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STUDIES OF PERUVIAN BIRDS. NO. XXXI[1]

NOTES ON THE GENERA *MYIOTRICCUS, PYRRHOMYIAS, MYIOPHOBUS, ONYCHORHYNCHUS, PLATYRINCHUS, CNIPODECTES, SAYORNIS,* AND *NUTTALLORNIS*

BY JOHN T. ZIMMER

I am greatly indebted to Director Clifford C. Gregg and Curator Rudyerd Boulton of Field Museum of Natural History, Chicago, for the loan of certain material examined in the course of the following studies, and to Dr. Alexander Wetmore, Assistant Secretary of the Smithsonian Institution, Washington, D. C., for data on a series of specimens examined by him both of which proved of much service in confirming conclusions reached from the study of other material.

Names of colors are capitalized when direct comparison has been made with Ridgway's "Color Standards and Color Nomenclature."

Myiotriccus ornatus phoenicurus (Sclater)

Tyrannula phoenicura SCLATER, "1854" (= April, 1855), P. Z. S. London, XXII, p. 113—Quixos, Ecuador.

Two birds from Huarandosa, Perú, on the northern side of the Marañón, are inseparable from the east-Ecuadorian series of *phoenicurus* and furnish the first positive records of this subspecies from Perú. The southeast-Peruvian form is quite recognizably distinct as discussed below.

Myiotriccus ornatus aureiventris (Sclater)

Myiobius aureiventris SCLATER, "1873" (= 1874), P. Z. S. London, p. 782—Cosñipata, Dept. Cuzco, Perú; British Mus.

Birds from the southeastern part of Perú agree with *phoenicurus* of eastern Ecuador in respect to the complete rufescence of the tail but have the chest more strongly tinged with yellow, the rump and belly somewhat paler yellow, the rufous tinge of the longer upper tail-coverts less extensive and of a paler tint, and the back perhaps averaging a little more yellowish green.

Although several specimens of *phoenicurus* have a suggestion of dusky shading toward the tip of the tail, approaching *ornatus* or *stellatus*, none of the specimens of *aureiventris* examined shows this trend.

One specimen from Pozuzo indicates the farthest northern extension of the range of this form. There appear to be no specimens on record from the entire Huallaga Valley nor from the eastern and southeastern side of the Marañón. There is thus a rather large area from which the species is unaccountably absent or in which it is possibly rare though yet to be discovered.

Records which must belong to *aureiventris* are from Cosñipata, Huaynapata, Río Cadena, San Gaban, Chaquimayo, and Monterico.

SPECIMENS EXAMINED

M. o. ornatus.—COLOMBIA: La Frijolera, 3 ♂, 1 ♀; Subia, 1 ♀; Anolaima, 1 (?); Aguadita, 1 ♀; Fusugasugá, 1 ♂; near Honda, 1 (?); "Bogotá," 5 (?).

M. o. stellatus.—COLOMBIA: Chocó, 1 ♂; Nóvita trail, 1 ♂; Buenavista, 3 ♂, 1 ♀; Cocal, 3 ♂, 1 ♀, 2 (?); Gallera, 2 ♂, 1 ♀, 1 (?). ECUADOR: Lita, 3 ♂; Santo Domingo, 4 ♂, 2 ♀; Paramba, 3 ♂, 2 ♀; Mindo, 2 ♂; El Chiral, 2 ♂, 2 ♀; La Chonta, 3 ♂, 1 ♀; Cerro Manglar Alto, 1 ♂; Gualea, 5 ♂, 1 (?); Guanacillo, 1 ♀; "Río Napo" (errore), 1 (?).

[1] Previous papers in this series comprise American Museum Novitates, No. 500, 509, 523, 524, 538, 545, 558, 584, 646, 647, 668, 703, 728, 753, 756, 757, 785, 819, 860, 861, 862, 889, 893, 894, 917, 930, 962, 963, 994, and 1042.

M. o. phoenicurus.—COLOMBIA: Andalucia, 1 ♂. ECUADOR: Zamora, 4 ♂; Prov. de Loja, 1 (?); Sabanilla, 2 ♂, 3 ♀; Zuñac, 1 (?); Macas region, 3 (?); Río Suno, above Avila, 3 ♂, 2 ♀; below San José, 1 ♂; lower Sumaco, 1 ♂; "Napo," 1 (?); (no locality), 1 (?). PERÚ: Huarandosa, Río Chinchipe, 1 ♂, 1 ♀.

M. o. aureiventris.—PERÚ: Río Tavara, 4 ♂, 1 ♀; Río Huacamayo, 1 ♀; Chirimayo, 1 ♀; Marcapata, 2 ♂, 1 (?); Pozuzo, 1 ♀.

Pyrrhomyias cinnamomea cinnamomea (D'Orbigny and Lafresnaye)

M[uscipeta] cinnamomea D'ORBIGNY AND LAFRESNAYE, 1837, Mag. Zool., VII, cl. 2, Syn. Av., p. 49—Yungas, Bolivia; Paris Mus.

Inca Mine, 2 ♂, 1 ♀; Río Inambari, 1 ♀; Santo Domingo, 6 ♂, 2 ♀; Oconeque, 3 ♂; San Miguel, 3 ♂, 2 ♀; San Miguel Bridge, 1 ♂; Torontoy, 1 ♂; Idma, 2 ♀; Utcuyacu, 1 ♂, 1 ♀; Tulumayo, 1 (?); Rumicruz, 3 ♂, 1 ♀; Chelpes, 6 ♂, 1 ♀; Nuevo Loreto, 2 (?).

Specimens from the extreme southeastern part of Perú are fairly typical and agree with Bolivian and Argentine specimens, but away from this area, following the Andes northward, there is a gradually increasing tendency toward the more brightly colored *pyrrhoptera*. Specimens from the Urubamba Valley are not very different from Bolivian birds but are not typical. Examples from the Junín region are still less well marked and occasionally may be matched with certain Colombian specimens of *pyrrhoptera*. One adult from as far north as Nuevo Loreto seems rather certainly closer to *cinnamomea* than to *pyrrhoptera* although a larger number of specimens from this locality might show a different picture. Farther north than this, the series examined show stronger relationship to *pyrrhoptera* and are listed accordingly.

Records which thus may be assigned to *cinnamomea* are from Cosñipata, "Chuhuasi" [= Uruhuasi], Maraynioc, Pumamarca, Garita del Sol, Vista Alegre, and Huachipa.

I can see no good reason for keeping *P. vieillotioides* and *assimilis* specifically distinct from the *cinnamomea* group. Some specimens of *vieillotioides* have a definite greenish tinge on the lower back, suggesting a trend toward typical *cinnamomea*. On the other hand, certain skins of *cinnamomea* show a narrow rufous inner margin on some of the rectrices and even a trace of pale rufescence on the basal part of the outer webs of the outer rectrices, which appears to be a trend toward *vieillotioides*. The relationships of the various forms are not in geographical sequence since *pyrrhoptera* is the most greenish and *assimilis* is the most rufescent while the other two forms are variously intermediate.

Pyrrhomyias cinnamomea pyrrhoptera (Hartlaub)

Myiobius pyrrhopterus HARTLAUB, 1843, Rev. Zool., VI, p. 289—"Nouvelle Grenade" = Bogotá.

Chaupe, 3 ♂, 3 ♀; Chugur, 1 ♂, 2 ♀; Taulis, 3 ♂, 1 ♀; La Lejia, 3 ♂, 3 ♀; San Pedro, 2 ♂; Lomo Santo, 1 ♂; Uchco, 1 ♂, 1 ♀; Chachapoyas, 1 ♀; Huayabamba (5300 feet), 1 ♂; Leimebamba, 1 ♂; Levanto, 1 ♂.

Taczanowski (1884, Orn. Pérou, II, p. 300) called attention to the fact that north-Peruvian examples of *"Myiobius cinnamomeus"* (in which he included *"Myiobius pyrrhopterus"* as a synonym) were more brightly colored than skins from the central part of the country. Since confirmation of Hartlaub's separation of *pyrrhoptera* was not made until Chapman's report in 1917 (Bull. Amer. Mus. Nat. Hist., XXXVI, p. 467), the significance of the differences noted was lost to Taczanowski.

