.

Remarks.—The darker coloration sets this form apart as conspicuously distinct from the other known subspecies. The green hues have a definitely dark-gray cast, and the streaking on the under surface is heavy, even more so than in *S. a. furax* of western Chiriquí and southwestern Costa Rica.

The name is taken from the Greek σκοτινος, dark, obscure, referring to the color.

TIARIS OLIVACEA (Linnaeus): Yellow-faced Grassquit, Yerbero

Emberiza olivacea LINNAEUS, Systema naturae, ed. 12, vol. 1, 1766, p. 309. (Hispaniola.)

The grassquit was common along the borders of the pastures and at the edge of the forest, congregating especially where tall grasses bore ripening seeds. They feed by balancing on the grass heads as these sway and bend beneath their slight weight. At headquarters dozens came to feed about the mill that hulled the rice, and in the remote work camps, where rice was pounded by hand, the grassquits gleaned the fallen grain about the kitchens. They were completely tame, and often came hopping about the feet of men sitting on the benches at guard headquarters. Fully grown young were common, and on January 14 adults were mating.

The dark color of these birds was noticeable even in life, the differences from the mainland group being detailed in the following description.

TIARIS OLIVACEA RAVIDA subsp. nov.

Characters.—Similar to *Tiaris olivacea pusilla* Swainson,[30] but darker; fully adult male with black of upper surface of head deeper and extended down entirely over the hindneck; green of dorsal surfact duller, grayer; sides, flanks, and under tail coverts darker, grayer green; black of under surface, on average, more extensive, particularly on the upper abdomen and sides; female grayer green throughout.

Description.—Type, U.S.N.M. No. 461411, male, Isla Coiba, Panamá, collected Jan. 31, 1956, by A. Wetmore (orig. No. 20557): Crown and hindneck black, feathers of hindneck edged very lightly with yellowish olive; back, scapulars, and upper tail coverts yellowish olive; rump light yellowish olive, with shaft lines of dusky neutral gray on the middle coverts; inner webs of greater wing coverts Chaetura black, with outer webs and tips yellowish olive; alula and remiges Chaetura black, edged with yellowish olive; central pair of rectrices yellowish olive, with shafts Chaetura drab; remainder of rectrices dark hair brown, edged with yellowish olive; lores and line extending back over eye cadmium yellow to above center of eye, then becoming apricot yellow, and continuing posteriorly as a narrow superciliary to above the anterior margin of the ear coverts; remainder of side of head black, edged faintly on ear coverts and sides of neck with yellowish olive; throat and upper edge of foreneck somewhat dull cadmium yellow, forming a squarely outlined patch; rest of foreneck, breast, anterior part of sides, and center of abdomen black, the latter tipped very lightly with pale olive-buff; posterior edge of sides, flanks, and sides of abdomen dull light yellowish olive; under tail coverts reed yellow; edge of wing narrowly reed yellow; under wing coverts dark neutral gray, edged with reed yellow; axillars yellowish olive; inner webs of inner remiges pale smoke gray. Bill black; tarsus and toes fuscous-black (from dried skin).

Measurements.—Males (7 specimens), wing 50.2-53.9 (52.6), tail 38.7-40.9 (39.8), culmen from base 10.2-11.3 (10.6, average of 6), tarsus 15.9-18.0 (17.1) mm. Females (5 specimens), wing 50.7-52.0 (51.6), tail 37.0-38.1 (38.2), culmen from base 10.4-11.2 (10.7), tarsus 16.2-17.7 (17.0) mm.

Type, male, wing 53.9, tail 40.9, culmen from base 11.3, tarsus 16.8 mm.

Range.—Isla Coiba, off the Pacific coast of Veraguas, Panamá.

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[30] *Tiaris pusillus* Swainson, Phil. Mag., n.s., vol. 1, No. 6, June 1827, p. 438. (Temascáltepec and Real del Monte, México.)

Remarks.—The resemblance of these birds from Coiba is nearest to the populations of *T. o. pusilla* found from Costa Rica to México, from which, however, the new form is decidedly different. Birds from the mainland of Panamá average paler than those from farther north in Central America, with less black on the crown. It seems probable from preliminary study that the latter may warrant recognition as *Tiaris olivacea dissita,* a name proposed by Thayer and Bangs in 1906.

The subspecific name of the Coiba form is from the Latin *ravidus,* grayish.

SPIZA AMERICANA (Gmelin): Dickcissel, Arrocero Americano

Emberiza americana GMELIN, Systema naturae, vol. 1, p. 2, 1789, p. 872. (New York.)

