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STUDIES OF PERUVIAN BIRDS. NO. L

THE GENERA *RAMPHOCELUS*, *PIRANGA*, *HABIA*, *LANIO*, AND *TACHYPHONUS*

BY JOHN T. ZIMMER

I am greatly indebted to Messrs. James Bond and Rodolphe de Schauensee of the Academy of Natural Sciences of Philadelphia; Dr. Herbert Friedmann of the United States National Museum; Mr. James L. Peters of the Museum of Comparative Zoölogy; Mr. William H. Phelps of Caracas, Venezuela; and Mrs. Ellen T. Smith of the Chicago Natural History Museum for the loan of comparative material used in the present study; also to Mr. Bond and Mr. Phelps for additional information on specimens in their respective collections.

Names of colors are capitalized when direct comparison has been made with Ridgway's "Color standards and color nomenclature."

Ramphocelus carbo carbo (Pallas)

Lanius (Carbo) PALLAS, in Vroeg, 1764, Cat. Rais. d'Ois., Adumbr., p. 2—Surinam; repository of type unknown.

Tanagra jacapa LINNAEUS, 1766, Syst. Nat., ed. 12, vol. 1, p. 313—based on "The Red-breasted Black-Bird" Edwards; *Lanius carbo* Pallas; and "Jacapu" Marcgrave—Surinam and northeastern Brazil.

Tanagra pompadura P. L. S. MÜLLER, 1776, Natursyst., Suppl., p. 159—based on "Tangara pourpré, de Cayenne" Daubenton, Pl. Enl., pl. 128, fig. 1.

Tanagra albirostris BODDAERT, 1783—based on Daubenton, tom. cit., pl. 128, figs. 1, 2.

Ramphocelus purpureus VIEILLLOT, 1822, Tabl. Enc. Meth., Orn., livr. 91, p. 796—new name for *Tanagra jacapa* Linnaeus.

Ramphopsis atro-coccineus SWAINSON, 1834, Orn. Drawings, pt. 2, pl. 20—Brazil; type probably in University Mus., Cambridge, England.

Ramphocelus venezuelensis LAFRESNAYE, 1853, Rev. Mag. Zool., ser. 2, vol. 5, p. 243—Venezuela; type from Caracas in Mus. Comp. Zoöl., Cambridge, Mass.

I find it impossible satisfactorily to subdivide the population ranging from the Guianas westward to the Orinoco, north-

ward to northwestern Venezuela, southward to the south bank of the Amazon, and thence westward to northeastern Perú, eastern Ecuador, and southeastern Colombia. Certain features are developed in different parts of the range but they are far from constant and any attempt to segregate subspecific groups on such grounds results in a picture of interrupted distribution that is not very convincing.

Since Surinam is the type locality of *carbo*, the discussion may well start with the birds from that area. Eight adult males from Dutch Guiana are all relatively strongly red in general coloration, with little blackish shading apparent on the middle of the belly and the under tail-coverts. In this respect they are very like northwest-Venezuelan birds which have been separated under the name *venezuelensis*. Some of these Venezuelan birds are brighter than the Dutch Guianan average, and one of two examples from San Cristóbal is bright enough to agree with northeast-Colombian *unicolor*, but others, particularly two from Las Trincheras, Carabobo, are as dark as any Dutch Guianan skin.

Two birds, one sexed as a female and the other without given sex, are unusually brightly colored. Both are strongly reddish on the under parts and have the uropygium between Brazil Red and Nopal Red. At first glance they suggest the females of *Ramphocelus dimidiatus*, but comparison with that form shows them to fall short of the exact coloration of that species. Males from San Cristóbal and the nearby Ortiza are unquestionable *carbo*, although one of the San Cristóbal birds is very close to the subspecies *unicolor* as noted above.

In contrast to the Dutch Guianan series, the males from both French and British Guiana are all relatively dark, and this type of coloration is found predominantly on the lower Orinoco, west to the great bend of the river. On the upper part of the Orinoco, at Nericagua, Perico, and Maipures, there is a recurrence of the brighter coloration, which may be a trend in the direction of *unicolor* although it is a match for "*venezuelensis*" and typical *carbo*.

On the Cassiquiare and the Negro, beginning with the region of Mt. Duida, there is a considerable amount of individual variation. Some of the birds are as bright as "*venezuelensis*" and others, from the same localities, as dark as the British Guianan series, with the darker tone predominant. The same holds true for the birds from Faro, a little east of the lower Negro.

South of the Amazon, from the Xingú west to the lower Madeira, there is close agreement with the Rio Negro (and hence the British Guianan) birds. Farther west, from Teffé to northeastern Perú, a still darker shading begins to appear, while the brighter tones of "*venezuelensis*" and typical *carbo* are quite submerged. A comparison of these birds with "*venezuelensis*" alone or with Dutch Guianan males would seem to demonstrate a good subspecific distinction, but there is no place along the way where satisfactory demarcation takes place.

It is apparent that this darker shading is only a sign of approach to the range of *connectens* with its still darker upper surface and its blackish belly rather sharply defined from the red breast.