Actually, the birds from that part of northern Perú north and west of the Marañón agree most closely with Colombian specimens. Across the Marañón to the eastward, in the neighborhood of Chachapoyas, there is some tendency toward typical *cinnamomea* although even the most strongly marked example at hand from this area is still closer to *pyrrhoptera*. It seems best, therefore, to consider the line of demarcation between these two forms as coming between the Río Huayabamba and the Río Mixiollo. Future collections may show that the line should be south of this, but a fairly large series from the whole upper Huallaga

region will be necessary to determine the exact preponderance of demonstrable affinities.

Records which may be placed in *pyrrhoptera* are from Tabaconas, Huambo, Tambillo, Chira, and mountains east of Balsas.

Myiophobus cryptoxanthus (Sclater)

Myiobius cryptoxanthus SCLATER, 1860, P. Z. S. London, XXVIII, p. 465—Gualaquiza, Ecuador; cotypes in British Mus.

I believe that *cryptoxanthus* is specifically distinct from the *fasciatus* group for a number of reasons. In the first place, geographical replacement is not perfect since there is at hand a specimen of *fasciatus* from below San José, eastern Ecuador, from which locality there are three specimens of *cryptoxanthus*. Furthermore, the bill is of slightly different shape, being proportionately shorter and broader than in *fasciatus*, with less sharply ridged culmen; the pectoral streaking is very much less sharply defined but the whole pectoral area is darker; the tone of yellow on the under parts is of a different hue; the outer web of the outer tail-feathers lacks any definite tendency toward a pale demarcation; and there is no evidence of rufescence ever occurring on the crest which remains yellow. These characters, of course, are not necessarily of specific value but in combination, together with an indefinable difference in appearance, incline me to the belief that there are two species here involved.

The present species has not been recorded from Perú but three specimens from the neighborhood of Moyobamba (one in Field Museum of Natural History) unquestionably belong to it and not to the *fasciatus* group.

Two birds from Río Negro, west of Moyobamba, are quite like east-Ecuadorian examples. A male from Moyobamba, recorded by Hellmayr (1927, Field Mus. Nat. Hist. Publ, Zool. Ser., XIII, pt. 5, p. 253) as *M. flavicans saturatus*, agrees in most respects with the other specimens. The upper parts are browner than in any of the adults of the series but not so brown as in certain immature specimens, and while the Moyobamba specimen has the full pattern and most of the color of the other adults, its tail-feathers are suggestive of immaturity, being somewhat soft and acute at the tips. The bird may be in its first adult plumage, with consequent possibility of a juvenile tendency in the dorsal coloration. In any case, the Río Negro and the Moyobamba birds certainly belong together and their position is with *cryptoxanthus* instead of *flavicans*.

The question now remaining concerns the application of the name *saturatus*. Berlepsch undoubtedly was familiar with *cryptoxanthus*, which he had seen from Mapoto in 1885, long before he, with Stolzmann, described *saturatus*, but he made no comparison with *cryptoxanthus* in the original account of *saturatus*. It may be assumed, therefore, that he thought *cryptoxanthus* and *saturatus* to be very distinct. Furthermore, a specimen from Santa Ana was referred by Berlepsch and Stolzmann to *saturatus*, being, in fact, one of the paratypes. Santa Ana birds are very different from *cryptoxanthus* and are not likely to have been confused with it in actual comparison. The type of *saturatus* appears, by implication, to have had the crest rufous, a character which seems not to occur in *cryptoxanthus*.

There is occasional distinction between forms occurring, respectively, in the valleys of the Río Mayo and Río Huayabamba (cf. Zimmer, 1929, Proc. Biol. Soc. Wash., XLII, p. 93) and the present case may belong to this category.

The records from Jeberos, Chayavitas, and the lower Ucayali are very problematical. Originally placed in *"naevius"* (= *fasciatus*), they have since been referred to *saturatus* but there is no evidence for confirmation or refutation. No critical notes on the specimens were given which might help in their present determination and the specimens appear to have been dispersed by the dealers who imported them since they were not retained in the British Museum. I have seen no material from this region nor have there been other specimens recorded. The nearest approach to the localities mentioned is the

mouth of the Curaray, eastern Ecuador, whence I have a single specimen of *cryptoxanthus*. Since *cryptoxanthus* was known to Sclater at the time he recorded the north-Peruvian birds as "*naevius*," it is not likely, though possible, that they belonged to that form. Until further evidence is available, the records must be left as indeterminate.

Another possibility, of which I have found evidence in connection with another species, is that the birds were later found to belong to something quite different from what was originally supposed and were then properly identified and discussed under their correct heading while the original references were never corrected or synonymized.

Myiophobus fasciatus auriceps (Gould)

Myiobius auriceps GOULD in DARWIN, 1839, Zool. Voy. Beagle, III, pt. 9, p. 47—Buenos Aires; ♂; British Mus.

Twenty-eight specimens from Argentina, Paraguay, Bolivia, and southeastern Perú stand out well as a series from forty-three Brazilian examples of *flammiceps*. The Brazilian birds average more definitely buffy yellowish on the under parts and more deeply cinnamomeous on the wing-bars while the other specimens are whiter beneath and have the wing-bars paler cinnamomeous or buffy.

There is a certain amount of overlap in these characters, especially in worn and faded examples of true *flammiceps*, but the extremes are far apart and freshly plumaged birds are rather easily distinguishable. Consequently, I believe that *auriceps* is sufficiently recognizable to warrant its maintenance. There appears to be no difference in size and no clear distinction in the color of the upper parts which are warmly colored in both *auriceps* and *flammiceps*.

Actually the whitest-bellied examples are from northwestern Argentina (Tucumán and Salta), Bolivia, and southeastern Perú, while the specimens from near the type locality, Buenos Aires, are a little nearer the pale extremes of *flammiceps*. Nevertheless, the line of distinction is best established as indicated above with the added advantage of having a name already available for the separated form.

The whitish belly is one of the characters which separates the southeast-Peruvian birds from the central-Peruvian *saturatus*. In the specimens of *saturatus* examined, the belly is yellowish although the wing-bars are even paler and more whitish than in *auriceps*. The rufous-hued back of *auriceps* also distinguishes it from *saturatus* and in this respect the southeast-Peruvian birds agree with the Argentine specimens. One example from the Río Tavara shows a slight approach toward the duller brown back of *saturatus* but it is matched by a Bolivian specimen (Valle Grande, Santa Cruz) which is equally white on the belly. The intergradation with *saturatus* evidently takes place in southeastern Perú and Bolivia.

A record of "*naevius*" from Cosñipata probably belongs here.

Myiophobus fasciatus saturatus (Berlepsch and Stolzmann)

Myiobius naevius saturatus BERLEPSCH AND STOLZMANN, 1906, Ornis, XIII, p. 88—Chirimoto, Perú; ♂; Warsaw Mus.

A male from Tulumayo, Junín region, may be the nearest approach to *saturatus* as described. The original account says that the upper parts are darker or more blackish brown, less rufescent, than in "*naevius*" of Bahia and northern Venezuela. This holds true for Urubamba Valley specimens as well as for the Tulumayo specimen although there is some degree of difference in the amount of this shading of the upper parts between the Tulumayo specimen and Urubamba Valley birds now before me. The same amount of difference is observable in specimens of *crypterythrus* of western Ecuador and *flammiceps* of eastern Brazil although the latter are all more rufous above than the central Peruvian birds. Berlepsch and Stolzmann included a skin from Santa Ana in their series of *saturatus* without finding any distinctions from Chirimoto birds and it is quite possible that the type of *saturatus* is no darker than the darkest of the Santa Ana specimens now at hand. In any case, the Santa Ana birds are closer to the

extreme specimen from Tulumayo than to the rufous birds of southeastern Perú (which I discuss below under the name *auriceps*) and may be retained under *saturatus* for the present.

The belly has a definite yellow color in all of the Urubamba specimens at hand, a distinction of some value in comparison with *auriceps* of extreme southeastern Perú, and three of the examples have the concealed crest brownish orange, the remainder, yellow. The wing-bars are relatively pale, with only a slight cinnamon-buff tinge; the edges of the tertials are whitish; the chest is rather strongly and sharply streaked with darker color.

