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On Birds from the Northern Chocó Region, NW-Colombia

by

JÜRGEN HAFFER

(With 1 plate and 5 text-figures)

Veröff. Zool. Staatssamml. München	Band 11	S. 123—149	München, 15. Dez. 1967

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I. INTRODUCTION

The heavily forested Pacific lowlands of Colombia and northwestern Ecuador are separated from the cis-Andean Amazon basin by the mountain ranges of the northern Andes and are inhabited by a highly interesting bird fauna. Although with predominantly Amazonian affinities this fauna is characterized by several endemic genera and a great number of endemic species. Its zoogeographic significance was recognized by Chapman (1917, 1926) who named it the "Colombian-Pacific Fauna" and discussed its distribution and relationships. I have given a historic interpretation of bird speciation in northwestern Colombia and adjacent regions (Haffer, 1967 a) and have described the distribution of the birds inhabiting the northern Pacific lowlands and the surroundings of the Gulf of Urabá (Haffer, 1959, 1967 b, 1967 d). Recently I had an opportunity to work a particularly interesting part of this same area not visited before. The present article reports on a collection of 205 specimens representing 77 species of birds from Mutatá, 100 kilometers southsoutheast of the Gulf of Urabá, taken between 4 and 16 August 1966. This material throws additional light on several zoogeographic problems of the lower Atrato Valley, and was deposited at the Zoologische Sammlung des Bayerischen Staates in Munich, Germany.

The small village of Mutatá, Departamento Antioquia, is located on the road from Dabeiba to Turbo which follows the western base of the Western Andes (fig. 1). The Rio Mutatá flows into the nearby Rio Sucio close to this village. Uninhabited forests still cover the mountains to the east of Mutatá and the hilly country to the west and southwest. Large clearings, 1 to 3 kilometers wide, appeared only along the Turbo road. A narrow gravel road is being pushed through virgin forest from Mutatá to Pavarandocito and Murindó in the Atrato Valley, southwest of Mutatá. This road crosses the Rio Sucio near Mutatá and at the time of my visit in August 1966 was traversable for about five kilometers in a southwesterly direction. Most of the collecting was done in the forest on both sides of this newly constructed road at kilometers 2.5, 3 and 4.5 (plate I), 130 meters above sea level. Some nonforest birds were taken from clearings in the immediate surroundings of Mutatá where pasture land predominates.

I am deeply indebted to Eugene Eisenmann, New York, and R. Meyer de Schauensee, Philadelphia, for their identification and remarks on several specimens of the collection dealt with in this article. E. Eisenmann and F. Vuilleumier, Cambridge, kindly commented upon an old specimen in the Bangs-collection of the Museum of Comparative Zoology, Cambridge, Mass. I am also grateful to Father Antonio Olivares, head of the Ornithology department of the Instituto de Ciencias Naturales, Universidad Nacional, Bogotá, who permitted me to use the collection and the library of the Instituto at any time.

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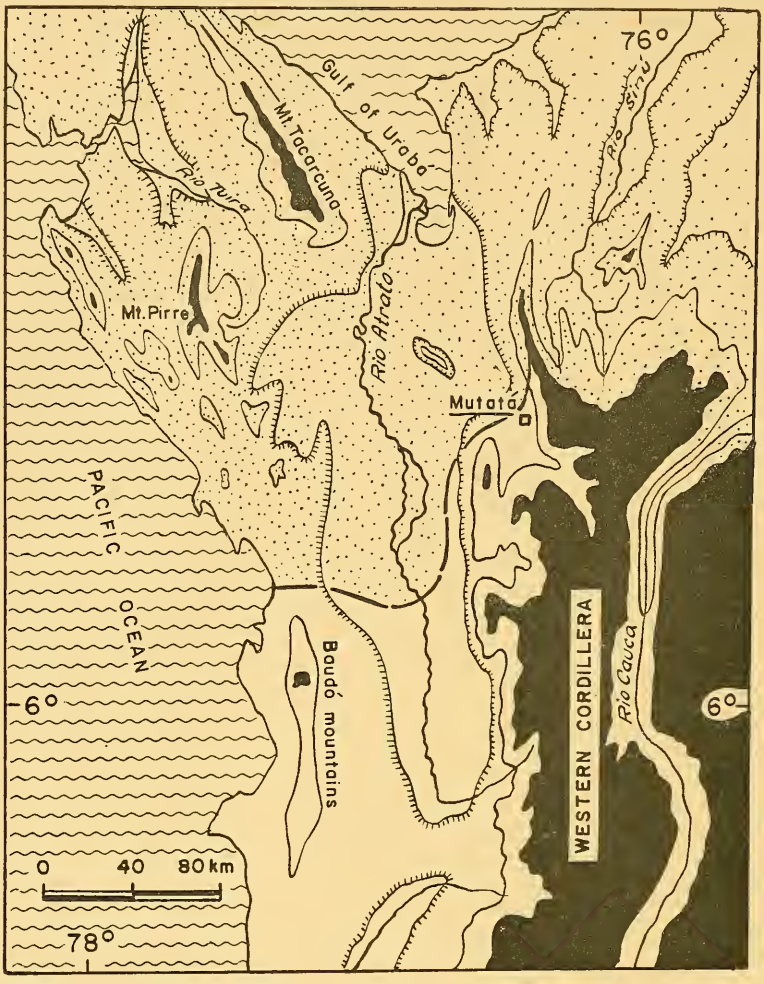

Fig. 1: Avifaunal regions of northwestern Colombia and eastern Panamá. Key: dotted — Darién-Urabá region (predominantly Moist Tropical Forest); blank — Chocó region (Wet Tropical and Pluvial Forest); Cauca valley not mapped. Elevations over 1000 meters in black; — 500 meter contour line; dented line indicates approximate boundary of hills and plains.

II. ZOOGEOGRAPHICAL NOTES

The bird fauna of the region around the Gulf of Urabá, in extreme northwestern Colombia, differs to some extent from that of the Pacific Chocó lowlands to the south. This is shown by a number of species which range north only to the Baudó mountains, without reaching the Urabá region, and other species that inhabit the Urabá region (including the lower Atrato Valley) but do not advance south into the Chocó lowlands of western Colombia. Still other species are represented in the Chocó and Urabá regions by sharply differentiated forms which meet in the lower Atrato Valley (Haffer, 1967 d).

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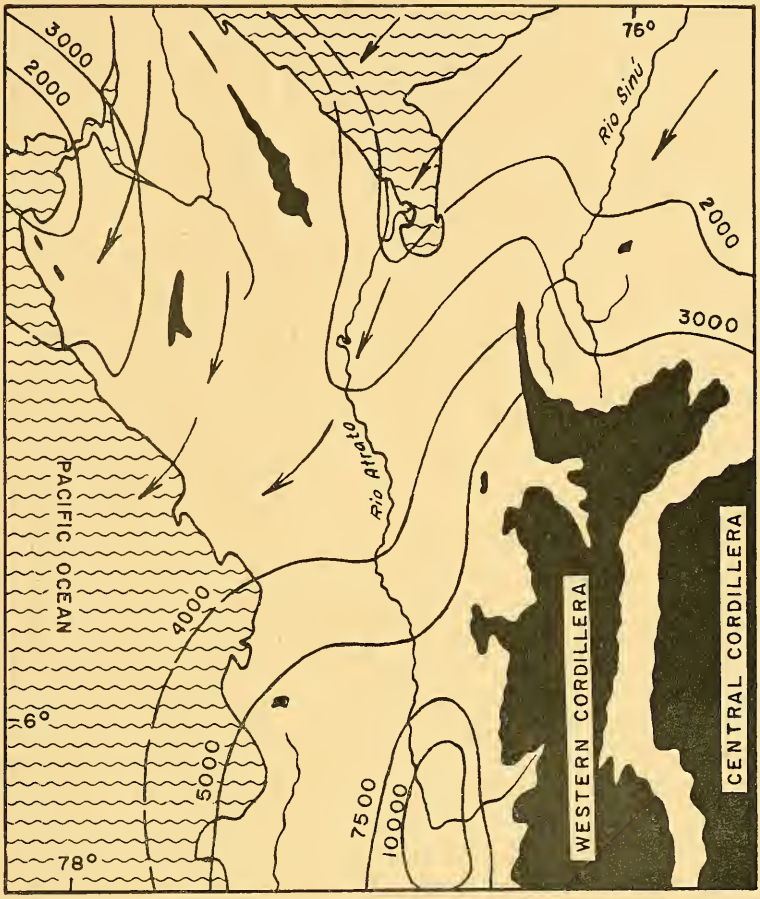

Fig. 2: Rainfall pattern of northwestern Colombia and eastern Panamá (millimeters/year), from H a f f e r , 1967 d.
Elevations over 1000 meters are in black. Arrows indicate path of drying Trade Winds which blow from December to March. The distribution of annual rainfall is not mapped in the dry narrow valleys on the western slope of the Western Andes and in the Cauca Valley.