East of the Xingú, on the Tocantins and in the Pará district, a similar darkening takes place, showing a trend toward the characters of the dark form, *centralis*, of southeastern Brazil. This southeastern form virtually duplicates the pattern of *connectens*, although the red of the throat in the males is a little deeper than in *connectens* and the females are more strongly reddish in general color, while the size is a little larger. The resemblance, particularly of the males, is, however, striking.

Beyond the Pará district, the intermediate stage continues across Maranhão and northern Piauí, if the few specimens at hand give an adequate indication. One male from Therezina, Piauí, is in agreement with numerous examples of *carbo*, and one from Pindahyba, southern Piauí, is equally comparable to *centralis*, but one from Patos (Gilbúes), quite near Pindahyba, is more strongly reddish and seems close to *carbo*. The Patos bird, furthermore, is larger than the Therezina example, and the Pindahyba specimen is still larger, in agreement with *centralis* also in this respect. Just where the separation of the two subspecies takes place in Piauí is, therefore, open to question. A series of adult males will be required to establish the probable border, although intergradation no doubt occurs rather broadly.

It thus appears that *carbo* shows a trend toward *unicolor* in the northwestern part of its range, toward *centralis* in the southeastern part, and toward *connectens* in the southwestern part. None of these intermediate stages appears worthy of separate recognition. As a matter of fact, both *centralis* and *connectens* are intermediate between *carbo* and the darkest form of all, *atrosericeus* of Bolivia. The recognition of other intermediate forms is of doubtful value.

In Perú, *carbo* ranges across the northern part of the country on both sides of the Marañón to the region of Moyobamba and Huambo, and ascends the Ucayali part way. A male from "Upper Ucayali" collected by Bartlett probably was secured no farther upstream than Cashiboya, which appears to have been Bartlett's farthest point on that river. This specimen is equivocal for, although it is more strongly reddish on the back and belly than average *connectens*, it is no more so than extreme examples of that form. The red of the throat, however, is darker than in most *connectens* and agrees best with the color of *carbo* to which I refer the bird. A female from Yarina Cocha, a little farther upstream, is indeterminate but may be assigned tentatively to *carbo*.

On the other hand, two males from Pozuzo, although unlike, indicate the pres-

ence of *connectens* at that locality. One of the Pozuzo males is rather certainly *connectens* since the back and belly are predominantly sooty, with only a trace of red coloration, and there is sharp definition between the belly and the red breast which, in turn, is the brighter red of *connectens* rather than the darker tone of *carbo*. The other Pozuzo bird has a more noticeable red suffusion on the upper and under parts and suggests *carbo* in that particular, but the throat is the bright hue of the first Pozuzo skin. A series of specimens from near the mouth of the Uru-bamba River is predominantly like *connectens*, although there is an occasional development of reddish color on the upper and lower under parts, not sufficient to approach *carbo* very closely.

On the upper part of the Huallaga River, the situation is extremely puzzling. I have no males of the *carbo* group from that region, and the females at hand present a problem that involves the relationship of *carbo* to *melanogaster*.

Females of *melanogaster* are separable from those of *carbo* and its conspecies by one character that appears to be constant and one that is less definitive though useful. The uropygium of female *melanogaster* and its conspecies *transitus* reflects the brilliant red coloration of the male sex in a Pompeian Red \times Nopal Red hue. The females of the *carbo* group have the uropygium much duller and usually browner although it sometimes reaches a bright Garnet Brown in color. The brightest female of the *carbo* group is noticeably darker and duller, in this respect, than any affine of *carbo*. By this character, therefore, it appears easy to distinguish the females of the two species.

The second character is that of the presence of a relatively bright reddish tinge on the feathers of the forehead, chin, and sides of the head. Most females of *melanogaster* and *transitus* exhibit this feature, but it varies in degree of development and is sometimes poorly marked. On the other hand, it is found in occasional females of the *carbo* group. It is not, therefore, perfectly distinctive.

The identity of the birds from the middle

Huallaga must be investigated with these facts in mind. There is little constancy to be seen in their characteristics. Two males from the Huayabamba Valley, 5500 feet, are unquestionably *carbo*, although the red of the throat is somewhat brighter than in other north-Peruvian specimens and resembles the color of that area in *connectens*. A female from the same valley but lower, 3800 feet, is a fairly bright *carbo* with noticeable reddish suffusion on the anterior portion of the head. Two males from "Supuna" [=Lopuna], at the mouth of the Río Huayabamba, in the Munich Museum and Paris Museum, respectively, belong to the *melanogaster* group according to Hellmayr (1936, Field Mus. Nat. Hist., zool. ser., vol. 13, pt. 9, p. 261, footnote)—one typical *melanogaster* and the other nearer *transitus*.

From farther up the Huallaga Valley, a supposed female at hand from Pizana is like the Huayabamba female in general color, although the rufous facial area is paler and more extensive. A presumed female from Nuevo Loreto is very similar.

A male from Pizana, in the Munich Museum, is said by Hellmayr to be like *melanogaster* on the under parts, although with a little broader black on the middle of the belly, but more like *carbo* on the upper parts, although with some bright red tips or margins on the tail-coverts and rump.