There is no very sharp distinction between *saturatus* and typical *fasciatus* although *fasciatus* averages distinctly more rufescent on the upper parts, rather stronger yellow on the belly, and more deeply buff or cinnamon on the wing-bars. Dark examples of this form that most closely approach *saturatus* are likely to have the belly more whitish instead of yellowish, possibly due to the effects of wear on the entire plumage. In any case, these specimens are exceptional. No specimen of *saturatus* at hand approaches the average of *fasciatus*.

The records of this form from Jeberos, Chayavitas, and the lower Ucayali are of doubtful application as is discussed under *M. cryptoxanthus*. Other records are from Chirimoto, San Miguel Bridge, La Merced, and Potrero. An additional record of a young bird from Huambo probably belongs here also although it was never discussed after its first notice (Taczanowski, 1882, P. Z. S. London, p. 21) unless under another name. There are no records of any other species of *Myiophobus* from Huambo.

Myiophobus fasciatus crypterythrus (Sclater)

Myiobius crypterythrus SCLATER, 1860, P. Z. S. London, XXVIII, p. 464—Pallatanga, Ecuador; ♂; British Mus.

This west-Ecuadorian form reaches northwestern Perú and crosses the western Andes to their eastern slopes between the ridge and the Río Marañón. In a series of fifty-seven specimens from Perú and Ecuador, only two examples, a male and a female from Huancabamba, Perú, have the crest yellow; the remainder have the crest orange-brownish, including three other Huancabamba birds. This development at Huancabamba may be a tendency toward *saturatus* although the yellow-crested specimens show no other tendency in the same direction. On the other hand, a male from Sauces, Río Chamaya, has a stronger yellow tinge on the belly than usual as do a male from Chongocito and a female from Chimbo, Ecuador. The Chimbo bird, in addition, has the back darker brown than in Santa Ana examples of *saturatus* though not as dark as in the specimen of that form from Tulumayo. The strongly rufous wing-bars distinguish it at once from any skin of *saturatus*.

Most of the Peruvian birds have the wing-bars paler and less rufescent than the average of the Ecuadorian series, but there is no constant difference. The individual variation of the Ecuadorian birds covers the extreme of the Peruvian specimens although no Peruvian example has the extreme of color shown by some individuals from farther north.

Records of *crypterythrus* are from Tumbez, Callacate, Hacienda Limón, Viña, and Malca.

Myiophobus fasciatus rufescens Salvadori

Myiobius rufescens SALVADORI, 1864, Atti Soc. Ital. Sci. Nat., VII, p. 152—"Brazil," errore; Lima, Perú, suggested, Zimmer, 1930; Turin Mus.

Myiobius nationi SCLATER, 1866, P. Z. S. London, p. 99, Pl. XI, fig. 1—vicinity of Lima; ♂♂ cotypes, British Mus.

A study of seventy additional examples of this form confirm my suspicions (1930, Field Mus. Nat. Hist. Publ., Zool. Ser., XVII, p. 380) that *rufescens* is not entitled to specific separation from *fasciatus*. Aside from the strong rufous hue of the whole under parts and the reduction of the streaking on the chest, there is no character to distinguish it from other members of the *fasciatus* group. Certain specimens show very evident traces of streaking on

the chest which are significant and the dorsal color of numerous examples is very like *saturatus*. The crest is tawny in most of the specimens, yellow in less than a tenth of the series.

One bird, without sex, from Pacasmayo, Perú, is so different from the remainder of the series that Lawrence at one time, judging by the names on the label, was prepared to describe it as a new species although he later decided that it belonged to *crypterythrus*. Actually, it is nicely intermediate between *crypterythrus* and *rufescens*, being too pale beneath for typical *rufescens* and too buffy for *crypterythrus*, with pectoral streaking also intermediate. It furnishes additional evidence that the two forms are conspecific.

Additional records of *rufescens* are from Chepen, Islay, Paucal, Guadalupe, and Tambo Valley.

SPECIMENS EXAMINED

M. f. fasciatus.—FRENCH GUIANA: Cayenne, 2 ♂, 3 ♀; Roche-Marie, 1 ♀. DUTCH GUIANA: near Paramaribo, 2 ♀. TRINIDAD: Princestown, 3 ♂, 4 ♀; Geelet, 1 ♀; Pointe Gourde, 1 ♀; Caparo, 1 ♂; Carenage, 1 ♂. VENEZUELA: Cristóbal Colón, 1 ♂, 1 ♀; Cuchivano, 2 ♀; La Florida, Cumanacoa, 1 ♂; Cocallar, 1 [♂]; Cotiza, 1 ♂; Cumbre de Valencia, 1 ♂; Cumanacoa, 1 ♀; Guanaguana, 1 (?); San Antonio, Bermúdez, 1 ♂, 2 ♀; Rincón San Antonio, 2 ♂; San Felix, 1 ♂; Los Palmales, 1 ♂; Puerto Cabello, 1 ♂; Mérida, 2 ♂, 1 ♀; Escorial, 1 ♂, 3 ♀; Valle, 3 ♂, 1 ♀, 1 (?); La Culata, 1 ♂; "Orinoco," 1 ♀; "Venezuela," 2 (?); Mt. Roraima, Paulo, 1 ♀. COLOMBIA: Quitame, 1 ♂; Primavera, 1 ♂; Honda, 1 ♂; Las Lomitas, 1 ♂, 1 ♀; Caldas, 1 ♂, 1 ♀; Andalucia, 1 ♀; San Antonio, Cauca, 1 ♂; Salento, 1 "♀"; "Bogotá," 5 (?); Minca, Santa Marta, 1 ♀. ECUADOR: below San José, 1 ♂.

M. f. furfurosus.—PANAMÁ: Pearl Islands, 1 ♂; La Chorrera, 1 (?); Cerro Montoso, 1 ♂; El Villano, 2 ♂; Balboa, 1 ♀; Santa Fé, 1 ♂; "Panamá," 2 ♂. COSTA RICA: Buenos Aires, 1 ♀.

M. f. crypterythrus.—ECUADOR: Esmeraldas, 3 ♂, 3 ♀; Chimbo, 2 ♀; Mindo, 1 ♀; Bucay, 3 ♂, 1 ♀; Río Pullango, 1 ♂; Río Pindo, 1 ♂; Alamor, 3 ♂; Guainche, 2 ♀; Chone, 1 (?); Santa Rosa, 1 ♀; Isla Puna, 2 ♂, 3 (?); Cebollal, 2 ♂; Chongon Hills, 1 ♀; San Javier, 3 ♂; Paramba, 1 ♂, 1 ♀, 1 (?); Portovelo, 3 ♂, 1 ♀; Zaruma, 1 ♀; Chongocito, 1 ♂. PERÚ: Palambla, 2 ♂, 1 ♀, 1 (?); San Felipe, Río Huancabamba, 1 ♂; Sondorillo, 1 ♂; Jaen, 1 ♀, 1 (?); Sauces, 2 ♂; Huancabamba, 3 ♂, 2 ♀.

M. f. rufescens.—PERÚ: Huaral, 10 ♂, 7 ♀; Huacho, 8 ♂, 3 ♀; Lima, 1 ♂, 1 (?); Chorrillos, 1 ♂; Ica, 1 ♀; Pisco, 2 ♂, 1 ♀; Vitor, 1 ♂, 1 ♀; Cocachacra, 2 ♂, 1 (?); Virú, 4 ♂, 4 ♀; Sayan, 1 ♂, 2 ♀; Vitarte, 2 ♀; Poroto, 2 ♂, 2 ♀; Trujillo, 4 ♂, 5 ♀, 1 ♂[1]; Trembladera, 1 ♂, 1 ♀; Pacasmayo, 1 ♀[2]; Santa Eulalia, 4 ♂[1], 1 ♂[1]; Chosica, 1 ♀[1]; Callao, 1 ♂[1]; Minocucho, 1 ♂[1], 1 (?)[1].