On January 8 I flushed two from litter scattered over a wet pasture. Country people often call these birds "veinticuatro," from their habit of ranging in little flocks that popularly are believed always to number 24 individuals.

SPOROPHILA AURITA AURITA (Bonaparte): Variable Seedeater, Arrocero Común

Spermophila aurita BONAPARTE, Conspectus generum avium, vol. 1, pt. 2, (late in) 1850, p. 497. (Panamá.)

A few of these seedeaters were found in the open edge of mangrove swamps, particularly near the beaches, which must have been their original range as they do not penetrate heavy stands of woodland. They are locally common now at the borders of pastures and cultivated areas, which give them a considerable increase in the habitat suited to their needs. They were seen especially where there were stands of ripened grass heads on which they fed in company with the yellow-faced seedeaters. On January 18 I observed them mating.

Recently de Schauinsee[31] has treated *Sporophila aurita* as conspecific with *Sporophila americana* (Gmelin), considering that the two are united through a subspecies *murallae* described by Chapman from three specimens from Caquetá in southeastern Colombia. This proposal I prefer to leave for further study, since little is known of Chapman's race. The eight males and four females secured on Coiba do not differ from specimens from Veraguas east to the Canal Zone.

[31] Proc. Acad. Nat. Sci. Philadelphia, vol. 104, Dec. 23, 1952, pp. 169, 172.

VOLATINIA JACARINA SPLENDENS (Vieillot): Blue-black Grassquit, Arrocero Negrito

Fringilla splendens VIEILLOT, Nouveau dictionnaire d'histoire naturelle, nouv. ed., vol. 12, June 1817, p. 173. (Cayenne.)

Wherever tall grass and weeds grew at the borders of the cultivated fields and pastures this grassquit was found, living as usual in little bands that fed in the open in early morning, and remained under cover for the remainder of the day. The two skins preserved were taken January 11 and 23, a male secured on the date last named being in brown-tipped plumage. I recorded one male seen January 27 as being in the glossy black breeding dress.

ORYZOBORUS FUNEREUS Sclater: Lesser Rice Grosbeak, Arrocero Prieto

Oryzoborus funereus P. L. SCLATER, Proc. Zool. Soc. London, pt. 27, 1859 (February 1860), p. 378. (Suchapam, Oaxaca, México.)

The arrocero prieto was found in small numbers in the borders of the swampy woodlands along the lower courses of the Catival and San Juan Rivers, not far from the sea. On January 27 I recorded two birds in song, so that the nesting season appeared to be near. They are shy inhabitants of thickets, though coming at times to open perches to sing.

The two adult males and one female that I collected on Coiba, and another female labeled "Coiba" in the Batty collection in the American Museum of Natural History, differ from the average mainland birds in having definitely larger bills. In a series of 129 skins, male and female, covering the entire range from Veracruz to western Ecuador, there are only two individuals that vary from normal bill size. A male from Gatun (U.S.N.M. No. 207550) equals the two males from Coiba. A female from Arenosas, Antioquia, Colombia (A.M.N.H. No. 388791) has the bill decidedly more massive than the Coiba series, though in most of the Colombian birds it is very slightly smaller than the average of the population of Central America. I attribute the larger dimension in these two to gigantism, in other words to an abnormality. The uniform difference evident in the four birds from Coiba is so striking that it seems probable that they represent an island group that should be recognized as distinct. This is a matter, however, that is left for decision whenever more material may become available. Size in both sexes, and the shade of color in the females, in the four skins from Coiba agree with what is found in the mainland group.

De Schauinsee [32] has remarked on the occasional specimens of male

[32] Caldasia, vol. 5, No. 25, Aug. 5, 1951, p. 1094.

Oryzoborus funereus that show traces of chestnut on the abdomen, recording such skins from Guatemala, Honduras, Canal Zone, and the Santa Marta region, Colombia. Traces of this color are found in skins in the U.S. National Museum from Veraguas, Panamá, and Bolívar, Magdalena, and Santander, Colombia, as additional localities to those mentioned. Because of this the author cited places *funereus* as a race of *Oryzoborus angolensis* in which the male has the lower breast, abdomen, and sides solid chestnut. It seems to me preferable to interpret the occasional occurrence of this chestnut marking in *funereus* as a deep-seated character that indicates ancient relationship to *angolensis* through some common ancestral stem, since it occurs at random and is not restricted to the area where the two styles of color pattern are in contact. It must be remembered also that males of *funereus* in first plumage vary from clay color to tawny olive and sayal brown on the lower surface, pigmentation which might affect the normal black of the adult dress in occasional instances.