A male from Tocache, in the same general region, is *transitus* without a trace of *carbo*, but Hellmayr records a male from the same locality, in the Paris Museum, that is like *carbo* except for the presence of a few bright red feathers on the under tail-coverts and flanks and a band of the same bright color on the lower rump. A female from Tocache, in the Munich Museum, is said to be *melanogaster* (*transitus*). A female in the Paris Museum from "Perou, N. -E." (which Hellmayr specifies as from Piña) is mentioned by Berlioz (1933, L'Oiseau, new ser., vol. 3, p. 594) as indistinguishable from a female of *carbo centralis* from Goyaz, Brazil, and is apparently, therefore, unlike the females of the *melanogaster* group to which Berlioz refers it.

Thus, in the region of the middle Hualaga, from the Huayabamba Valley to Tocache, only one female—from Tocache—appears to be referable to the *melanogaster* group while four females are closest to *carbo*. In the same area, two males from the upper Huayabamba Valley are certainly *carbo*; two from Lopuna belong to the *melanogaster* group; one from Pizana is a mixture of *carbo* and *melanogaster*; and of two from Tocache, one is *transitus* and the other is nearest *carbo* with traces of *melanogaster* coloration.

I am somewhat suspicious of the value of the red feathers on the rump and tail-coverts as an indication of admixture of *melanogaster* with *carbo*. There are at hand several males of various subspecies of *carbo* that indicate another possibility. These birds are in what appears to be a retarded adult plumage, perhaps the first winter plumage, with numerous fresh feathers showing decided traces of the preceding immature colors. The upper tail-coverts, in particular, are largely black with bright tips that are a brighter red than the color found in that area in the young birds of either sex or in adult females. There are specimens of this sort from Trinidad (*carbo magnirostris*), north-eastern Venezuela (*capitalis*), Matto Grosso, Brazil (*connectens*), and from the Guianas to the Ucayali, Perú (*carbo*). One male of *capitalis* from San Félix, Cumaná, Venezuela, is in almost complete adult male plumage with a band of dull reddish color across the lower rump. There can be no question of intergradation with *melanogaster* or *dimidiatus* at these respective localities. Consequently, a similar condition prevailing on the Huallaga may be due to the same sort of individual variation.

There appears to be no conflict in the ranges of *carbo*, *melanogaster*, and *dimidiatus* except along this portion of the Hualaga in northern Perú, and there, as shown in the preceding paragraphs, either intergradation or specific hybridization occurs. Possibly the proper concept would be that of a single specific group for all three "species" since they are of undoubtedly common origin and still retain many char-

acters in common, particularly in the female sex. The great similarity between *dimidiatus* and *melanogaster* would then fall into proper perspective. However, until more can be determined regarding the situation on the Río Huallaga, it may be best to retain the three groups as specifically distinct while recognizing their close affinity.

Obviously a good series from the Hualaga must be obtained before the problem can be settled satisfactorily. Until such time arrives, it seems advisable to record the known specimens from that region as one species or the other, respectively, or as apparent hybrids.

Records that I assign to *T. c. carbo* are from Bellavista, Huambo, Corral, Piña, Yurimaguas, Tarapoto, Chayavitas, Iquitos, and Pebas, as well as those from certain of the localities from which material has been examined in this connection. There is a record from "Moyobamba" cited by Taczanowski from the Raimondi Collection, but there is no other evidence that *carbo* occurs at that locality, in spite of extensive collecting that has been done there by other workers. The record needs confirmation.

Ramphocelus carbo connectens

Berlepsch and Stolzmann

Rhamphocelus jacapa connectens BERLEPSCH AND STOLZMANN, 1896, Proc. Zool. Soc. London, p. 344—La Merced, Chanchamayo, Perú; type in Berlepsch Collection, Frankfurt Mus.

This form is confined, so far as known, to southeastern Perú, from near the Bolivian border to the mouth of the Río Urubamba and the upper tributaries of the Río Pachitea. There is little individual variation in this area, although occasional males show a more definite reddish tone on the back and posterior under parts than the rest of the population. The red of the throat is somewhat lighter in tone than that of most *carbo*. Females tend to be noticeably darker brown on the back than those of *carbo*. I have seen no examples of this sex that show any approach toward the sooty female plumage of *atrosericeus*, although that form occurs just across the territorial boundary of Bolivia,

but the darker and browner back of *connectens*, in comparison to that of *carbo*, is, in itself, an approach toward the Bolivian form.

The rump and upper tail-coverts of the females are sometimes only a little brighter and more rufous than the mantle, although there is always a certain amount of brighter color in that area. The face as often as not has a tinge of red, and in some instances it is very bright. One female in very worn plumage, from Astillero, has the chin and auriculars Coral Red, the forehead tinged with the same color, and the whole back of the head white, with some faint brownish tips. Several other skins show a tendency in the same direction, although the red hue is not so bright and the white of the occiput is concealed by broader brown tips on the feathers. Still other females have no concealed whitish areas on the occipital feathering, although the chin, anterior auriculars, and forehead are definitely dull reddish. These characters should be noted in connection with the discussion of the middle Huallaga population of *carbo*, given under that form.

Records of *connectens* are from the following localities other than those from which material has been examined: Maranura, Potrero, Huiro, Chaquimayo, Río Comerciato, San Gaban, Carabaya, Monterico, Chirimayo, Huaynapata, San Pedro, Escopal, Pangoa, and Chanchamayo.