M. f. saturatus.—PERÚ: Tulumayo, 1 ♂; Santa Ana Valley, Urubamba region, 6 ♂, 1 (?).

M. f. auriceps.—PERÚ: Río Tavara, 4 ♂, 1 (?); La Pampa, 1 ♀. BOLIVIA: Yungas, Cochabamba, 1 ♀; Río Cachimayo, Sucre, 1 ♂, 1 "♀"; Valle Grande, 1 ♂; Province of Sara, 2 ♀, 1 (?). PARAGUAY: Abai, 1 ♀. ARGENTINA: La Soledad, 1 ♂; Salta, 1 ♂; Buenos Aires, 1 ♂, 1 ♀; Tucumán, 2 ♂; Barracas al Sud, 2 ♂, 1 ♀; La Plata, 1 ♂; Rosario de Lerma, 3 ♂, 1 ♀.

M. f. flammiceps.—BRAZIL: Rio de Janeiro, Bemfica, 1 [♂]; Therezopolis, 1 ♀; Bahia, 4 ♂, 1 ♀, 5 (?); Baixão, 1 ♀; Jiquy, 1 ♀; Orobó, 1 ♂; Itirussú, 1 ♂; Barra, 1 (?); Goyaz, Fazenda Esperanza, 2 ♂; Thesouras, 2 ♂, 1 "♂"; São Paulo, São Sebastião, 1 ♂; Victoria, 1 ♂; Piquete, 1 ♂; Minas Geraës, Varzea de Congonha, 1 ♂; Rio Caparão, 2 ♂, 1 (?); Piauhy, Corrente, 1 ♀; Santa Catharina, Hansa, 1 ♀; Pernambuco, Palmares, 2 ♂, 1 ♀; Garanhuns, 1 ♂, 1 ♀; Matto Grosso, Chapada, 1 ♂, 2 "♂," 1 ♀, 2 "♀"; Abrilongo, 1 (?).

M. cryptoxanthus.—ECUADOR: Zamora, 1 ♂, 2 ♀; below San José, 2 ♂, 1 ♀; Río Suno, above Avila, 1 ♀; mouth of Río Curaray, 1 ♀. PERU: Río Seco, west of Moyobamba, 2 ♂; Moyobamba, 1 ♂[1].

Onychorhynchus coronatus castelnaui Deville

Onychorhynchus Castelnaui DEVILLE, 1849, Rev. Mag. Zool., (2) I, p. 56—Sarayacu, Pampas del Sacramento, Perú; ♂, ♀; cotypes in Paris Mus.

I have seen no Peruvian specimens of this subspecies, but an example from Teffé and another from Humaythá, Rio Madeira, Brazil, agree perfectly with the characterization of the form.

Specimens from north of the Amazon, in eastern Ecuador, eastern Colombia, the uppermost reaches of the Rio Negro in Brazil, and the adjacent portion of the Cassiquiare in Venezuela, are not quite typical but are, with a single exception, decidedly closer to *castelnaui* than to

[1] Specimens in Field Museum of Natural History, Chicago.

[2] Intermediate between *rufescens* and *crypterythrus*.

coronatus. The upper tail-coverts are very lightly barred on a rather paler ground than in true *coronatus* and the crural feathering is either quite unbarred or very lightly barred. Hellmayr (1907, Novit. Zool., XIV, p. 356) says that the male cotype of *castelnaui* has slight barring on the upper tail-coverts while the female cotype has none. Evidently there is some individual variation in this respect.

Birds from Mt. Duida are a little closer to true *coronatus* though with obvious approach toward *castelnaui*. Similarly, specimens from south of the Amazon, from the Rio Tapajoz and Villa Bella Imperatríz, also show some strong tendencies toward *castelnaui*, especially in respect to the reduction of barring on the tibiae, although the upper tail-coverts are more strongly marked. The species is so comparatively rare that not enough material is available to fix absolute lines of demarcation.

The exception to this characterization is a male from the lower Río Suno, eastern Ecuador. The upper tail-coverts and the crural feathering are both rather heavily barred though not as broadly as in typical Guianan *coronatus;* the ground color of the upper tail-coverts is rather paler than in most *coronatus*, agreeing rather with *castelnaui;* the under parts are particularly deeply colored even for *castelnaui*. A "Napo" skin, though immature, is like an east-Colombian bird and the upper Rio Negro specimens, with the special characteristics of immaturity (the barred dorsum and terminally barred rectrices). On the basis of general range and the tendencies exhibited by this specimen, therefore, it seems probable that it is only an extreme variant of *castelnaui*, to which I refer it provisionally.

Peruvian records of *castelnaui* are from Sarayacu, Pebas, Chamicuros, and El Tingo.

SPECIMENS EXAMINED

O. cor. coronatus.—FRENCH GUIANA: Pied Saut, 1 ♂. DUTCH GUIANA: near Paramaribo, 1 ♂. BRITISH GUIANA: Tumatumari, 1 ♂. VENEZUELA: Cristóbal Colón, 1 ♂; Río Caura, La Prición, 1 ♂; Nicaré, 1 ♀; Mt. Duida, Caño Seco, 1 ♂; Playa del Río Base, 1 ♂, 2 ♀; Río Orinoco, above Ihuapo, 1 ♂. BRAZIL: Faro, 2 ♂, 1 ♀; Pará, 1 ♂; Rio Tapajoz, Igarapé Amorín, 2 ♂, 1 ♀; Igarapé Brabo, 1 ♂, 1 ♀; Tauarý, 1 ♀; Aramanay, 1 ♂; Caxiricatuba, 1 ♀; Urucuritiba, 1 ♂, 1 ♀; Rio Amazonas, Villa Bella Imperatríz, 1 ♂, 1 ♀.

O. cor. castelnaui.—BRAZIL: Rio Madeira, Humaythá, 1 ♂; Teffé, 1 ♂; Rio Negro, Mt. Curycuryari, 1 ♂; Tatú, 1 ♀. VENEZUELA: Río Huaynía, junction of the Cassiquiare, 1 ♂. COLOMBIA: Villavicencio, 1 ♂. ECUADOR: "Napo," 1 [♀]; lower Río Suno, 1 ♂.

Platyrinchus mystaceus zamorae (Chapman)

Platytriccus albogularis zamorae CHAPMAN, 1924 (June 20), Amer. Mus. Novitates, No. 118, p. 5—Zamora, eastern Ecuador; ♂; Amer. Mus. Nat. Hist.

San Ignacio, 1 [♂]; Lomo Santo, 1 ♀; Tulumayo, 1 ♂; Utcuyacu, 1 ♀.

Apparently restricted to the Upper Tropical Zone, being replaced in the Lower Tropical Zone by *P. saturatus*. Peruvian records are from Tambillo, Huachipa, and Chinchao.

Among the comparative material examined are five birds from the mountains of southern Venezuela which are distinct enough from *P. m. insularis*, to which some of them have been referred by authors, to warrant separation and I have described them hereunder.

A single bird from Quintana Roo, Mexico, likewise is sufficiently distinct from its nearest geographical representative, *P. m. cancrominus* of Guatemala, to suggest that another new form awaits description. The Quintana Roo bird is paler both above and below than the light-colored *P. m. dilutus* of western Nicaragua, from whose range it is widely separated by the interposed *P. m. cancrominus*. With only a single bird, however, I am unwilling to propose a new name and leave the problem for some student with an adequate series.

I consider *dilutus* as just recognizable within a rather limited range in western Nicaragua and northwestern Costa Rica. The birds from Las Cañas and Bebedero, Costa Rica, in the series before me, are rather readily assignable to *dilutus* but the small series from Miravalles, the same country, are intermediate between *dilutus* and *cancrominus*. The individual varia-

tions of some of the Nicaraguan specimens of *cancrominus*, furthermore, comprise a decided darkening of the mandible or an extension of the yellow in the concealed crest of the male, both of which rather certainly point to a trend in the direction of *neglectus* of the more southern parts of Central America. I strongly suspect that the reported conflicts in the ranges of the *mystaceus* and *cancrominus* groups are due to similar individual variants of one form or another. In any case, with the intermediacy shown by the material at hand I am unable to justify the continuance of specific separation of *cancrominus* from *mystaceus*.