ARREMONOPS CONIROSTRIS (Bonaparte): Green-backed Sparrow, Chen-chen

Arremon conirostris Bonaparte, Conspectus generum avium, vol. 1, pt. 2, (late in) 1850, p. 488. (Colombia.)

While this common sparrow lived in thickets near the beaches and at the borders of the swampy lowland forests, it ranged also inland

Fig. 15.—Green-backed Sparrow, Chen-chen.

in the undergrowth of the high gallery woodland across the central part of the island. It was found low down near the ground, in pairs or small groups, often in the same localities as the streaked saltator. Probably it was some supply of berries or other food that brought the two together, though their choice of haunt was identical. In the dim light of the forest areas it was often difficult to see the chen-chen because of its dark coloration, and its lack of any conspicuous color pattern. At this season they were not singing their labored songs.

The bird of Coiba is described in the following paragraphs.

ARREMONOPS CONIROSTRIS VIRIDICATA subsp. nov.

Characters—Similar to *Arremonops conirostris striaticeps* (Lafresnaye)[33] but decidedly darker; white on lower surface less in extent, with corresponding increase in gray on breast and sides, which are darker; under tail coverts darker buff; dorsal surface darker throughout, both in the gray on the head, and in the green of the rest of the dorsal plumage; wings and tail decidedly darker.

Description.—Type, U.S.N.M. No. 461362, male, from Isla Coiba, Panamá, collected January 13, 1956, by A. Wetmore (orig. No. 20209): Broad lateral crown stripes, extending posteriorly onto the upper hindneck, black; center of crown and of upper hindneck neutral gray; back, scapulars, rump, and upper tail coverts Saccardo's olive; lesser and middle wing coverts buffy citrine, with the outer webs washed with old gold; greater coverts buffy citrine, edged with old gold; remiges Chaetura drab; tertials, secondaries, and inner primaries edged with Dresden brown; outer secondaries and alula edged with mignonette green; rectrices between Dresden brown and mummy brown; space behind nostril dull white, extended posteriorly as a neutral gray superciliary that broadens behind the eye and extends onto the side of the neck; feather circlet on edge of upper lid and on center of lower lid dull white; loral area and a narrow line extending from the posterior margin of the eye, including the feathers on the edge of the lower eyelid except those in the center, black; rest of side of head, including the ramal area, neutral gray; throat and upper foreneck white; lower foreneck, breast, and anterior area of sides light neutral gray; center of abdomen white; flanks light brownish olive, merging anteriorly with light neutral gray of sides; under tail coverts Isabella color; edge of wing and outer under wing coverts cadmium yellow, mixed with light orange-yellow; inner under

[33] *Embernagra striaticeps* Lafresnaye, Rev. Mag. Zool., ser. 2, vol. 5, February 1853, p. 61. (Panamá.)

wing coverts dull white; axillars Naples yellow. Maxilla and tip of mandible black; rest of bill dull neutral gray; tarsus and toes light fuscous (from dried skin).

Measurements.—Males (6 specimens), wing 75.5-80.3 (78.0), tail 64.6-69.3 (66.7), culmen from base 16.7-18.3 (17.6), tarsus 27.0-29.0 (27.8) mm. Females (6 specimens), wing 69.9-74.6 (72.3), tail 60.0-64.9 (62.6), culmen from base 16.2-17.9 (16.9), tarsus 26.2-28.5 (27.4) mm.

Type, male, wing 77.5, tail 67.3, culmen from base 17.6, tarsus 27.6 mm.

Range.—Isla Coiba, off the Pacific coast of Veraguas, Panamá.

Remarks.—The dull orange tint found as a faint wash on the tertials and inner secondaries of some specimens from the mainland is much intensified in the Coiba Island birds, especially on the tail. In several this color becomes a strong hue of Dresden brown, present extensively on the outer webs of the back feathers, indicated lightly over the gray of the central crown stripe, and found even on the white of the abdomen, where it is modified to ochraceous-tawny.

In the darker coloration the Coiba race actually resembles rather closely *Arremonops conirostris centrata* Bangs of eastern Honduras, differing from this in duller cast of the green dorsal surface, decidedly darker tail, more buffy under tail coverts, and in the dull orange cast just described. The Honduras race, represented in the National Museum collections by a male from La Ceiba, the type locality, and a female from Trujillo, appears decidedly better marked than Todd in his review [34] of this genus has indicated.