The Mutatá collection treated in this article shows that a number of typical **Chocó elements occur along the base of the Western Andes considerably farther north than they do along the Pacific coast** on the opposite side of the Rio Atrato. This is true for the following species and subspecies: *Crypturellus (cinereus) berlepschi**), *Columba goodsoni, Pionopsitta (haematotis) pulchra, Pipra mentalis minor, Rhynchocyclus brevirostris pacificus, Tangara johannae* and *Erythrothlypis salmoni.* Conversely, those species of the Urabá region which are unknown from the Pacific lowlands advance farther south on the western side of the Atrato Valley than they do along the base of the Western Andes. Examples are *Momotus momota, Formicarius*

*) Semispecies MAYR emend. LORKOVIĆ (for a recent discussion see D. A m a d o n , 1966).

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analis, Pipra erythrocephala, Rhynchocyclus olivaceus. Their range is more or less complementary to that of the Chocó forms. The line separating the ranges of these northern Urabá- and southern Chocó-forms extends from the Mutatá area southward and thence swings westward between the Napipí and Uva Rivers to reach the Pacific coast at the Gulf of Cupica. This line might be used as the northern limit of the zoogeographical **"Chocó region"** (fig. 1). The area to the north of this artificial boundary may be named **"Darién-Urabá region"** with its western boundary somewhere in central Panamá. It may be advisable to include the "Darién-Urabá region" and the eastwardly adjoining "Cauca-Magdalena region" of Chapman (1917) into one zoogeographic unit. The areas discussed here form only minor subdivisions of one large "Central American Province" (Hershkovitz, 1958) of which the forested northwest-Colombian lowlands represent the South American "root". The difficulties in delimiting zoogeographical regions in our area are inherent in descriptive and static zoogeography. However, "instead of thinking of fixed regions, it is necessary to think of fluid faunas" (Mayr, 1946, p. 5). In northwestern Colombia we are dealing with the **"Chocó fauna"**, the **"Nechí fauna"** and the **"Central American forest fauna"** (Haffer, 1967a). These faunas extended their ranges from the various forest refuge areas during the humid climatic periods of the Pleistocene and post-Pleistocene and **intermingled in the intervening areas such as the Darién-Urabá region.**

A steep environmental gradient is known to exist in the northern Chocó region caused by the decrease of the total annual rainfall in a northerly direction. It is reasonable to assume that this gradient is responsible for many Chocó birds to be missing, or replaced by others, in the Urabá region. The fact that various species of the Chocó region range farther north along the base of the Western Andes (to Mutatá) than they do along the Pacific coast (to the Baudó mountains only) lends further support to this assumption: The isohyets also extend in a northeast-southwest direction. It is seen from fig. 1 and 2 that the northern boundary of the zoogeographic Chocó region more or less coincides with the 4500 mm isohyet. It also follows roughly the boundary between Wet and Moist Tropical Forest (Haffer, 1967a, fig. 1). The northern portion of the Western Andes prevents **the drying trade winds** from reaching the lowlands at its western base. These winds blow in a southwesterly direction from the Caribbean Sea and the Gulf of Urabá into the lower Atrato Valley and reach the Pacific coast during the months of December through March (fig. 2). The less humid Dry and Moist Tropical Forests of the trade wind area are ecologically quite different from the Wet and Pluvial Forests found in the region to the south and along the base of the Western Andes where the rains fall without a break the year around. The presence or absence of the winter trade winds determines the lower or greater total annual rainfall upon which in turn depends the type of forest present in a given area. This indicates that **the details of the distribution of many birds in our area ultimately depend upon the trade wind regime of northwestern Colombia.**

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III. ON NONFOREST BIRDS OF THE URABA AND NORTHERN CHOCO REGIONS

Northwestern Colombia has been covered originally by continuous forests grading from Dry Tropical Forest in northern Colombia to Moist, Wet and Pluvial Forests along the Pacific coast of western Colombia. The only climax nonforest areas were extensive grass and palm swamps stretching on either side of the lower Atrato River and around large lagoons of this broad valley. These habitats are still today unaltered and their characteristic bird fauna most probably reached the Atrato Valley in prehistoric times before the burning and clearing of the forests changed the vegetation cover of northern Colombia. Some of the "old" resident species of the swamps of the lower Atrato Valley are *Chauna chavaria, Vanellus chilensis, Laterallus exilis, Fluvicola pica, Arundinicola leucocephala* and *Agelaius icterocephalus.*

Another group of nonforest birds of the Urabá region are young arrivals of the last 200 years. They have followed a narrow stretch of cleared lowland along the Caribbean coast from the open Magdalena and Sinú Valleys. The completion of the gravel road from Medellín and Dabeiba to Turbo at the Gulf of Urabá some 15 years ago has favored additional clearing along its course and opened a new route for nonforest birds to advance into the Urabá region. However, these clearings are normally not wider than 1 to 3 kilometers on either side of the road. Much larger clearings have appeared only recently between Chigorodó and Turbo close to the southeastern shore of the Gulf of Urabá. The continued deforestation may eventually provide a connection of the nonforest areas of eastern Panamá and northwestern Colombia. However, immense forests still cover today the lower Atrato Valley and the mountainous country along the Pacific coast, on the slopes of the Western Andes and in the upper Sinú Valley. Nonforest species that have reached the Urabá region from northern Colombia to the east probably very recently include *Bubulcus ibis, Milvago chimachima, Gampsonyx swainsoni, Columbina talpacoti, Leptotila verreauxi, Crotophaga ani, Tapera naevia, Leistes militaris, Volatinia jacarina,* etc. (these species were observed near Turbo and along the road south to Mutatá). *Caprimulgus maculicaudus* inhabits open cattle country near Sautatá on the west bank of the lower Atrato River (Haffer, 1959) and may belong to the group of recent arrivals as well as *Ortalis g. garrula* which is still very rare around the clearings of the Turbo region.

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IV. DATA ON BREEDING AND MOLTING

Nothing is known on the breeding and molting seasons of the birds of northern Colombia, except for isolated scattered records in the literature. The extensive data collected in other parts of northern South America and southern Central America have been ably summarized by S n o w & S n o w (1964). These authors show that most breeding takes place in the first half of the year with a marked peak in April—June. On the other hand molting is most widespread in the latter half of the year and is at its height, in Trinidad at least, during the months July—October with a peak in August.

The following paragraphs summarize the data on breeding and molting derived from the material collected at Mutatá from 4 to 16 August:

1. The following species were found to be in full wing and tail molt: *Gampsonyx swainsoni, Falco rufigularis, Piaya cayana, Trogon viridis, Galbula (r.) melanogenia, Malacoptila panamensis, Pteroglossus (t.) sanguineus, Xiphorhynchus erythropygius, Glyphorhynchus spirurus, Dysithamnus puncticeps, Myrmeciza exsul, Thamnophilus punctatus, Colonia colonus, Myiarchus ferox, Myiozetetes cayanensis, Myiobius barbatus, Campylorhynchus albobrunneus, Chlorothraupis olivacea, Mitrospingus cassinii, Tachyphonus delatrii, Pitylus grossus.*

2. Immature birds as determined from their unossified skull were collected of the following species: *Xiphorhynchus erythropygius, Glyphorhynchus spirurus, Hylophylax naevioides, Dysithamnus puncticeps, Myrmotherula fulviventris, Myrmeciza exsul, Pipra coronata, Henicorhina leucosticta, Thryothorus thoracius, Neochelidon tibialis, Chlorophanes spiza, Dacnis cayana, Cyanerpes caeruleus, Leistes militaris.*

3. In the following species the gonads were found to be enlarged (the size of the testes is indicated in millimeters): *Gampsonyx swainsoni* (8×4), *Buteo nitidis* (7×4), *Columba goodsoni* (7×4), *Hyloctistes subulatus* (11×6), *Pachyramphus cinnamomeus* (6×4), *Manacus vitellinus* (6×3), *Chloropipo holochlora* (follicle of 7 mm diameter in oviduct), *Myiobius barbatus* (6×3), *Todirostrum cinereum* (3.5×2), *Microbates cinereiventris* (6×4), *Chlorothraupis olivacea* (6×4), *Tachyphonus delatrii* (6×4), *Sporophila minuta* (7×5), *Sporophila americana* (8×6), *Ramphocelus (fl.) icteronotus* (9.5×6.5), *Tangara johannae* (7×6).