Platyrinchus mystaceus duidae, new subspecies

TYPE from Laterite Valley, Mt. Duida, Venezuela; altitude 4700 feet. No. 271,201, American Museum of Natural History. Adult male collected February 25, 1929, by the Olalla brothers.

DIAGNOSIS.—Nearest to *P. m. insularis* of Tobago, Trinidad, and northern Venezuela, but with upper parts darker and under parts more richly colored, the chest in particular deeper ochraceous in greater contrast to the white area of the throat; mystacal stripe more blackish.

RANGE.—Known only from Mt. Duida and Mt. Roraima; apparently restricted to the upper elevations.

DESCRIPTION OF TYPE.—Top of head Olive with a central, concealed crest of Lemon Chrome, the feathers of which are variously tipped with olive; back a little lighter than Brownish Olive. Lores Colonial Buff; a narrow orbital ring of deeper buff, broadest behind the eye and continued as a supra-auricular stripe to the sides of the neck; a postorbital stripe of blackish brown and a broad bar of the same hue extending from below the eye to the sides of the throat, leaving a similar diagonal stripe of Cinnamon-Buff across the auriculars; point of chin and sides of throat deep Honey Yellow; center of throat whitish, sharply defined from the breast which is deep Honey Yellow, slightly tinged with Clay Color; sides of breast slightly browner; flanks slightly lighter; belly paler with the lower central portion white. Wings dark brown with outer margins near Saccardo's Umber; upper wing-coverts dusky, margined and tipped with deep Tawny Olive; under wing-coverts like the sides of the breast; inner margins of remiges dull buffy whitish. Tail dull blackish with exterior margins the color of the back. Maxilla black; mandible whitish; feet yellowish. Wing, 58.25 mm.; tail, 32.75; exposed culmen, 9; culmen from base, 13.75; tarsus, 15.

REMARKS.—Female similar but without the yellow crest; size somewhat smaller.

SPECIMENS EXAMINED

P. m. mystaceus.—BRAZIL: Rio de Janeiro, Therezopolis, 2 ♂; Monte Serrat, 1 ♂, 1 ♀; Maceiras, 1 ♂; São Paulo, Ubatuba, 1 ♂; Piquete, 3 ♂; Victoria, 1 ♂; Fazenda Cayoá, 1 ♀; Paraná, Roca Nova, 1 ♂; "Bahia," 1 ♂, 2 ♀; "Brazil," 1 ♂; Matto Grosso, Campanario, 1 ♂, 1 ♀; Rio Amambary, 1 ♂, 1 ♀.

P. m. bifasciatus.—BRAZIL: Matto Grosso, Chapada, 8 ♂ (incl. a cotype), 4 ♀ (incl. a cotype), 1 (? = ♀); Urucum, 1 ♀.

P. m. zamorae.—PERÚ: San Ignacio, 1 [♂]; Lomo Santo, 1 ♀; Tulumayo, 1 ♂; Utcuyacu, 1 ♀; Huachipa, 1 ♂[1]; Chinchao, 1 ♀[1]. ECUADOR: Zamora, 1 ♂ (type), 1 ♀; upper Sumaco, 2 ♂, 1 ♀; below San José, 3 ♀; Baeza, 1 ♀; Sabanilla, 1 ♂; "Equateur," 1 ♀.

P. m. albogularis.—ECUADOR: Esmeraldas, 3 ♂, 1 ♀; Chimbo, 3 ♂; Río Chimbo, 1 ♂; Gualea, 4 ♂; Paramba, 1 ♂; Naranjo, 1 ♂; Zaruma, 1 ♂; Mindo, 1 ♂; San Nicolas, 1 ♀.

P. m. insularis.—TOBAGO: Castare, 2 ♂, 1 (?); "Tobago," 1 ♂, 5 ♀, 1 (?). TRINIDAD: Caparo, 1 ♂; Laventilla Hill, 1 ♀; Princestown, 5 ♀; Heights of Aripo, 1 ♀; Caura, 1 ♀; Carenage, 1 ♂. VENEZUELA: San Estéban, 1 ♂, 1 ♀; near Mt. Bucarito, 1 ♂, 1 ♀; San Felix, Cumaná, 1 ♀; Cristóbal Colón, 3 ♂, 1 ♀; Tucacas, Falcón, 1 ♂, 1 ♀, 1 (?); Las Trincheras, Carabobo, 1 ♂; Agua Salada de Ciudad Bolívar, 1 ♀; Caicara, 1 ♀; Las Barrancas, 1 ♂, "Orinoco-skin," 1 ♂.

P. m. duidae.—VENEZUELA: Mt. Duida, Laterite Valley, 4700 feet, 1 ♂ (type); Mt. Roraima, Paulo, 1 ♂; Arabupu, 2 ♀; "Roraima," 1 ♀.

P. m. neglectus.—COLOMBIA: Las Lomitas, 2 ♀; La Candela, 1 ♀; Río Frío, 1 ♂; Palmira, 1 ♂; Primavera, 1 ♀. PANAMÁ: (Mt. Tacarcuna, Tacarcuna, Boquete, Chiriquí, Chitrá, Cerro Montoso, Santa Fé, and Cerro Flores), 11 ♂, 14 ♀, 1 (?). COSTA RICA: (Azahar de Cartago, La Estrella, Bonilla, Navarrito, Aquinares, and Los Reyes), 6 ♂, 5 ♀.

P. m. dilutus.—COSTA RICA: (Bebedero and Las Cañas), 4 ♂, 2 ♀. NICARAGUA: (Volcán de Chinandega, Chinandega, and Muy Muy), 5 ♂ (incl. type), 3 ♀.

P. m. cancrominus × *dilutus*.—COSTA RICA: Miravalles, 4 ♂, 2 ♀.

P. m. cancrominus.—NICARAGUA: (Río Coco, Ocotal, Uluce, Matagalpa, Savala, and Tuma), 1 ♂, 6 ♀, 1 (?). GUATEMALA: ("Guatemala" and Vera Paz), 1 ♀, 8 (?).

P. m. subsp. ?—MEXICO: Chacalal, Quintana Roo, 1 "♀" [? = ♂].

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[1] Specimens in Field Museum of Natural History, Chicago.

Platyrinchus coronatus coronatus Sclater

Platyrhynchus coronatus Sclater, 1858, P. Z. S. London, XXVI, p. 71—Río Napo, Ecuador; British Mus.

Peruvian and east-Ecuadorian birds show no distinguishing characteristics, nor do birds from other parts of the range of this dull-colored form. This range is more extensive than has been believed and reaches northeastward to the upper Rio Negro, Brazil, and the west bank of the Cassiquiare, Venezuela. Likewise, the Guianan form, *gumia*, reaches southeastern Venezuela on the slopes of Mt. Roraima. The specific range thus has some of its previously supposed gaps considerably lessened.

Specimens Examined

P. c. coronatus.—Colombia: La Morelia, 1 ♂, 1 ♀. Ecuador: lower Río Suno, 3 ♂; below San José, 1 ♀; mouth of Río Curaray, 1 ♂; Cerro Galeras, 1 ♀; "Ecuador," 1 (?). Perú: Río Ucayali, Santa Rosa, 2 ♂; Río Marañón, Pomará, 1 ♂, 1 ♀; Puerto Bermúdez, 1 ♂[1]. Bolivia: Falls of the Madeira, 1 [♂]. Brazil: Rio Madeira, Humaythá, 2 ♂, 1 ♀, 1 (?); Calamá, 3 ♂, 1 ♀; Paraizo, 1 ♂, 1 ♀; Rio Tapajoz, Caxiricatuba, 2 ♂, 2 ♀; Rio Negro, Tatú, 1 ♂, 1 ♀. Venezuela: Río Cassiquiare, opposite El Merey, 2 ♂.

P. c. gumia.—British Guiana: Ituribisci, 1 ♂; Macouria Creek, 1 ♀; Ourumee, 1 ♂. Venezuela: Roraima, Arabupu, 1 ♂, 2 ♀. Brazil: Faro, 2 ♂, 4 ♀, 1 (?).

P. c. superciliaris.—Ecuador: Lita, 1 ♂; Río de Oro, 1 ♂, 1 ♀; Cachiyacu, 1 ♀. Panamá: [Lion Hill ?], 2 ♂ (incl. type); (various localities), 17 ♂, 4 ♀. Costa Rica: 14 ♂, 4 ♀. Nicaragua: 4 ♂.