Ramphocelus melanogaster melanogaster (Swainson)

Ramphopsis melanogaster SWAINSON, 1837 (Dec. 31), Anim. in Menag., p. 359—Perú (Moyobamba suggested by Zimmer, 1929); [♂]; W. Hooker Collection, possibly in Liverpool Mus., England.

Ramphocelus Luciani LAFRESNAYE, 1838 (Apr.), Rev. Zool., vol. 1, p. 54—no locality (= northern Perú); ♂; Mus. Comp. Zool., Cambridge, Mass.

I have given elsewhere (1929, Proc. Biol. Soc. Washington, vol. 42, p. 98) an account of the identity of *melanogaster* and "*luciani*," and in the discussion of *R. carbo carbo* on an earlier page of the present publication, I have discussed the complications with respect to the meeting of that species and *melanogaster* on the middle

Huallaga. A few points may be repeated here.

The females of *melanogaster* usually have a certain restricted area on the forehead, sides of the head, and upper throat tinged with red, but some examples do not, and, on the other hand, some females of *carbo* show the same character. The principal distinction between the two species in female plumage is, then, the brilliance of the color on the rump and upper tail-coverts, and in this regard I have seen no certain intermediacy. Males, of course, are quite distinct, although the difference is, in last analysis, that of intensity or brilliance of the red coloration on the posterior upper and under parts.

Without a series of birds from the middle Huallaga, it is impossible to define the boundary between the typical subspecies and the form found on the upper Huallaga. The only male at hand from the middle part of the river is *transitus*, and of two males from Lopuna, Hellmayr found one approaching *transitus* and the other like *melanogaster*. The two forms thus appear to meet somewhere near the mouth of the Río Huayabamba. Until series are available for additional study, the Lopuna birds may be placed with those from Rioja and Moyobamba in *m. melanogaster*. There are no other records.

Ramphocelus melanogaster transitus Zimmer

Ramphocelus melanogaster transitus ZIMMER, 1929 (Mar. 25), Proc. Biol. Soc. Washington, vol. 42, p. 95—Chinchao, Dept. Huánuco, Perú; ♂; Chicago Nat. Hist. Mus.

The redder mantle and the brighter red coloration of the throat, less sharply defined from the lower breast than in *melanogaster*, are shown by an adult male from Tocache, indicating that *transitus* ranges at least that far down the Huallaga. Two females of this genus from the same general region, but not the exact locality, belong to *R. c. carbo* and not to *m. transitus* as might have been expected.

As noted in the discussion of *carbo carbo*, I am uncertain as to the advisability of uniting this species with *R. dimidiatus*. There is a marked similarity in general

coloration between the two "species," and *transitus*, by its redder mantle, tends to stand between *m. melanogaster* and *d. dimidiatus*. The females of both groups are very similar, although *dimidiatus* rarely has even a weak development of reddish color on the anterior part of the head, while the uropygium is a lighter hue of red and, as in the male sex, a little more broadly extended anteriorly than in *melanogaster*.

There is a broad hiatus between the ranges of the two groups that is filled by *c. carbo* and *c. unicolor* so that the three groups replace each other everywhere except possibly on the Río Huallaga. If it is eventually found that *melanogaster* and *carbo* are true intergrading forms of a single species, it is probable that *dimidiatus* will be advantageously placed in the same relationship.

SPECIMENS EXAMINED

R. c. carbo.—

FRENCH GUIANA:

(Cayenne, Roche Marie, Approuague, and Isle Le Père), 12 ♂, 5 ♀.

DUTCH GUIANA:

(Albina, and near Paramaribo), 9 ♂, 5 ♀.

BRITISH GUIANA:

(Wismar, Minnehaha Creek, Tumatumari, Kamakusa, Rockstone, Potaro Landing, and "Demerara"), 21 ♂, 10 ♀, 2 (?).

VENEZUELA:

(Paulo, Arabupu, Auyan-tepui, Maipures, Nericagua, Maripa, Suapure, Munduapo, Perico, Barrancas, "Upper Orinoco," Ayacucho, La Unión, La Vuelta, La Prisión, mouth of Chanaro River, Caicara, Boca de Sina, mouth of Río Ocamo, opposite mouth of Ocamo, Esmeralda, Mt. Duida—Caño Seco, Caño León, Playa del Río Base, Campamento del Medio, Savana Grande, La Laja, Cassiquiare—Solano, Buena Vista, El Merey, opposite El Merey, junction of Cassiquiare and Río Huaynia, Caracas, Las Trincheras, Valencia, Puerto La Cruz, San Estéban, San Cristóbal, Ortiza, Duaca, and Aricagua), 72 ♂, 33 ♀, 5 (?).