The high percentage of species molting and/or of which immature individuals were collected is obvious from the above lists. This indicates that for the majority of the species the breeding season terminated about the month of June and August falls into the molting season. This is in agreement with the findings in other regions of northern South America (see above). The specimens with enlarged gonads indicate that breeding is taking place in at least some species, particularly those of open or semiopen habitats. Only several specimens of a few forest species had enlarged gonads *(Columba, Hyloctistes, Chlorothraupis* and *Chloropipo).*

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V. ANNOTATED LIST

Crypturellus (cinereus) berlepschi Rothschild

The characteristic song of a tinamou somewhat resembling that of the Thicket tinamou, *C. soui,* was heard frequently inside the forest southwest of Mutatá. Unfortunately I did not obtain specimens but got only once a glimpse of a darkgray tinamou crossing the forest trail. I strongly assume this bird to be the trans-Andean form of *C. cinereus* which has been collected near Villa Arteaga, 15 kilometers north of Mutatá (Bake, 1955). This is a typical Chocó form which is at its northern range limit near Mutatá. I have never encountered it farther north in the Urabá region.

Gampsonyx swainsoni leonae Chubb 1 ♂

A bird of the open Caribbean lowlands of Colombia which advanced southward into the forested middle Magdalena Valley and into the Urabá region following large clearings in these areas. I have taken previously a specimen of this small hawk near Turbo (Haffer, 1959).

Ortalis garrula Humboldt

The Chachalaca inhabits thickets and secondary forest of the north-Colombian lowlands and has advanced into the Turbo area recently (Haffer, 1967 d). Probably it did so by following the cleared country along the Caribbean coast rather than by crossing over the Serranía de Abibe from the upper Sinú Valley. As I was informed during a visit in July 1966 the bird is still unknown in the Rio Verde Valley which is heavily forested with only scattered small clearings. I have encountered this Chachalaca in small groups at the Cope river and near Currulao, a short distance to the north and south of Turbo, respectively. However, it has not yet occupied the clearings along the road farther south near Chigorodó and Mutatá. When viewed from the foothills of the Serranía de Abibe the lowlands west of the Turbo road (around the isolated Cerro de Cuchillo) and due south of the Gulf of Urabá are covered with immense uninhabited swampy forests. These forests and the westwardly adjoining open swamps separate today the *garrula* group of this species from the Central American *cinereiceps* group which advanced eastward to the Atrato River (Vaurie, 1965; Haffer, 1967 d).

Columba goodsoni subsp. 1 ♂
(deposited at the Acad. Nat. Sci., Philadelphia)

This is a fully adult male in breeding condition (testes 7×4 mm). Because of its unusual plumage color and large size I mailed this dove to R. Meyer de Schauensee, Philadelphia, who kindly compared it with more material from western Colombia. He writes me: "It differs from Chocó specimens by being larger, the underparts much more overlaid with grey. The crown considerably darker and the upper surface more liver

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color, less tinged with reddish. It probably belongs to a new subspecies." Measurements are wing 161, tail 116, bill 13 mm.

The bird was quite common southwest of Mutatá where the three-syllable call "hŏo-goo-gooo" was heard from everywhere in the forest on sunny mornings. Unfortunately I obtained only the above specimen as the bird was rather shy and stayed high up in the trees.

Columba goodsoni is a typical Chocó element and was known north only to the Baudó mountains. Like a number of other species it ranges along the humid base of the Western Andes north to Mutatá. However, I have never met this conspicuous dove anywhere in the Urabá region to the north and believe it to be separated by a wide gap from its Central American representative *C. nigrirostris* which inhabits both slopes of the Tacarcuna mountain west of the Gulf of Urabá (Wetmore, 1965) and other mountains of eastern Panamá.

Pionopsitta (haematotis) pulchra Berlepsch 1 ♂, 1 ♀

This is also a typical Chocó form ranging along the Pacific coast north only to the Baudó mountains but reaching Mutatá on the eastern side of the Atrato Valley. The specimens taken at Mutatá are perfectly typical and do not show any approach towards the Central American *P. haematotis coccinicollaris* which has advanced into the Urabá region (Haffer, 1967 d). A gap approximately 100 kilometers wide separates both these forms which may be treated as semispecies rather than subspecies of *P. haematotis*.

Piaya cayana thermophila Sclater 1 ♂

Abdomen and crissum are darkgray, the undertail coverts black. The bird resembles three specimens of *thermophila* from the western shore of the Gulf of Urabá which are in many respects intermediate between the paler race *mehleri* of northern Colombia and the dark form *nigricrissa*, ranging in the central and southern part of the country. A bird from Alto Bonito, 25 kilometers south of Mutatá, was referred to *nigricrissa* by Chapman (1917). A color cline exists from *nigricrissa* of the Pacific coast over *thermophila* of the Urabá region to *mehleri* of the Mulatos-Sinú region to the northeast.

Trogon melanurus macroura Gould

The absence of this trogon from the area around Mutatá and south along the road to Alto Bonito was very surprising. It is a common bird in the entire Urabá region and was found near Pavarandocito only 10 kilometers northwest of Mutatá (Haffer, 1967 d). It is not likely to be overlooked on account of its loud advertising "song".

Trogon melanurus macroura was reported by Todd (1943), Zimmer (1948), and de Schauensee (1948—52) as ranging south along the Pacific coast and in the Atrato Valley to the Rio Jurubidá and Quibdó, respectively. There can be no doubt as to the identity of the birds from the Rio Jurubidá (one male, one female) which were compared by Mr. de Schauensee

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(in litt.) and which Zimmer (1948) had used for his studies. On the other hand, the bird from Quibdó probably does not represent this species at all. Upon my request Dr. Kenneth Parkes *(in litt.)* very kindly examined this specimen which was collected by M. A. Carriker, Jr. in the environs of Quibdó. It is preserved in the collections of the Carnegie Museum, Pittsburgh, and was referred by Todd (1943) to *T. melanurus macroura.* "It is an immature male, which has almost finished the molt of body feathers. It is very clearly not *T. comptus.* I have compared it with males in similar plumage of various species and subspecies, and have decided that it is *probably* a specimen of *T. massena australis* ..... This bird has the ear covert region green rather than black, fitting Zimmer's description. There is no sign of a white chest band [which appears early in life in *T. m. melanurus* and *T. m. macroura*] ... In the pattern of the juvenile wing and tail feathers ... the male in question is closer to *T. m. massena* than to either race of *melanurus*" (Dr. K. Parkes, *in litt.*)

It is obvious from the above data that the bird from Quibdó does not belong to *T. melanurus macroura,* which is common in northern Colombia, including the *lower* Atrato Valley, and in eastern Panamá. I have collected this form south to the Rio Truandó and the Rio Napipí (Haffer, 1967 d), and it ranges along the Pacific coast south at least to the Rio Jurubidá. Like many other species *T. m. macroura* seems to be absent from the extremely humid middle and upper Atrato Valley and the rugged, mountainous country to the west and east of this river. The statements by de Schauensee (1948—52, and 1966) and Haffer (1967 a, with map) as to the distribution of *T. melanurus macroura* in western Colombia should be corrected accordingly.

The west Colombian *T. massena australis* was known north to the San Juan Valley. It now appears that its range extends farther north, at least to Quibdó on the upper Rio Atrato (see above). It remains unknown whether this form meets *T. melanurus macroura* in the middle Atrato Valley or whether both are separated by a distributional gap.