Platyrinchus saturatus Salvin and Godman

Platyrhynchus saturatus Salvin and Godman, 1882, Ibis, (4) VI, p. 78—Merumé Mountains, British Guiana; ♂; British Mus.

One bird from Puerto Indiana, at the mouth of the Río Napo, furnishes the first record of this species for Perú and a considerable extension of specific range toward the southwest. This extension of range is made less abrupt by two examples from the upper Rio Negro which, by themselves, furnish a new area in the distributional map of *saturatus* but one that is in more frequent association with the mouth of the Napo than the localities in the previously known range of this species.

The Puerto Indiana specimen is fairly typical, showing, perhaps, a slightly stronger development of the mystacal bar than is usual in the species. It is possible that this feature indicates a closer relationship of *saturatus* and *mystaceus* than has been accepted heretofore. As further evidence of the same relationship, one of two males from Utinga, near Pará, has a very definite development of bright yellow on the subterminal part of the coronal feathers.

There is no definite conflict in the ranges of *saturatus* and the *mystaceus* group but in Venezuela and British Guiana there is some apparent interruption and replacement which gives a rather spotted appearance to the distributional map. Possibly this broken range is correlated with some ecological condition which I should like to see explained before admitting *saturatus* to the *mystaceus* group. From present indications, *saturatus* occupies relatively lower elevations in the Humid Tropical Zone than the conspecies of *mystaceus*.

Specimens Examined

P. saturatus.—Dutch Guiana: "interior," 1 ♂, 1 ♀. French Guiana: Approuague, 1 ♂. Venezuela: Río Caura, La Prición, 1 ♂, 1 ♀; La Unión, 1 ♂; Río Orinoco, Nericagua, 1 ♀. Brazil: Rio Negro, Tatú, 1 (?); Mt. Curycuryari, 1 ♀; Faro, 2 ♂, 1 ♀; Obidos, 1 ♂; Utinga, 2 ♂. Perú: Puerto Indiana, 1 ♀.

Cnipodectes subbrunneus minor Sclater

Cnipodectes minor Sclater, 1884, P. Z. S. London, "1883," p. 654—Chamicuros, Perú; "♂" [= ♀ ?]; British Mus.

A single specimen from Orosa is the only example at hand from Perú but it agrees sufficiently well with five other specimens from east of the Andes in Colombia and Brazil to show the probable distinctions of *minor* from *subbrunneus*. Unfortunately, the distinctions shown by the present material are not in accord with those indicated by Hellmayr in various publications, and there is a possibility that some of the features may not be as constant as present specimens seem to show.

[1] Specimen in Field Museum of Natural History, Chicago.

Typical *subbrunneus* from western Ecuador has the upper parts rather definitely greenish in both sexes. The males have the belly grayish white; the females, moderately suffused with yellowish. The males have the chest rather dull in color, between Drab and Hair Brown; the females, rather lighter brownish. The birds I identify as *minor* are much warmer on the upper parts, definitely brown rather than greenish, though I should classify the hue as darker than in *subbrunneus*, not lighter as stated by Hellmayr. The males of *minor* have the belly more yellowish than the males of *subbrunneus*, the chest more rufescent brown. The females have the belly markedly whitish, with only a slight yellowish tinge; the chest is brighter than in *subbrunneus* females, between Wood Brown and Buffy Brown.

The series at hand from Panamá differs from both *subbrunneus* and *minor* in a sufficient degree to justify the separation of a new subspecies as follows.

Cnipodectes subbrunneus panamensis, new subspecies

TYPE from Barro Colorado Island, Canal Zone. No. 229,399, American Museum of Natural History. Adult female (completing molt) collected January 16, 1927, by Frank M. Chapman.

DIAGNOSIS.—Similar to *C. s. subbrunneus* of western Ecuador but upper parts more golden brown, less olivaceous; under parts with chest lighter and more golden brown and belly brighter yellow. Compared with females of *C. s. minor* of eastern Perú, eastern Colombia, and western Brazil, the females of *panamensis* have the upper parts lighter brown and the under parts decidedly more yellowish. Males of *panamensis* are less rufescent above than males of *minor*, less olivaceous than those of *subbrunneus*.

RANGE.—Panamá from the Canal Zone (probably somewhat farther west) to the Colombian boundary, possibly farther southward in western Colombia.

DESCRIPTION OF TYPE.—Top of head and back light Medal Bronze; top of head with slightly elongated crest, the feathers of which have slightly darker centers, not conspicuous; upper tail-coverts Sudan Brown × Antique Brown. Lores dull buff with an inconspicuous dark line on the upper border; sides of head and neck Dresden Brown × Saccardo's Olive, passing, slightly paler in tint, across the chest; chin and throat paler than the chest, tinged with dull yellowish; belly pale Primrose Yellow, changing to a light tawny color on the under tail-coverts; flanks brownish olive. Wings blackish brown; primaries with inconspicuous paler outer margins; secondaries with broader margins of Old Gold × Buffy Citrine, becoming paler and yellower on the tertials; upper wing-coverts with exterior margins and tips of brownish Orange-Citrine. Under wing-coverts Marguerite Yellow with a brownish patch near the bend of the wing; inner margins of remiges yellowish on primaries, passing through buff to ochraceous on the secondaries. Tail Prout's Brown with exterior margins light Brussels Brown. Maxilla blackish brown; mandible entirely whitish. Feet pale brownish. Wing, 74 mm.; tail, 66.5; exposed culmen, 15; culmen from base, 19; tarsus, 17.

REMARKS.—Adult male similar to the female in general pattern but darker; upper parts Brownish Olive × Medal Bronze; chest and sides of head and neck warmer than Dresden Brown (× Cinnamon-Brown or Prout's Brown); belly whitish, lightly tinged with yellowish; wings with primaries modified as described hereunder. Size larger than the females; wing, 91–95 mm.; tail, 81–88.5.

I am uncertain where to place the records from western Colombia which may or may not belong to the present subspecies.

The critical study of the various members of this species has brought to light certain important taxonomic details of generic significance. The most characteristic feature of the genus is one that appears to have been overlooked by all authors, including the describers of the genus. It is such a curious structure that a detailed description and figure may prove of interest. It is found only in fully adult males, possibly one reason why it has escaped notice heretofore.

In macroscopic view, the outer primaries of the adult male wing (10th to 7th) have the basal part of the shafts arcuate, very strongly on the 10th. In addition, the terminal part of these feathers is twisted upward and outward. All of the primaries are more or less twisted in shape and position so that in the closed wing their outer margins are lifted away from each other and come into close contact only basally and near their tips. The 7th and 8th primaries are further modified in another way. About two-thirds of the distance toward the tip of the feather,

the outer web is abruptly narrowed and the inner web equally abruptly widened, with a spot of brighter color and a slight disintegration of the web on the outer vane at the point of change. On the inner web, from near the point of division distad, there is a dark submarginal line that in ventral aspect looks like an indented crease, in dorsal aspect like a blackened, scorched streak. Along this line, the vane of the feather bends readily, but between it and the shaft, the web is unusually stiff.

A microscopic examination of the feather reveals the structure responsible for the difference in texture. In normally stiff webs, the under side of the midrib of each barb is expanded into a thin, longitudinal, vertical plate or keel which tapers gradually from near the attachment of the barb onto the shaft to the distal end at the margin of the feather. In the modified feathers of *Cnipodectes*, this keel on the barbs of the inner webs increases in height to reach a maximum about midway between the shaft of the feather and the "scorched" line, and then tapers down so as to leave only the unstiffened cylindrical midrib of the barb at the "crease." Between this point and the inner margin of the vane there is again a slight development of the keel, but it is far from conspicuous.

In addition to this structure of the barbs, there is a modification of the shafts of most of the primaries. All of these feathers have the basal part of the shafts strengthened by the development of some longitudinal thickened lines or ribs on the ventral side. On the 9th primary, toward the tip of the feather, the "rib" in the inner side of the shaft is expanded slightly to form a narrow, shelf-like projection. On the 8th to the 4th primaries, this projection is widened and more arcuate and there is a similar, but narrower, projection on the opposite side of the shaft which thus, in cross section, assumes the shape of the letter T. The 3rd to 1st primaries have this structure present in decreasing prominence. Undoubtedly the T-shaped formation gives added rigidity to the feathers that possess it.