BRAZIL:

Río Uaupés (Iauarete and Tahuapunto), 8 ♂, 2 ♀;
Río Negro (Tatú, San Gabriel, Yucabí, Tabocal, Santa Maria, Cucuhy, Uacará, Cravoieira, Camanaos, Tauapessasu, Igarapé Cacao Pereira, Muirapinimá, and Manaos), 83 ♂, 61 ♀, 2 (?);
Faro, 11 ♂, 8 ♀;
Río Branco, Caracarahy, 1 ♀;

Colonio de Veado, near Obidos, 1 ♀;
Piabuy (Therezina and Río Taguarasú), 2 ♂, 1 ♀;
Maranhão (Anil, As Mangueiras, Taboca, and Ilha São Luis), 11 ♂, 5 ♀, 1 (?);
Pará (Pará, Utinga, Prata, Benevides, Igarapé Assú, Bemfica, and Ananindeua), 9 ♂, 2 ♀;
Río Tocantins (Baião and Mocajuba), 7 ♂, 3 ♀;
Río Xingú (Tapará, Porto de Moz, and Victoria), 6 ♂, 4 ♀, 1 (?);
Río Tapajoz (Tauary, Santarem, Aramany, Igarapé Amorin, and Piquiatuba), 8 ♂, 7 ♀, 6 (?);
Villa Bella Imperatriz (Santa Clara, Lago Andirá, and Boca de Andirá), 9 ♂, 3 ♀, 1 (?);
Río Madeira (Calamá, Porto Velho, Borba, Igarapé Auará, Rosarinho, and Santo Antonio de Guajará), 49 ♂, 23 ♀;
Río Preto, Santa Isabel, 2 ♀;
Río Roosevelt, São João, 1 ♂;
Teffé, 15 ♂, 7 ♀.

ECUADOR:

(Macas region, Zamora, Coca, Napo, Ambato, Archidona, San José, and Río Suno), 17 ♂, 9 ♀, 2 (?).

COLOMBIA:

(Loretoyacu, La Morelia, Florencia, and above Florencia), 7 ♂, 5 ♀.

PERÚ:

Mouth of Río Curaray, 9 ♂, 2 ♀;
Puerto Indiana, 14 ♂, 6 ♀;
Río Mázan, 1 ♂;
Nauta, 1 ♀;
Jeberos, 1 ♂, 2 ♀;
Jaen, 3 ♂, 1 (?);
Huarandosa, 1 ♂, 1 ♀;
Perico, 3 ♂, 3 ♀;
San Ignacio, 1 ♂, 1 ♀;
Charapi, 1 ♂;
Río Chinchipe, 1 ♂, 1 ♀;
Huayabamba [Valley], 2 ♂, 1 ♀;
Nuevo Loreto, 1 [♀];
Pizana, 1 [♀];
Sarayacu, 8 ♂, 1 ♀;
Yarina Cocha, 1 ♀;
"Upper Ucayali" [= near Cashiboya], 1 ♂.

R. c. connectens.—

PERÚ:

Pozuzo, 2 ♂;
Chuchurras, 1 ♂, 1 ♀;
Puerto Bermúdez, 1 ♂¹;
Río Colorado, 1 ♂¹, 2 ♀¹;
San Ramón, 1 ♂¹;
La Merced, 4 ♂, 1 ♀;
Perené, 2 ♂, 3 ♀, 3 ♂², 1 ♀²;
Utcúyacu, 1 ♂;
Tulumayo, 6 ♂, 4 ♀;
Huacapistana, 1 ♀²;
Enefas, 1 ♂²;

¹ Specimens in Chicago Museum of Natural History.

² Specimens in Academy of Natural Sciences of Philadelphia.

San Juan, 1 ♂¹;
 Province of Junín, 1 ♂;
 Urubamba, 1 ♂²;
 Idma, 2 ♂, 1 ♀;
 Santa Ana, 1 ♀;
 mouth of Río Urubamba, 1 ♂, 1 ♀;
 Santa Rosa, Ucayali, 15 ♂, 4 ♀;
 Candamo, 1 ♂, 2 ♀;
 Río Inambari, 2 ♂;
 Río Távora, 5 ♂, 3 ♀;
 Astillero, 1 ♂, 3 ♀;
 Cosñipata, 2 ♂, 2 ♀, 1 ♂¹;
 La Pampa, 1 ♀¹;
 La Oroya, Inambari, 2 ♂¹, 2 ♀¹.

R. c. atrosericeus.—

BOLIVIA:

(Mapiri, Pitiguaya, Río Guanai, Río Chimate, Yungas of Cochabamba, Locotal, Mission San Antonio, Todos Santos, Espíritu Santo, San Mateo, mouth of Río San Antonio, Tres Arroyos, Province of Sara, and "Bolivia"), 32 ♂, 22 ♀, 5 (?).

R. c. centralis.—

BRAZIL:

Chapada, 40 ♂, 25 ♀, 8 (?);
 Matto Grosso (Barão Melgaço, Tapirapoan, Palmiras, Urucum, Descalvados, San Lorenzo River, Siete de Setembro, Juruena, S. Juan Ranch, Cuyubá River, Utiarity, Campanario, and Campos Novos), 22 ♂, 8 ♀;
 São Paulo (Franca and Fazenda Cayoá), 2 ♂;
 Minas Gerais, Rio Jordão, 1 ♂, 1 ♀;
 Piahy (Pindahyba and Patos), 2 ♂, 1 ♀;
 Bahia, Santa Ritta, 1 ♂;
 Goyaz (Fazenda Esperança and Rio Araguaya), 3 ♂, 2 ♀, 2 (?).