Trogon comptus Zimmer

This species inhabits hilly and mountainous country of the Pacific lowlands of Colombia (and northwestern Ecuador ?) and probably ranges along the northern foothill zone of the Western Andes to the lower Rio Cauca (map in Haffer, 1967 a). I did not find it in the forests covering the level river terraces southwest of Mutatá, but it probably lives in the mountains east of this village. This is shown by a single adult female of *T. comptus* from Alto Bonito, a farm located in the rugged country of the Rio Sucio canyon 25 kilometers south of Mutatá and on the road to Dabeiba. This specimen was reported by Chapmann (1917, p. 319) under *"Trogon massena australis".* Later Zimmer (1948, p. 42) described *Trogon comptus* and showed that part of Chapman's material actually belonged to this new species. As the above female was exchanged to Mr. O. Bangs before Zimmer revised this group of trogons the identity of the Alto Bonito bird,

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whether *T. comptus* or *T. massena australis,* remained unknown. Upon my request Eugene Eisenmann, New York, and F. Vuilleumier, Cambridge, very kindly examined this specimen which today is in the collection of the Museum of Comparative Zoology, Harvard University, Cambridge (MCZ-124 960). Although female trogons in this group are extremely similar, both gentlemen agree that the bird is closer to *T. comptus.* The head, chest and tail are very sooty and darker than in specimens of *T. melanurus macroura* and *T. massena australis.* "The specimen measures wing 164, tail 131 mm, which certainly agrees best with *comptus,* particularly in the short tail (rather slightly worn) ... the shafts of the tail feathers are blackish as in all our female *comptus* and unlike *T. massena hoffmanni* (which have these brownish); the lower mandible and basal lower part of the maxilla is very pale (probably yellow in life), unlike the more reddish color in *hoffmanni.* In only one feature does it seem to disagree with Zimmer's characterization of female *comptus:* there is distinct freckling on the upper wing-coverts and outer margins of the secondaries and 'tertials'—quite as much as in some examples of *T. massena hoffmanni.* On the other hand, there is no freckling on the outer margin of the outer webs of the lateral rectrices, which *hoffmanni* females almost invariably show. One of the females in the original series of *comptus* (from La Frijolera) shows freckling (but very faintly) on the secondaries, so very possibly the five females (one borrowed from Philadelphia) which Zimmer had available in describing *comptus* did not represent the full range of variation in extent of freckling. The specimen from Alto Bonito agrees much better with our *comptus* than with the females of either *australis, macroura* or *hoffmanni,* so, although it does not wholly correspond with Zimmer's diagnosis of his new form, I would tentatively place it there, especially as the range seems correct" (E. Eisenmann, *in litt.*). It may be added that the only undoubted female of *comptus* available to me in Bogotá also shows slight freckling on the outer margin of the secondaries and "tertials", thus corroborating E. Eisenmann's remarks as to the variation in extent of freckling in this species. This specimen even shows very slight freckling on the outer margin of the outermost pair of rectrices which is often seen in the females of *hoffmanni* and *australis.*

Galbula (ruficauda) melanogenia Sclater 2 ♂♂, 3 ♀♀

A common bird around Mutatá where I have seen it frequently in thickets bordering forest or inside the forest itself. North of Mutatá it is confined to the foothill zone of the Serrania de Abibe east of the Turbo road and becomes quite rare.

Pteroglossus (torquatus) sanguineus Gould 1 ♀

This form has advanced north into part of the Urabá region and hybridizes with *P. t. torquatus* along narrow zones of secondary contact east and west of the Gulf of Urabá (Haffer, 1967a). Several groups of this toucan were seen near Mutatá where it is not rare.

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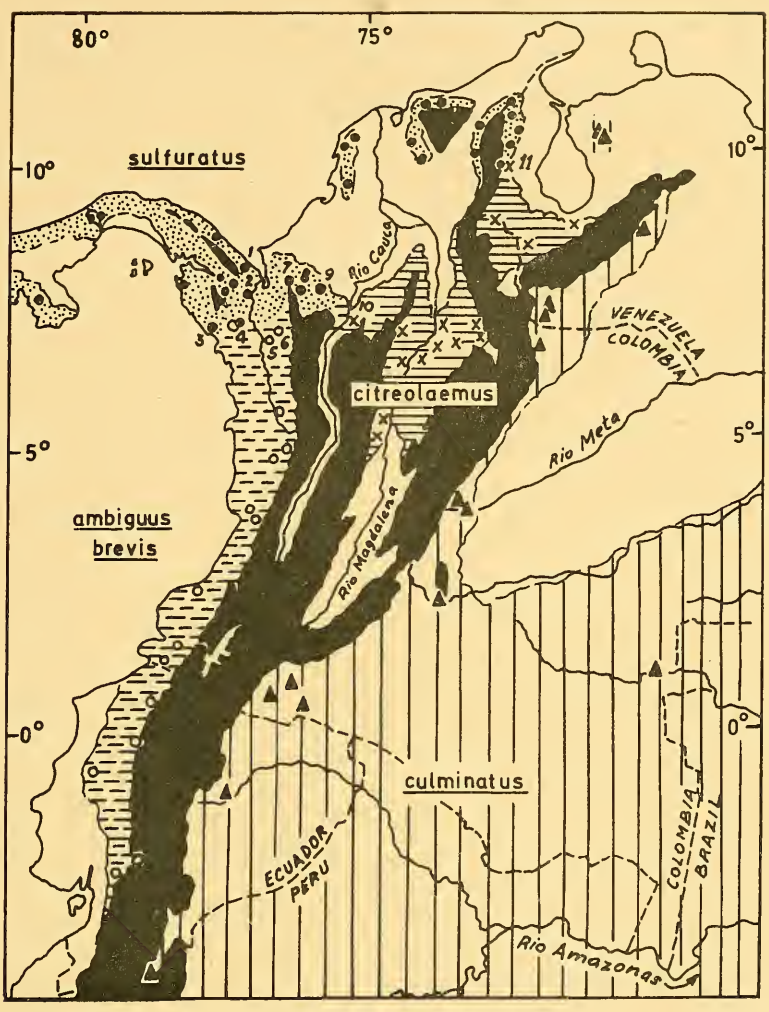

Fig. 3: Distribution of members oft the *Ramphastos vitellinus* superspecies in northwestern South America.

After Aldrich, 1937; Bond & de Schauensee, 1944; Eisenmann, 1952; Griscom, 1929, 1932; Haffer, 1959; Haffer & Borrero, 1965; Phelps & Phelps, Jr., 1958; de Schauensee, 1948—1952, and Chapman, 1926.

The range of *R. sulfuratus* probably was more continuous in northern Colombia during pre-Colombian times. It should be noted that hybrids are reported between *R. (v.) citreolaemus* and *R. (v.) culminatus* in western Venezuela (E. Eisenmann in de Schauensee, 1966). Elevations over 1000 meters are in black.

Key: Vertical lines and triangles, *Ramphastos (vitellinus) culminatus;* horizontal lines and crosses, *R. (v.) citreolaemus;* dashed area and open circles, *R. ambiguus brevis;* dotted area and solid circles, *R. sulfuratus.*

Numbered localities: 1, Rio Tanela; 2, Sautatá; 3, Rio Juradó; 4, Rio Salaquí; 5, Murindó; 6, Mutatá; 7, Quimarí; 8, Rio Naín; 9, Quebrada Charrura (Upper Rio San Jorge Valley); 10, Puerto Valdivia; 11, Upper Rio Negro Valley.

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Ramphastos ambiguus brevis de Schauensee 1 ♂

Measurements are wing 210, tail 154, bill 151.4 mm, testes 7×3 mm. This adult male is at the upper size limit of *brevis*.

Ramphastos a. brevis, a typical Chocó form, is confined to the Pacific lowlands of western Colombia and northwestern Ecuador (Figure 3). It is sympatric throughout this area with the exceedingly similar, though somewhat larger, *Ramphastos swainsonii*. The range of the latter species includes the entire Urabá region where it is quite common (Haffer 1967d), and extends eastward in the humid middle Magdalena Valley and northwestward through Panamá and Costa Rica into Honduras. In contrast to *R. swainsonii*, the smaller *R. ambiguus brevis* is missing in Central America[1]) and in northwestern Colombia, including the Urabá region, where its place seems to be taken by the similar sized *Ramphastos sulfuratus*, which possesses a very differently colored bill. Both these latter species replace each other abruptly in the lower Atrato Valley, *R. a. brevis* being known north to Murindó and Mutatá, and *R. sulfuratus* south to the Rio Juradó. The only area where both have been taken is along the Rio Salaquí (Figure 3, no 4). This, however, does not prove sympatric breeding of the two species but simply denotes the area of contact.