The name of the Coiba Island bird, from the Latin *viridicatus,* deep green, is given in recognition of its predominant dorsal color. It may be remarked that the generic name *Arremonops,* though treated by some writers as masculine, is of feminine gender.

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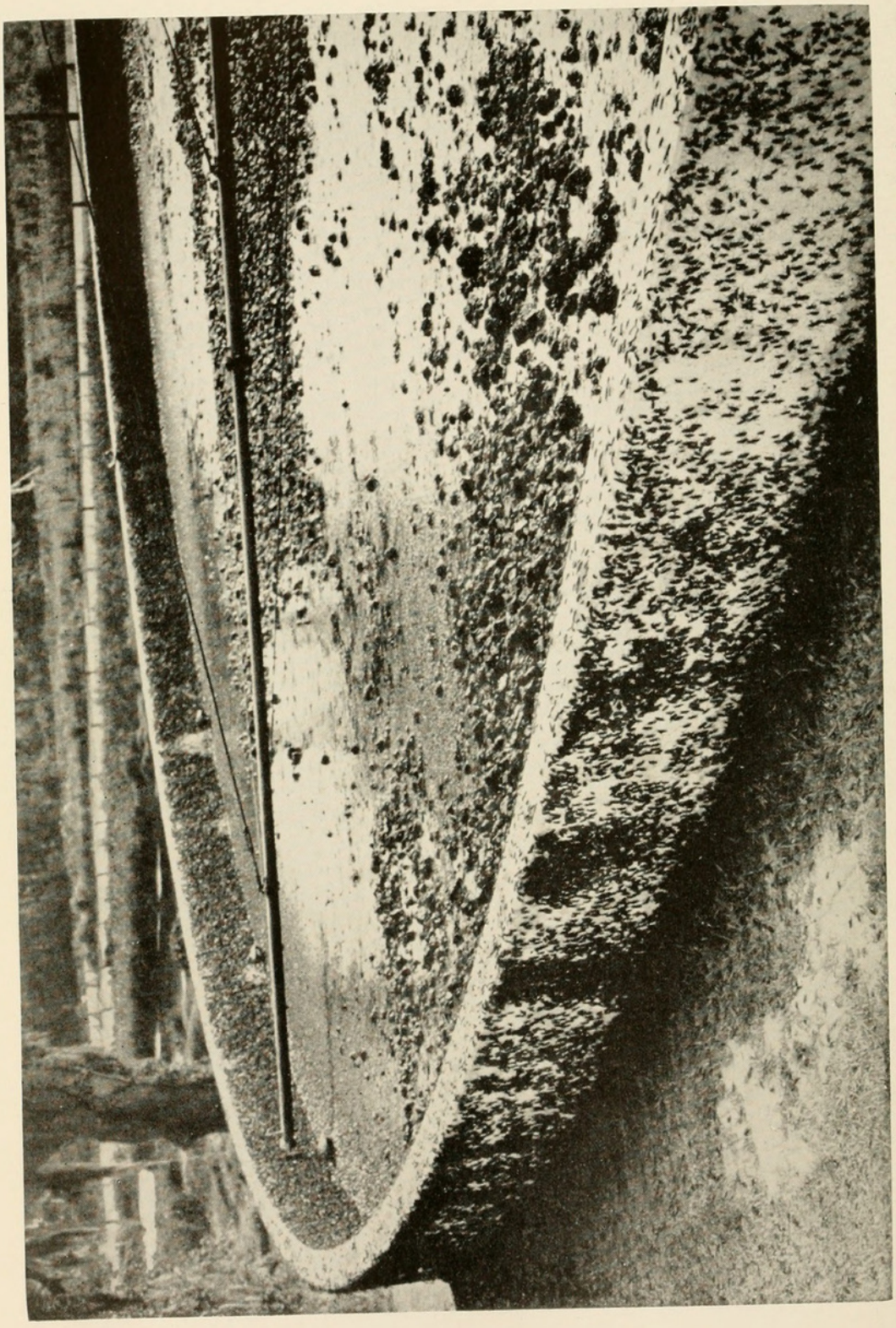
[34] Proc. Biol. Soc. Washington, vol. 36, Mar. 28, 1923, p. 41.



Cockroaches migrating out of a trickling filter at the University of Florida sewage treatment plant during the process of flooding. (See p. 12 for details. Courtesy of Division of Public Relations, University of Florida, Gainesville.)