R. c. unicolor.—

COLOMBIA:

Villavicencio, 2 ♂, 1 ♀;
 Buena Vista, 4 ♂, 2 ♀;
 Mambito, 3 ♂, 1 ♀;
 "Bogotá," 7 ♂, 1 [♀].

R. c. capitatis.—

VENEZUELA:

(El Pilar, Sacupana, Guanoco, Cuchivano, Cristóbal Colón, Guanaguana, Cumana-coa, Rincón San Antonio, San Félix, and "N. E. Venezuela"), 14 ♂, 10 ♀.

R. c. magnirostris.—

TRINIDAD:

(Princetown, Caparo, Carenage, Chaguar-amas, Pointe Gourde, Laventille, Valencia, Savannah Grande, Caspare, Seelet, and "Trinidad"), 38 ♂, 37 ♀, 3 (?).

R. m. melanogaster.—

PERÚ:

Moyobamba, 7 ♂², 4 ♀², 2 ♂¹, 2 ♀¹;
 Río Seco, 5 ♂, 2 ♀;
 Rioja, 1 ♀²;

"Cartagena," (errore), 1 [♂]³ (type of "Luciani");
 "Upper" [= lower] Huallaga, 1 ♂⁴;
 "Headwaters of Huallaga" [= lower Huallaga], 1 ♂⁴.

R. m. transitus.—

PERÚ:

Chinchao, 1 ♂² (type);
 Vista Alegre, 3 ♂², 2 ♀²;
 Tocache, 1 ♂.

[*Ramphocelus icteronotus* Bonaparte was credited to "central Peru" by Ridgway (1902, Bull. U. S. Natl. Mus., vol. 50, pt. 2, p. 114), presumably on the basis of an early record by Taczanowski (1887, Proc. Zool. Soc. London, p. 332) which is quoted by Ridgway. Taczanowski's record, however, is from Palmal, Ecuador, and although this locality is quite near the Peruvian boundary, it is on the Ecuadorian side. Consequently, although the species may possibly range into extreme northern Perú, there is no existing record at the present time.]

Piranga rubra rubra (Linnaeus)

[*Fringilla*] *rubra* LINNAEUS, 1758, Syst. Nat., ed. 10, vol. 1, p. 181—based on "The Summer Red-Bird" Catesby, Hist. Nat. Carolina, vol. 1, p. 56, pl. 56—"Carolina and Virginia"= South Carolina.

Tanagra missippica HERMANN, 1783, Tabl. Aff. Anim., p. 214—based on "Tangara, du Mississipp" Daubenton, Pl. Enl., pl. 741.

Tanagra coccinea BODDAERT, 1783, Tabl. Pl. Enl., p. 46—based on "Tangara, du Mississipp" Daubenton.

[*Loxia*] *virginica* GMELIN, 1789, Syst. Nat., vol. 1, pt. 2, p. 849—based on "Yellow-bellied Grosbeak" Pennant, Arctic Zool., vol. 2, p. 351, and Latham, Gen. Synop. Birds, vol. 2, pt. 1, p. 125; Virginia.

[*Tanagra*] *mississippiensis* GMELIN, 1789, Syst. Nat., vol. 1, pt. 2, p. 889—based largely on "Tangara, du Mississipp" Daubenton.

[*Tanagra*] *aestiva* GMELIN, 1789, Syst. Nat., vol. 1, pt. 2, p. 889—based on "The Summer Red-Bird" Catesby.

[*Tanagra*] *variegata* LATHAM, 1790, Ind. Orn., vol. 1, p. 421—based on *Tanagra mississippiensis* Gmelin, *Loxia virginica* Gmelin, and "Variegated Tanager" Latham.

? *Piranga livida* SWAINSON, 1827, Phil. Mag., new ser., vol. 1, p. 438—Real del Monte, Hidalgo, Mexico; W. Bullock Coll.

Chaupe, 4 ♂; Uchco, 1 ♂; Perené, 1 ♂.

This migrant from the United States is

¹ Specimens in Academy of Natural Sciences of Philadelphia.

² Specimens in Chicago Natural History Museum.

³ Specimen in Museum of Comparative Zoölogy, Cambridge.

⁴ Specimens in United States National Museum.

found in winter over much of northern South America, as far south as western Bolivia and the Rio Madeira, Brazil. Other Peruvian records are from "Headwaters of Huallaga River" (? near head of navigation, lower Huallaga); Tambillo, Nuevo Loreto, Chinchao, Huachipa, Río Colorado (Chanchamayo), and Idma. The Academy of Natural Sciences of Philadelphia has specimens from Moyobamba and San Juan de Perené.

The reference to *Pyranga livida* Swainson has been included universally in the synonymy of *rubra* rather than in that of *cooperi*, although there is no positive evidence that this is correct. Swainson's original description gives the length of the tail as $3\frac{1}{2}$ [inches] which is longer than in either *rubra* or the western subspecies but nearer the latter. The type locality, in the State of Hidalgo, Mexico, is in that part of the country where *rubra* has been found but not *cooperi*, and it is probable that the assignment of the name *livida* to the synonymy of *rubra* is quite correct. Since the type has disappeared, the matter is not susceptible to exact determination.