Ramphastos sulfuratus is widely distributed in Central America, north to Honduras, and in northern Colombia. In the latter area I have found it in Moist and Dry Forests east to the upper San Jorge Valley and in the coffee forests of the Serranía de San Jacinto near the Caribbean coast (Haffer & Borrero, 1965). *R. sulfuratus* also inhabits suitable forests and shaded plantations in the Santa Marta region and has advanced into northwesternmost Venezuela. In this country it is confined to the lowlands along the foot of the northernmost part of the Sierra de Perijá. This species inhabits comparatively dry forests and overgrown plantations in quite populated areas of northern Colombia, although it is also common in undisturbed humid forests of Central America and around the Gulf of Urabá. The forests of the Urabá region appear to be ecologically very similar to those of the humid middle Magdalena Valley and of the Maracaibo basin. I can see no ecological reason why *R. sulfuratus* should not inhabit these latter areas. For this reason I assume that ecologic competition with *R. (vitellinus) citreolaemus* prevents *R. sulfuratus* from advancing south into the middle Magdalena Valley and into the Maracaibo Basin. *R. (v.) citreolaemus* inhabits the forested lowlands mentioned above which are not occupied by *R. sulfuratus*.

[1]) The only record from Central America goes back to Ridgway (1914, p. 339; see also Griscom, 1935) who reported an adult female from the Canal Zone. It should be noted that the measurements of this bird given by Ridgway (*l. c.*) are larger than those of *R. a. brevis* from western Colombia (Chapman, 1917, p. 329) and would suggest *R. swainsonii* which is common in Panamá. If the bird was determined correctly, it may have been brought to the Canal Zone from the Chocó region of western Colombia. In view of the fact that *R. ambiguus brevis* was never found in Panamá during later years (E. Eisenmann, pers. comm.) the above record apparently cannot be accepted as valid.

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Both these species come in contact in the Rio Negro Valley, on the eastern slope of the northernmost Sierra de Perijá (Figure 3, no 11). I have compared typical specimens of both forms from this locality in the Phelps collection, Caracas. They show that introgression or hybridization between these species does not occur. The exact location of the area of contact of the two forms west of the lower Rio Cauca, where *R. (v.) citreolaemus* has been collected, and east of the San Jorge Valley, where I have taken *R. sulfuratus*, is not yet known[2]).

It appears that these two species have reached reproductive isolation but remained sufficiently competitive to hold each other off (see Haffer, 1967 b, for further examples of geographic replacement in northern Colombia, possibly due to ecologic competition).

Historically, we may assume that *R. ambiguus brevis* and *R. sulfuratus* represent strongly differentiated, early, trans-Andean isolates of the Amazonian *R.* proto-*culminatus*. They may have originated in the Chocó Refuge and in the Caribbean Central American Refuges, respectively (Haffer, 1967 a). The Central American *R. sulfuratus* probably advanced eastward into northern Colombia and, by occupying the Urabá region, may have prevented a northward directed range extension of the west Colombian *R. ambiguus brevis*. The eastward advance of *R. sulfuratus*, in turn, was apparently checked by *R. (v.) citreolaemus* in northern Colombia and northwestern Venezuela. The latter form possibly originated in the Catatumbo Refuge (Haffer, 1967 b) and occupied the Magdalena Valley before *R. sulfuratus* could do so. I assume that the above allies replace each other today more or less in the area where they met in the recent geologic past.

In contrast to *R. ambiguus brevis* the larger *R. swainsonii*—which may be a trans-Andean representative of the Amazonian *R. tucanus* superspecies—was able to extend its range from the Chocó Refuge area into the middle Magdalena Valley and into Central America, as it did not encounter closely related geographical representatives in these areas.

Celeus loricatus mentalis (Cassin) 1 ♂

Because of the almost complete absence of black barring of the upperparts this bird must be referred to *mentalis*. It shows only a few scattered black spots on the wing coverts and several incomplete bars towards the tips of the secondaries.

It is surprising to find the northern Urabá form at Mutatá rather than the heavily barred *C. l. loricatus* of the Chocó region which has been taken at Alto Bonito and at the lower Rio Cauca (Chapman, 1917). More material is needed to confirm the subspecific identity of the Mutatá population as the barring of the upperparts is subject to pronounced variability in this species. Moreover the above male was collected from a mixed bird party and may have been a straggler from farther north.

[2]) I doubt the validity of my sight records of *R. (v.) citreolaemus* from the Urabá region (Haffer, 1959).

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Xiphorhynchus erythropygius aequatorialis (Berlepsch & Taczanowski) 2 ♂♂, 1 ♀

R. Meyer de Schauensee, Philadelphia, kindly compared one of these specimens with more material from western Colombia and found it to agree "quite well with our specimen of *aequatorialis* and I think it should be referred to that race" (de Schauensee, *in litt.*).

This species is rather common in the Pacific lowlands of Colombia and Ecuador from the Baudó mountains south, but is very rare in the less humid Urabá region where I have never found it. The only record from this area (Rio Truandó) was referred to the Panamanian *X. e. insolitus* (Chapman, 1917; de Schauensee, 1948—52).

Hyloctistes subulatus cordobae de Schauensee 1 ♂, 1 ♀

Both birds are paler underneath than three specimens from Guapi on the Pacific coast of SW-Colombia; the female shows pronounced dusky margins to the feathers of the throat and upper breast unlike the male in which these parts are rather plain. The birds are not entirely typical for the northern race *cordobae* and show some approach to *assimilis*. In size they are also intermediate (wing, ♂, ♀, 87.5, 83, tail 66.5, 66, culmen from base 24, 23.5). De Schauensee (1960) noted the intermediate position of the population inhabiting the Baudó mountains. Probably a rather gentle cline of this species is found along the lower Atrato Valley.

Dysithamnus puncticeps intensus Griscom 6 ♂♂, 2 ♀♀

This bird was quite common in the understory of the forests near Mutatá. It occurs from here south along the Pacific lowlands with numerous specimens on record (de Schauensee, 1948—1952) and also along the northern foothill zone of the Western Andes to the lower Rio Cauca. However, it is apparently missing or at least very rare in the less humid Urabá region where I have never encountered it. Carriker (1955) also failed to find it along the western shore of the Gulf of Urabá.

Myrmotherula fulviventris fulviventris (Lawrence) 2 ♀♀

The more intensively colored underparts of these birds serve to distinguish them from *M. f. salmoni* of the upper Sinú and lower Cauca regions to the northeast.

Gymnopithys leucaspis bicolor (Lawrence) 1 ♂

This bird is referred to *bicolor* on the authority of Chapman (1917) who found three specimens from Alto Bonito, 25 kilometers south of Mutatá, to be typical of this subspecies. However, in the above bird the crown is faintly chestnut and contrasts only very weakly with the darkbrown back. This may indicate intergradation with the southern form *daguae* in the Mutatá-Alto Bonito region. The species was common in the forests southwest of Mutatá.

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Formicarius analis — Formicarius nigricapillus

From personal experience with *F. analis* in the Urabá region I considered the undisturbed forests around Mutatá highly suited ecologically to this bird. Instead, the complete absence of either of the two closely allied species around Mutatá and south to Alto Bonito was most surprising. West of the Rio Atrato I found *F. analis* south to the Rio Napipí; east of this river I heard it commonly along the Saisa trail and collected one specimen at the Rio Chigorodó (fig. 4). However, I failed to notice the bird at the Rio Imamadó, in the Rio Uva and Murrí Valleys, and around Mutatá. It is unlikely that I should have overlooked this species, although of course I cannot deny the possibility that it will eventually be found at some of these localities.