A large proportion of the males in the material at hand do not possess the modification of the primaries just described. Some of these males obviously are in juvenal plumage, with semi-decomposed contour feathers and without the distinct crest of lengthened plumes on the top of the head, which marks the adults. The coloration of such birds is not greatly different from that of the fully adult males. The top of the head is brighter and more rufescent and the wing-bars are more prominent and more warmly colored. Other males are colored rather exactly like the adults, with crest and contour feathers fairly compact, but the wings and tail are juvenal. Probably these examples represent the first annual plumage. Three such specimens are marked as having enlarged gonads. It is possible, therefore, that the bird breeds in first annual plumage.

There is a considerable sexual difference of size between females (adult and young) and adult males, and another difference between adult and young males. Four out of the series of thirty-four specimens of the entire species disagree with this distinction and probably were wrongly sexed by the collectors; two of them are in juvenal plumage. Females appear to have the wing 70–77.5 mm. (av. 73.4); tail, 61–70 (av., 65.3). Adult males have the wing 91–97.5 (av., 94.5); tail, 81–88.5 (av., 85.5). Young males, including those in first annual plumage, are between these extremes, with wing 83–89.25 (av., 86.3); tail, 70–88 (av., 78.8).

The type of *minor* measures: wing, 72 mm.; tail, 64 (Hellmayr, 1911, P. Z. S. London, p. 1130). It must, therefore, be a female and not a young male as concluded by Hellmayr; certainly not an adult male as stated in the Catalogue of Birds in the British Museum. In any case, there appears to be no distinction of size among birds of the same sex and age from all parts of the specific range and any separation of subspecies must be made on other criteria.

I have no information on the habits of this species which might throw light on the purpose of the curious structure here described. Dr. Chapman tells me that

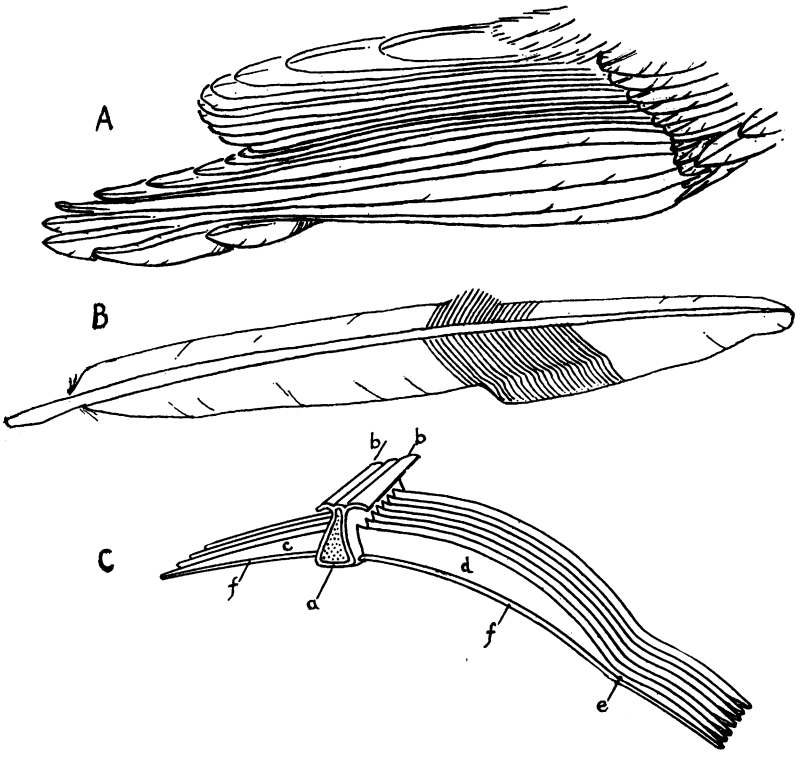

Fig. 1. *Cnipodectes subbrunneus adult male*
A.—External outlines of remiges. (×1 1/4)
B.—Dorsal aspect of a modified primary. (×1 1/4)
C.—Ventral aspect of a portion of a modified primary in semi-diagrammatic cross section, showing (a) cross section of shaft; (b, b) shelf-like expansions on under side of shaft; (c) barb of outer vane, normally stiffened; (d) barb of inner vane; (e) narrowed, flexible portion of d; (f, f) rows of barbules. (×8)

he observed one of these birds on Barro Colorado Island, Canal Zone, which was indulging in a strange performance of lifting first one wing and then the other while remaining perched in a tree. The full habits of *Cnipodectes* apparently have yet to be discovered.

SPECIMENS EXAMINED

C. s. subbrunneus.—ECUADOR: Río de Oro, 2 ♂; Esmeraldas, 2 ♂, 1 ♀; Bucay, 1 "♂" [= ♀]; Chimbo, 1 ♀; La Chonta, 1 ♀.

C. s. minor.—PERÚ: Orosa, 1 ♂. BRAZIL: Teffé, 1 ♂; Rio Negro, Igarapé Cacao Pereira, 1 ♀. COLOMBIA: La Morelia, 1 ♂, 1 ♀.

C. s. panamensis.—PANAMÁ: Barro Colorado Island, Canal Zone, 1 ♂, 1 ♀ (type); [Lion Hill ?], 1 ♂, 1 ♀; Tacarcuna, 9 ♂, 1 "♂" [= ♀], 1 ♀, 1 "♀" [= ♂]; El Real, Río Tuyra, 2 ♀, 1 "♀" [= ♂]; Cituro, 1 ♂; Chepigana, 1 ♂.

Sayornis nigricans angustirostris
Berlepsch and Stolzmann

Sayornis cineracea angustirostris BERLEPSCH AND STOLZMANN, 1896, P. Z. S. London, p. 357—La Merced, Chanchamayo Valley, Perú; ♂; Warsaw Mus.

In describing *angustirostris*, Berlepsch and Stolzmann called attention to the greater amount of white on the under wing-coverts and the tertials in *latirostris* of Bolivia. I noted a similar extension of white on the wing in Argentine specimens (1930, Field Mus. Nat. Hist. Publ., Zool. Ser., XVII, p. 367) but had no Bolivian material for comparison. I have

before me four Argentine and three Bolivian examples as well as two Rusby skins, probably also from Bolivia, and find the character mentioned to be relatively stable. The white borders on the tertials occupy more than half the width of the outer webs, whereas in Peruvian, Ecuadorian, and Colombian birds, of which I have a large series, the white border of these feathers is narrower. One male from the Río Inambari, extreme southeastern Perú, shows a close approach to the Bolivian and Argentine specimens, but four other birds from the same general region do not. The geographical boundary between *latirostris* and *angustirostris* thus appears to lie near the political boundary between Perú and Bolivia.

Other characters separating these two forms include an average of more purely white under wing-coverts (mentioned by Berlepsch and Stolzmann), more definite whitish edges on other primaries than the outermost, paler outer margins toward the bases of the rectrices, and average larger size—all belonging to *latirostris*. There is no distinction in the width of the bill as the names might imply.

There is, perhaps, a more frequent approach to the characters of *latirostris* in Venezuelan specimens of *angustirostris* than in specimens from Colombia, Ecuador, or Perú, although an occasional specimen is found with a little more white on the wing than usual. The difference in size, in such cases, may assist in the determination of the specimens.

Twenty males from Perú, Ecuador, and Colombia have the wing 88–96.25 mm. (av., 91.6); tail, 78–89 (av. 80.2). Twenty-two females measure: wing, 81–90 (av., 84.9); tail, 72–79 (av., 76). Colombian birds do not reach quite so large an extreme as Ecuadorian and Peruvian specimens but there is no sharp line of distinction. Colombian males have the wing 88–92; Ecuadorian males 88.5–94; Peruvian males, 90–96.25.

Eight males from Venezuela measure: wing, 80.5–89.5 (av., 85.7); tail, 68–78 (av., 73.2). Three females: wing, 81–84 (av., 82.3); tail, 71–72 (av., 71.3).