Piranga flava lutea (Lesson)

Pithylus luteus LESSON, 1834, l'Inst., vol. 2, no. 72, p. 317—Callao, Perú; ♀; repository of type unknown.

Piranga testacea tschudii BERLEPSCH AND STOLZMANN, 1892, Proc. Zool. Soc. London, p. 375—Lima; ♂, ♀; cotypes in Warsaw Mus.

Huacho, 2 ♂; Poroto, 2 ♂; Paletillas, 3 ♂; Virú, 1 ♂, 3 ♀; Cabico, 2 ♂; Taulis, 2 ♂, 1 ♀; Seques, 2 ♂, 1 ♀; Palambra, 4 ♂, 3 ♀; Huancabamba, 4 ♂; Jaen, 2 ♂, 1 ♀; Lomo Santo, 2 ♂; Sondorillo, 1 ♂, 1 ♀; Perico, 2 ♂, 1 ♀; El Tambo, 1 ♀; Cajabamba, 1 ♂, 1 ♀; Suecha, 2 ♂; Viña, 2 ♂, 1 ♀; Chusgon, 2 ♀; Choquisongo, 1 ♂; Chanchamayo, 1 ♂, 1 ♀; Chauillay, 1 ♂, 2 ♀; Río Huacamayo, 1 ♀.

Largely confined to the Subtropical Zone of Perú, western Ecuador, and northwestern Bolivia, but descending into the arid coastal region from near Lima northward. I have little to add to my earlier discussion of this form (1929, Field Mus. Nat. Hist., zool. ser., vol. 17, pp. 191-195). Various speci-

mens in the series listed above show that the annual molt occurs largely in April and May. April birds are in quite worn plumage with a suggestion of beginning molt. May and June birds at hand are in fresh plumage with the last vestiges of molt on the wings and tail, and one or two July specimens also show the end of the plumage change. One young male, dated August 12, is still in molt from immature olive and yellow to orange-red.

A male and female from Milagros must now be credited to Ecuador, if my allocation of that locality is correct.

There are records of *lutea* from Santa Eulalia, Callao, Lima, Lurin, Surco, Lechugal, Huayabamba [Valley], Chirimoto, Callacate, Tambillo, Tabaconas, near Nancho, Chinchao, Vista Alegre, Culcui, Hacienda Limón, Junin, La Merced, Santa Ana, Huaynapata, Río Combarciato, and Marcapata, and the following localities are further represented in the collections of the Academy of Natural Sciences of Philadelphia: Porculla, Río Chinchipe, Utcubamba, Huarmey, Suchiman, La Laja, Perené, Patás, Chagual, Chira, and Soquian.

Piranga olivacea (Gmelin)

Tanagra rubra (not *Fringilla rubra* Linnaeus) LINNAEUS, 1766, Syst. Nat., ed. 12, vol. 1, p. 314—based on "Le Cardinal de Canada" Brisson, Orn., vol. 3, p. 48, pl. 2, fig. 5; Canada.

Tanagra olivacea GMELIN, 1789, Syst. Nat., vol. 1, pt. 2, p. 889—based chiefly on "Olive Tanager" Latham, Gen. Synop. Birds, vol. 2, p. 218, and Pennant, Arctic Zool., vol. 2, p. 369; [Hempstead, Long Island], New York.

Piranga erythromelas VIEILLLOT, 1819, Nouv. Dict. Hist. Nat., nouv. éd., vol. 28, p. 293, pl. M. 22, fig. 1—based on *Tanagra rubra* (Latham, ex) Linnaeus.

Chanchamayo, 1 ♂; mouth of Río Curaray, 1 ♂.

This species is a more uncommon visitor to Perú than its congener, *P. rubra*.

There is only one additional record, a specimen taken by Jelski at Monterico and recorded by Taczanowski (1874, Proc. Zool. Soc. London, p. 514). Curiously, Taczanowski omitted any reference to the species in his "Ornithologie du Pérou."

Piranga rubriceps G. R. Gray

Piranga rubriceps G. R. GRAY, 1844, Gen. Birds, vol. 2, p. 364, pl. 89, lower fig.—no locality (Bogotá-skin in British Mus.).

Piranga rubriceps rufistigmata LÖNNBERG AND RENDAHL, 1922, Ark. Zool., vol. 14, no. 25, p. 86—above Baeza, eastern Ecuador; Stockholm Mus.

San Pedro, 1 ♂, 1 ♀; La Lejia, 5 ♂, 1 ♀.

I can find no differences in birds from Ecuador and Colombia and those from northern Perú. Other Peruvian records are from Cutervo and Cumpang, while Chira is to be added from the collection of the Academy of Natural Sciences of Philadelphia.

Habia rubica peruviana

(Taczanowski)

Phoenicotheraupis peruvianus TACZANOWSKI, 1884, Orn. Pérou, vol. 2, p. 498—Yurimaguas, Monterico, Chayavitas, and Chamicuros, Perú; restricted to Yurimaguas by Berlepsch, 1910.

Phoenicotheraupis rubica amabilis BERLEPSCH, 1907, Ornith., vol. 14, p. 348—San Mateo, Bolivia; ♂; Frankfurt Mus.