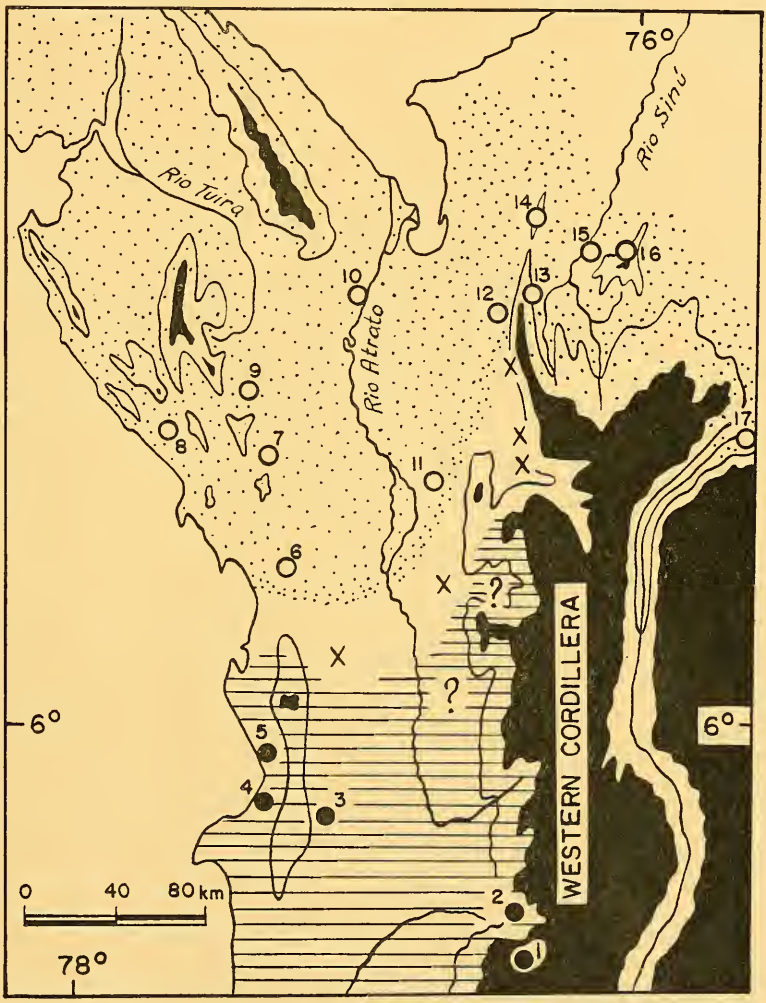

Fig. 4: Distribution of *Formicarius analis* (open circles) and *Formicarius nigricapillus* (full circles) in northwestern Colombia.
Explanation: Crosses indicate localities where neither species has been found by the author. These localities are from north to south Rio Imamadó, Mutatá,

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Alto Bonito, Rio Murrí, Rio Uva. Elevations over 1000 meters are in black, the 500 meter contour line is a smooth curved line. List of localities (after de Schauensee, 1948—52, if not stated otherwise):
F. nigricapilles destructus: 1 La Selva, 2 Santa Cecilia, 3 Rio Baudó, 4 Nuquí, 5 Rio Jurubidá.
F. analis panamensis: 6 Rio Napipí (Haffer, 1967 d), 7 Rio Truandó (Haffer, 1967 d), 8 Rio Juradó, 9 Rio Salaquí, 10 Sautatá, 11 Murindó, 12 Rio Chigorodó (Haffer, 1967 d), the record from the "Upper Rio Atrato" (Chapman, 1917, p. 390) is based on a specimen collected by Mrs. Kerr. I have examined this bird at the American Museum of Natural History, New York (no. 126940). Its original label reads: "Female, low bushes, Atrato, Colombia, S. A.; Dec. 18, 1909, E. L. Kerr". In contrast to Chapman *(l.* c.) I strongly suspect that the bird was taken in the *lower* Atrato Valley where this species is known to occur and where Mrs. Kerr has collected extensively.
Specific localities in the Darién region of eastern Panamá are not indicated on the map. While visiting the American Museum of Natural History, New York, I examined specimens from the following places: Cape Garachiné, El Real, Capetí River, Cituro, Boca de Cupé, Tapalisa, and Mt. Tacarcuna (4000 feet).
F. analis saturatus: 13 Saisa Creek, Rio Verde (commonly heard, Haffer), 14 Quimarí, 15 Frasquillo (Haffer, 1967 d), 16 Murucucú, 17 Puerto Valdivia (the bird also advanced southward into the Cauca valley where known from Riofrio; possibly no more found in this deforested valley today).

The northernmost records of *F. nigricapillus* are from Nuquí and the Rio Jurubidá, but it is assumed to range farther north along the base of the Western Andes. The data at hand indicate that both species possibly are separated by a distributional gap which may be 50 to 80 kilometers wide. The range limits of both species seem to be determined by the steep environmental gradient found in the Atrato Valley with *F. analis* restricted to the area of less than 4000 millimeters of rain per year, while *F. nigricapillus* appears to require a habitat with over 5000 millimeters rain/year (fig. 2 & 4).

Grallaria fulviventris barbacoae (Chapman)

This species is common around Mutatá and Alto Bonito where I have heard a total of 12 individuals during my stay of two weeks. However, I was unable to collect even one due to their extremely elusive habits. The subdued song consisting of a series of 8 to 10 clear notes rising in pitch and somewhat increasing in loudness towards the end was heard from dense, tangled, broad leafed thickets along forest borders (plate I, fig. 1) and valleys of small creeks in the forest. It appears that this species is common in the Chocó region (despite the lack of records) but very rare in the less humid Urabá region where I have encountered it only twice (Haffer, 1967 d).

Grallaria perspicillata periophthalmica Salvin & Festa 1 ♀

This bird is referred to the Chocó form *periophthalmica* on the basis of the black and fulvous streaks on the breast and the rather intensively colored back, although the center of the throat is whitish rather than pale fulvous as in a bird from the Rio Truandó (Haffer, 1967 d).

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Carpodectes hopkei Berlepsch

This unmistacable snowy white bird was observed once on a tall tree in the forest southwest of Mutatá.

Pipra erythrocephala erythrocephala (L.) 12 ♂♂, 1 ♀

The bird is common around Mutatá where I have seen several groups of displaying males in the forest southwest of this village. Besides the above series a single male was collected near the bridge of the Turbo road over the Rio Piedras Blancas, 10 kilometers south of Mutatá.

Pipra mentalis minor Hartert 2 ♂♂, 1 ♀

This is the northernmost record of the species in the lower Atrato Valley. See Haffer (1967b) for a detailed account of the distribution and probable interrelationship of this and the preceding species.

Machaeropterus regulus — Allocotopterus deliciosus

The Striped and Club-winged Manakin inhabit the humid foothill zone of the northern Andes from the lowland base to about 1500 meters. *A. deliciosus* seems to be centered somewhat higher up on the western slope than *M. regulus* but was also encountered at such lowland localities as Quevedo and Cachabí in northwestern Ecuador and at La Guayacana of southwestern Colombia (fig. 5). *M. regulus* is a bird of the Amazonian basin and ranges around the northern tip of the Eastern Andes into the humid middle Magdalena Valley and to the Western Cordillera where it is restricted to the foothills. I have never found this bird in the forested lowlands around the Gulf of Urabá, although it is probably present on the mountain slopes east of Mutatá. The species is known south along the base of the Western Andes to Santa Cecilia (fig. 5, SC). It would be most interesting to find out the interrelationship of *M. regulus* and its allopatric representative *Allocotopterus deliciosus* which ranges along the Pacific slope from Queremal (fig. 5, Qu) into northwestern Ecuador. Both species probably meet somewhere between Santa Cecilia and Queremal which localities are 200 kilometers apart.

A display of the male of *Allocotopterus deliciosus* has been described recently by Willis (1966). On the other hand, displays of the Colombian forms of *Machaeropterus regulus* are not yet known. It seems pertinent, therefore, to record here the reliable description of what appears to be the "dance" of *M. regulus antioquiae* of western Colombia. Mr. Luis Orozco, preparator of the Museo de Historia Natural, Popayán, has met this species at Santa Cecilia (see above) on a collecting trip with Mr. Kjell von Sneidern and describes the display as follows: the bird was sitting on a tiny horizontal twig in the forest at about eye level. Suddenly it jumped up about 20 centimeters lifting the more or less closed and vibrating wings somewhat over its back and alighted on the spot from where it had left.