Five males of *latirostris* from Bolivia and Argentina measure: wing, 91–98 (av., 94); tail, 80.5–88.25 (av., 85.4). Seven females: wing, 90–96 (av., 92.4); tail, 79–89 (av., 82.4).

The Venezuelan specimens thus appear to be definitely smaller than Bolivian-Argentine birds and perhaps just smaller than the Peruvian birds, but there is excellent progression from one extreme to the other. Without some character other than size to distinguish the Venezuelan population, I do not find it desirable to recognize a Venezuelan form.

Two specimens from extreme eastern Panamá agree with Colombian birds.

Peruvian records are from Santa Ana, Amable Maria, San Damian, Huambo, Tambillo, and Viña.

SPECIMENS EXAMINED

S. n. latirostris.—ARGENTINA: Concepción, Tucumán, 1 ♂, 2 ♂[1], 2 ♀[1]; Orefana, 1 ♀[1]; La Floyada, 1 ♀; Vipos, 1 ♀; Quebrada Escoipa, Salta, 1 ♀; Río Lavallen, Jujuy, 1 ♂[1]. BOLIVIA: Yungas of Cochabamba, 1 ♂; Vermejo, Santa Cruz, 2 ♀; [Bolivia ? (Rusby coll.)], 2 (?).

S. n. angustirostris.—PERÚ: Río Inambari, 1 ♂, 1 ♀; Oconeque, 1 ♀; Inca Mine, 2 ♀; San Miguel, Río Urubamba, 1 ♂; San Miguel Bridge, 1 ♀, La Merced, 1 ♀; Perené, 1 ♀; San Ramón, 1 ♀[1]; Tulumayo, 1 ♂, 1 (?); Utcuyacu, 2 ♂, 6 ♀; Huánuco, 2 ♂[1], 4 ♀[1]; Cajabamba, 1 ♂, 1 ♀; Río Negro, west of Moyobamba, 1 ♀; Huarandosa, 1 ♂, 1 ♀; Jaen, 1 ♂, 1 ♀; Pomará, 1 ♂, 3 ♀, 1 (?); Seques, 1 ♀; Palambla, 3 ♀. ECUADOR: 13 ♂, 7 ♀. COLOMBIA: 12 ♂, 10 ♀, 4 (?). PANAMÁ: Tacarcuna, 2 ♀. VENEZUELA: 11 ♂, 4 ♀, 3 (?).

Nuttallornis borealis (Swainson)

Tyrannus borealis SWAINSON in RICHARDSON, 1832 (Febr.), Faun. Bor.-Amer., II, p. 141, Pl. XXXV—"Cumberland House" = Carlton House, banks of the Saskatchewan, lat. 54° North.

"*Muscicapa cooperi, M. inornata* Nob., Nat. Sci. Philad. et D. Cooper in litt." NUTTALL, 1832, Man. Orn. U. S. and Can., I, p. 282—Mount Auburn, near Boston, Mass.

Nuttallornis borealis majorinus BANGS AND PENARD, 1921 (June 30), Proc. Biol. Soc. Wash., XXXIV, p. 90—Pine Flats, north bank of San Gabriel River, Los Angeles Co., Calif.; ♂; Mus. Comp. Zoöl.

I have very serious doubts of the desirability of maintaining two forms of the

[1] Specimens in Field Museum of Natural History, Chicago.

present species. The overlap of measurements shown by representatives of the two supposed forms is so great that more than half of the specimens in any considerable series are unidentifiable by taxonomic characters alone. The western form is supposed to have an average of more extensive pale coloration on the under parts, but I am unable to find any positive differences of this sort and have attempted to justify distinction on the basis of dimensions of wing and tail of adult specimens.

Eighteen males from California, Oregon, and British Columbia have the wing 105–114 mm. (a single bird sexed as a male has the wing only 102, so unusually small that I have included this specimen among the females); tail, 66–77. Ten females from this region have the wing 100–107.5; tail, 64–70.

Fourteen males from the Atlantic region of the United States and Canada have the wing 100–110 (including one very large bird from Newfoundland, sexed as a female); tail, 64–71.5. Eight females from this eastern region have the wing 98.5–105; tail, 61–78.

There is an overlap here covering a wing-measurement in the males of 105–110; tail, 66–71.5; females, wing, 100–105; tail, 64–68. Twelve of the eighteen western males fall within this intermediate section, even when specimens are included in *"borealis"* (*sensu strictu*) when either wing or tail, but not both, is sufficiently large to warrant it. Similarly, seven of the ten western females are matched by some eastern females. Using the same method, eight of the fourteen eastern males and four of the eight eastern females may be matched by western birds. If the small "male" from the west and the large "female" from the east are correctly sexed, the overlap is greater and the number of unidentifiable specimens is increased.

Eighteen males and fifteen females from a central region, including Minnesota, Illinois, Nebraska, Colorado, New Mexico, and Arizona, show nine males and eight females large enough to be assigned to *"borealis,"* two "males" small enough for *"cooperi,"* and seven males and six females indeterminate.

Thirty-eight migrant or wintering examples from the tropics, Mexico to Perú, show five males and eight females assignable to *"borealis,"* three males and one female assignable to *"cooperi,"* and fourteen males and seven females of indeterminate identity. Two recorded examples from Perú are given measurements which would place them with *"borealis."*

Thus, of seventy-two males and forty-eight females, forty-one males and twenty-four females cannot be identified with certainty. If both wing and tail are required to be of definitive size, fifty-eight males and forty-one females must be classed as uncertain. In other words, only three males and one female from the western coast have both wing and tail larger than any eastern bird and only two males and one female from the east are smaller than any western bird. From the intermediate central region and from the migratory or winter range, nine males and five females may be referred with certainty to one form or the other. Reduced to percentages, 17.5 per cent are of positive identification, 50.4 per cent quite unidentifiable, and 32.1 per cent with wing or tail, but not both, definitive.

Since the above paragraph was written, Dr. Wetmore has been kind enough to supply me with the measurements of fifty males and thirty-nine females in the collections of the U. S. National Museum. These measurements confirm my earlier conclusions although the proportion of unidentifiable specimens is less than in the American Museum series. Of the fifty males and thirty-nine females, nineteen males and twenty-two females are wholly unidentifiable. If both wing and tail are required to be of definitive size, thirty-four males and thirty-two females must be classed as uncertain, leaving only sixteen males and seven females in this series of positive dimension.

Combining the figures of the entire series of two hundred and nine specimens, twenty-one per cent prove to be of positive identification, 50.7 per cent quite unidentifiable, and 28.3 per cent with wing

or tail alone of definitive size. I can find nothing in these figures to justify the recognition of two subspecies and, accordingly, revert to the binomial consideration of the species.

Peruvian records are from Huambo and Yahuarmayo.

Specimens Examined

N. borealis.—United States: West Virginia, 1 ♂; New York, 3 ♂, 3 ♀; New Jersey, 1 ♂; New Hampshire, 1 ♀; Maine, 2 ♂; Minnesota, 2 ♂; Illinois, 1 ♀; Nebraska, 1 ♀; Colorado, 1 ♂, 2 ♀; New Mexico, 1 ♂; Texas, 4 ♂, 4 ♀; Arizona, 10 ♂, 6 ♀; Oregon, 3 ♂, 1 ♀; California, 13 ♂, 9 ♀. Canada: British Columbia, 2 ♂; Ontario, 1 ♂, 2 ♀; New Brunswick, 5 ♂, 1 ♀; Quebec, 1 ♀. Newfoundland: 1 "♀" [= ♂]. Mexico: 6 ♂, 1 ♀. Guatemala: 1 ♂, 5 ♀. Nicaragua: 2 ♀. Costa Rica: 6 ♂, 1 ♀. Panamá: 2 ♂, 2 ♀. Colombia: 1 ♂, 1 ♀. Venezuela: 2 ♀. Ecuador: 1 ♂. Perú: Chaupe, 4 ♂; Río Negro, west of Moyobamba, 1 ♀; Río Colorado, Chanchamayo Valley, 1 ♂[1].

[1] Specimen in Field Museum of Natural History, Chicago.