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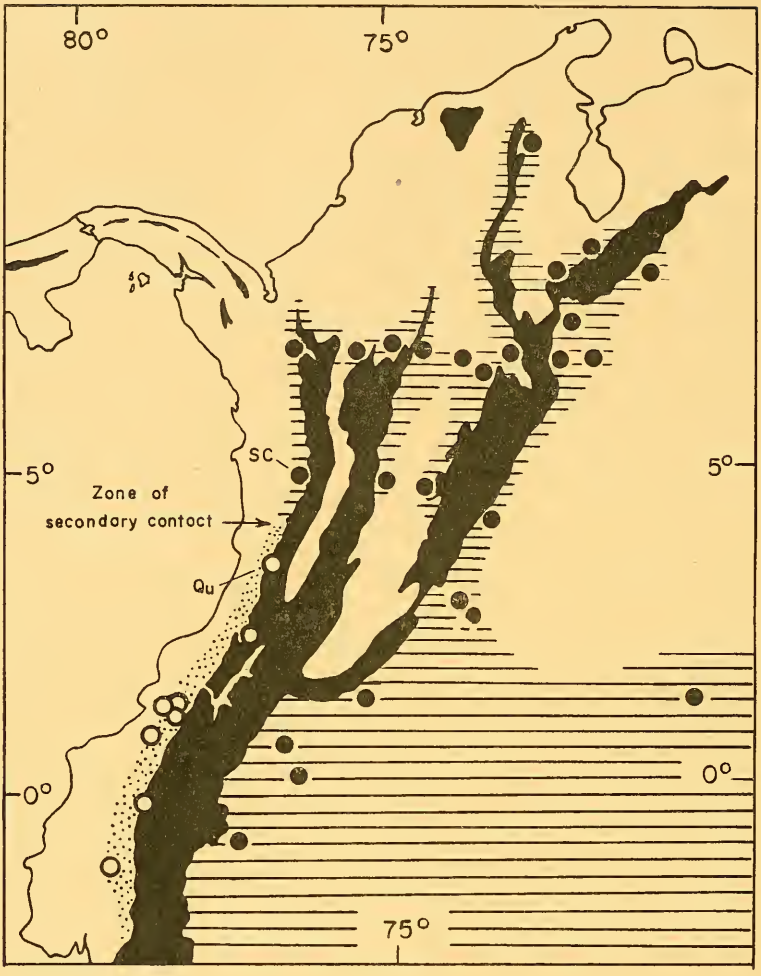

Fig. 5: Distribution of *Machaeropterus regulus* (full circles) and *Allocotopterus deliciosus* (open circles) in Colombia and Ecuador.
After de Schauensee, 1948—1952, 1951; Phelps & Phelps, Jr., 1963; Olivares, 1964; Willis, 1966; SC — Santa Cecilia; Qu — Queremal; elevations over 1000 meters are in black.

During this performance an insect-like buzzing sound "bezzzzz" was heard. The display was repeated several times. Should this observation be confirmed by other students it would show important differences between the displays of the west-Colombian and Brazilian populations of *M. regulus*. In the latter forms Sick (1959) observed displaying males on slender vertical twigs with their bills open and heard buzzes that lasted 5 to 20 seconds!

The study of *M. regulus* and *Allocotopterus deliciosus* in the region of secondary contact would be of particular significance in view of their strict allopatry (competitive exclusion?) and the possibility that both may have to be considered congeneric (Hellmayr, 1929).

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Chloropipo holochlora suffusa Griscom 1 ♀ (deposited at the Acad. Nat. Sci., Philadelphia)

The bird was nesting and had a large follicle of 7 mm diameter in the oviduct. R. Meyer de Schauensee, Philadelphia, has examined this specimen and writes me: "It is darker and more olive than our specimen of *litae* and agrees well with the description of *suffusa*. Although we have no specimens of the latter to compare your specimen with, I would not hesitate to refer it to *suffusa*". This race is new to the Colombian list.

Sapayoa aenigma Hartert 1 ♀

A typical Chocó element which has extended its range eastward into the upper Sinú region.

Sayornis nigricans angustirostris Berlepsch & Stolzmann

This species was frequently observed along steep rocky river banks in the upper Rio Sinú Valley (Rio Naín, Rio Verde), and near Mutatá along the Rio Sucio where the banks form cliffs over 15 meters high.

Mitrephanes phaeocercus berlepschi Hartert 1 ♂

This bird is similar to an adult male from Alto Bonito described by Chapman (1917, p. 472). Its identification was kindly confirmed by Eugene Eisenmann, New York.

The species is known only in the lower Atrato Valley (Munguidó, Alto Bonito) but reoccurs in western Ecuador. Other examples of species which avoid the extremely humid portion of the central Chocó region but occur north and south of it are discussed elsewhere (Haffer, 1967 d).

Rhynchocyclus brevirostris pacificus Chapman 2 ♂♂, 1 ♀

These specimens are perfectly typical of this Chocó form (as was kindly confirmed by E. Eisenmann, New York, *in litt.*) and do not show any approach toward *R. olivaceus bardus* taken only 10 kilometers to the northwest at Pavarandocito. See Haffer (1967 b) for a detailed discussion of the distribution of these closely allied species.

Neochelidon tibialis minimus Chapmann 1 ○ (imm.)

This is the first record for the species from the northern Pacific lowlands. The bird is apparently quite rare in the Urabá region where I have never seen it. Large flocks possibly migrating after breeding were frequently observed over the forest and along forest borders near Mutatá.

Campylorhynchus albobrunneus harterti (Berlepsch) 1 ♀

Several pairs of this white forest wren were observed southwest of Mutatá. The species ranges north along the Serranía de Abibe to the Saisa trail, but appears to be separated from its ally *C. zonatus* by a distributional

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gap (Haffer, 1967 d). A highly unstable (hybrid) population, *C. albobrunneus aenigmaticus,* which de Schauensee (1948, 1966) believed to be intermediate between *C. albobrunneus* and *C. turdinus,* occurs in southwestern Colombia. However, both these supposed "parent" species are separated by the Andes mountains, *C. albobrunneus* being trans-Andean and *C. turdinus* cis-Andean. It would appear to me that the possibility of hybridization of *C. albobrunneus* with the allopatric *C. zonatus brevirostris* of northwestern Ecuador should not be discarded entirely. The northernmost record of the latter species in northwestern Ecuador is very close to the type locality of *C. a. aenigmaticus* (Selander, 1964, fig. 33). From the description of the five original specimens (de Schauensee, 1948) it seems that the strange unstable characters of *C. a. aenigmaticus* might be produced by introgression of *zonatus* rather than *turdinus* genes.

Thryothorus nigricapillus schottii (Baird) 1 ♂

Thryothorus thoracicus leucopogon (Salvin & Festa) 3 ♂♂, 1 ♀

The upperparts of one the males are grayish, in this respect somewhat approaching the race *grisescens* which inhabits the western shore of the Gulf of Urabá.

Henicorhina leucosticta darienensis Hellmayr 3 ♂♂, 1 ♀, 2 ○ (imm.)

This wren was very common in the forest around Mutatá. However, I have never found it around the Gulf of Urabá to the north. The cap is pure black in the above series of darkbacked and rather small birds.

Microcerculus marginatus subsp.

The characteristic song of this wren consisting of several wistled notes, spaced a few seconds each, was often heard in the forests of the Mutatá region.

Cyanerpes caeruleus chocoanus Hellmayr 5 ♂♂, 3 ♀♀

Besides the birds collected many more were observed around Mutatá. The bird is much less common in the Urabá region to the north.

Chlorophanes spiza arguta Bangs & Barbour 2 ♂♂, 1 ♀

These birds are typical for the northwest-Colombian race, the female being less yellow and the males less blue than in *C. sp. subtropicalis.*

Dacnis cayana baudoana de Schauensee 1 ♂, 1 ♂ (imm.), 1 ♀

These specimens were compared with the dark purple-blue *coerebicolor* of the Magdalena Valley and with the light blue *ultramarina* from the west shore of the Gulf of Urabá. The Mutatá birds are intermediate; because of their clear blue plumage they are referred to *baudoana* rather than *napaea.*

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Dacnis venusta fuliginata Bangs 4 ♂♂

This species was not rare around Mutatá where it occurred in mixed bird parties. I have never found it in the less humid lowlands around the Gulf of Urabá. The species ranges along the humid northern base of the Western and Central Andes into the middle Magdalena valley without entering the lowlands north of, and away from, the mountains.

Tangara johannae (Dalmas) 2 ♂♂, 1 ♀

A typical Chocó element which had been known north only to the Baudó mountains. Like a number of other species it advanced along the more humid base of the Western Andes north to the Mutatá area but is not found in the Napipí-Uva region on the opposite side of the Atrato Valley. I have never encountered this species in the Urabá region.

It was seen along forest borders and on fruiting trees on small clearings in the forest.

Tangara lavinia lavinia (Cassin) 3 ♂♂, 2 ♀♀

An interesting competitive relationship possibly exists between this species and *T. gyrola,* of which *T. lavinia* appears to be the geographic representative in the trans-Andean lowlands (Haffer, 1967c).

Tachyphonus delatrii delatrii Lafresnaye 6 ♂♂, 3♀♀

Family groups of up to 10 birds were quite commonly seen in the forest. The bird was also taken at the Rio Truandó and Rio Uva but is missing in the less humid lowlands around the Gulf of Urabá.

Heterospingus xanthopygius berliozi Wetmore 1 ♂, 1 ♂ (imm.)

The adult male is deeper black throughout and has the rump and upper wing-coverts darker and brighter yellow than one male of the nominate form from Quimarí (upper Sinú region) available for comparison. The superciliares are also darker red in the bird from Mutatá which displays all characters ascribed to *berliozi* of the Chocó region of western Colombia (Wetmore, 1965); the bird is identical with another specimen at hand collected along the Rio Anchicayá, east of Buenaventura. The immature bird from Mutatá is molting from the darkgray juvenal dress into the fully black plumage of the adult male.

This species inhabits the humid northern base of the Western and Central Andes and ranges into the Middle Magdalena Valley; it is also found along the Pacific coast north into eastern Panamá (Rio Jaqué) where the comparatively pale population is referred to the nominate form by Wetmore (1965). No record is known so far from the somewhat less humid lowlands in the immediate surroundings of the Gulf of Urabá where I have never found this species. The well-marked Central American representative *H. rubrifrons* probably meets *H. xanthopygius* in Darién (between Mt. Sapo

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and the Rio Jaqué) and somewhere along the western shore of the Gulf of Urabá (*rubrifrons* is known from Obaldía close to the Colombian border). It would be interesting to find out the interrelationship of these two forms which are variously interpreted as subspecies of *H. xanthopygius* (Hellmayr, 1936) or as two distinct, though allopatric, species (de Schauensee, 1966).

Mitrospingus cassinii cassinii (Lawrence) 1 ♀

The species was surprisingly rare around Mutatá; I have encountered it more commonly in the forests and forest borders of other parts of the northern Chocó and Urabá regions.

Erythrothlypis salmoni (Sclater) 1 ♂, 1 ♂ (imm.), 1 ♀

The rare and beautiful Scarlet-and-white Tanager was known from the Baudó mountains southward over the lowlands and foothills into northwestern Ecuador. As shown by the specimens from Mutatá is ranges much farther north along the base of the Western Andes and may eventually be found to inhabit the northern base of the Western and Central Andes to the region of its supposed type locality at Remedios. Possibly a similar distribution pattern exists in this tanager as in *Trogon comptus, Dysithamnus puncticeps, Heterospingus xanthopygius,* etc. which species range around the northern tip of the Western Andes inhabiting the humid base and foothill zone of the mountains without spreading north into the less humid lowlands. In any case, there is no reason to change the type locality of *E. salmoni* (as proposed by Carriker, 1955) until more collecting has been done along the northern slope of the Western and Central Andes.

VI. APPENDIX

Besides the birds listed above the following species were also collected at Mutatá:

1. Nonforest birds taken from the large clearings around the village: *Buteo nitidus nitidus* (1 ♂), *Falco rufigularis petoensis* (1 ♂, 1 ♀), *Amazilia tzacatl tzacatl* (1 ♂), *Synallaxis brachyura chapmani* (1 ♀), *Myrmotherula surinamensis pacifica* (1 ♂, 1 ♀), *Myiozetetes cayanensis hellmayri* (2 ♀♀), *Myiarchus ferox panamensis* (1 ♀), *Todirostrum cinereum cinereum* (1 ♂), *Troglodytes aedon striaticollis* (1 ♀), *Leistes militaris militaris* (2 ♂♂ imm.), *Sporophila americana chocoana* (1 ♂), *Sporophila minuta minuta* (1 ♂).

2. Forest birds: *Penelope purpurascens aequatorialis* (1 ♂, 1 ♀), *Eurypyga helias major* (1 ♂), *Pionus menstruus rubrigularis* (1 ♀), *Trogon viridis chionurus* (2 ♂♂), *Phaethornis longuemareus nelsoni* (1 ♂), *Malacoptila panamensis chocoana* (2 ♂♂, 2 ♀♀), *Capito maculicoronatus rubrilateralis* (1 ♀), *Phloeoceastes melanoleucus malherbii* (1 ♂, imm.), *Dendrocincla fuliginosa ridgwayi* (1 ♂), *Glyphorhynchus spirurus sublestus* (5 ♀♀, 1 ♂), *Thamno-*

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philus punctatus atrinucha (2 ♂♂, 4 ♀♀), *Myrmotherula axillaris albigula* (1 ♂, 2 ♀♀), *Myrmeciza exsul cassinii* (3 ♂♂, 2 ♀♀), *Hylophylax n. naevioides* (1 ♂), *Pachyramphus c. cinnamomeus* (1 ♂), *Pipra coronata minuscula* (4 ♂♂, 11 ♀♀), *Manacus vitellinus viridiventris* (2 ♂♂, 1 ♀, 1 ○), *Colonia colonus leuconota* (1 ♂, 1 ♀), *Myiobius barbatus aureatus* (1 ♂, 1 ♀), *Platyrinchus coronatus superciliaris* (1♂, 1 ♀), *Mionectes olivaceus hederaceus* (3 ♂♂), *Microbates c. cinereiventris* (2 ♂♂, 1 ♀), *Basileuterus rivularis semicervinus* (1 ♂), *Euphonia xanthogaster chocoensis* (3 ♂♂, 1 ♀, *Euphonia fulvicrissa omissa* (2 ♂♂), *Euphonia minuta humilis* (1 ♂), *Euphonia laniirostris crassirostris* (1 ♂), *Ramphocelus (flammigerus) icteronotus* (1 ♂), *Chlorothraupis olivacea* (1 ♂, 2 ♀♀), *Pitylus grossus saturatus* (2 ♀♀).

VII. SUMMARY

A collection of birds from Mutatá in the northern Pacific lowlands of Colombia shows that a number of characteristic Chocó elements occur along the base of the Western Andes considerably farther north than they do along the Pacific coast on the opposite side of the Atrato Valley. This is probably explained ecologically as the northern portion of the Western Andes prevents the drying winter trade winds from reaching the lowlands along the western base. These winds blow in a southwesterly direction from the Gulf of Urabá into the lower Atrato Valley and reach the northern Pacific coast during the months of December through March, causing a marked dry season. The less humid Dry and Moist Tropical Forests of the trade wind area are ecologically quite different from the Wet and Pluvial Forests found in the region to the south and along the base of the Western Andes where the rains fall without a break the year around.

The high percentage of immature birds and of adults molting wing and tail feathers indicates that the breeding season terminated about the month of June.

Chloropipo holochlora suffusa is new to the Colombian list. The single specimen of *Columba goodsoni* probably belongs to an undescribed subspecies. *Ramphastos sulfuratus* and *R. ambiguus brevis, Formicarius analis* and *F. nigricapillus* as well as *Machaeropterus regulus* and *Allocotopterus deliciosus* replace each other geographically in western Colombia.

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Explanation of Plate I

Fig. 1, 2 and 3: Wet Tropical Forest three to five kilometers southwest of Mutatá, Dep. Antioquia, northwestern Colombia, where most of the collecting was done.

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Zeitschrift/Journal: Veröffentlichungen der Zoologischen Staatssammlung München

Jahr/Year: 1966

Band/Volume: 011

Autor(en)/Author(s): Haffer Jürgen

Artikel/Article: On birds from the Northern Chocó Region, NW-Colombia. 123-149