The plumages and molts of this species are difficult to understand owing to considerable variability and some apparent irregularity in the succession of the earlier stages. Young birds of both sexes appear to be warmer brown above than the adult females and have the wings also warmer brown and the under parts relatively more brownish. Some of the young birds, sexed as males, are passing from this dress into a much more olive one, although occasionally an example shows the incipient acquisition of a certain amount of adult male red color in what appears to be the same post-juvenile molt. Most of the nearly adult males that show the final stages of molt into adult red plumage, however, are losing the last traces of olive, rather than brown, feathering.

The tail is decidedly reddish in young birds of both sexes, although not the clearer red of the adult males, and this, too, is changed in the post-juvenile molt to olive, changing to full red in the males and going again to olive in the females at the succeeding molt. Whether this succeeding molt is the first pre-nuptial or a post-nuptial one I have been unable to determine exactly.

One male with enlarged gonads has the tail and wings (except for olive tertials) strongly reddish brown, the throat quite yellowish, and the crest yellow, while the back is largely olive with some admixture of warm brown, though with no signs of molt. This would indicate that the bird had already acquired its first breeding plumage which combined some of the features of the juvenile and some of the adult female plumages, with the addition of a brighter yellow throat and crest than is shown by adult females.

There may be some reversion before adults reach a stable plumage. I have one male of *rubra* from Venezuela that is obviously going back from red to olive in a general molt. Various other examples of this and other subspecies show traces of similar backward renewals but with the new greenish feathers so irregularly spaced as to give rise to the suspicion that they are adventitious replacements of accidental loss (see Zimmer, 1929, Field Mus. Nat. Hist., zool. ser., vol. 17, no. 5, p. 176, for the account of a similar condition in *Piranga flava*), but the molt of the Venezuelan specimen mentioned above is too extensive for this interpretation. Other specimens from the same season (May-June) show normal post-juvenile and supposedly pre-nuptial molt, including an adult male replacing red with red. A study of the species in the aviary should prove highly instructive.

The relative instability of the pigmentation of some of the younger examples of this species is shown by another young male of *rubra* from northeastern Venezuela which has the terminal third of the tail noticeably olivaceous and the rest of the tail strongly reddish.

There is some confusion in the matter of type locality for *peruviana*. In the original description of this form, Taczanowski listed specimens from Chayavitas, Chamicuros, Yurimaguas, and Monterico without designating any one of them as type locality or specifying a type. The following year (1885, Ibis, p. 272), Selater discusses a male from Monterico sent to him by Taczanowski as "the typical specimen," but many years later (1927, Ann. Zool. Mus.

Polonici Hist. Nat., vol. 6, p. 186), Sztolcman and Domaniewski list a male from Yurimaguas as the type. That there is some basis for this contention is indicated in Taczanowski's original account where he compares the form to several others and adds the comment that the Monterico specimens differ from the Yurimaguas birds. Berlepsch (1912, Berlin V. Internatl. Ornith.-Kongr., p. 1070) accepted the selection of a Yurimaguas bird in the Warsaw Museum as type and thus virtually restricted the type locality to that place, a procedure which I follow here.

I am very doubtful of the advisability of separating the Bolivian *amabilis* from the Peruvian population, excepting the birds from extreme northeastern Perú which will be discussed further. There are various specimens of both sexes in the Bolivian and Peruvian series that can be matched with each other. The adult males are equally dark and gray on the lower under parts, the throats are very similar in depth and actual hue, the upper parts vary to much the same extent, and the mandible is relatively dark throughout the combined series. The females usually have a decided ochraceous coloration on the under parts and a moderately warm tone of brown above, and, although certain examples are decidedly paler beneath, the flanks are relatively strongly brown and the throat and belly are not whitish as in *hesterna* of the lower Amazon but have a certain buffy tone that is obvious on comparison with typical *hesterna*. Such light-colored examples are at hand from Bolivia, the upper Ucayali in Perú, and near the mouth of the Huallaga, also in Perú.

There is no place in this combined series where any positive distinction occurs, and it seems undesirable to establish an arbitrary line of separation for which so many exceptions would be required.

At the lower end of the Amazon, a definite distinction is immediately apparent for which the name *hesterna* was supplied by Griscom and Greenway (1937, Bull. Mus. Comp. Zool., vol. 81, no. 2, p. 437), based on birds from Pataua, right bank of the Rio Tapajoz. It is not evident, from the material before me, that this subspecies is

replaced on the left bank of the Tapajoz and, at least for some distance, westward by *peruwiana* as claimed by the authors of *hesterna*. As a matter of fact, I am unable to separate any part of the Amazonian population as far west as the Rio Madeira for, although there is only an occasional relatively dark bird from east of the Tapajoz, there are light birds from west of it that cannot be distinguished from the east-bank specimens. Together, the series shows a fairly uniform distinction from *peruwiana* and if a single line of demarcation must be made, it should be well to the westward of the Tapajoz.

The characters of *hesterna* comprise, in the adult males, a much paler under surface than in *peruwiana*, with the throat and under tail-coverts pink, the belly very pale pinkish, and the flanks pale grayish with a slight brownish tinge. The females are lighter than those of *peruwiana*, both above and below, with the dorsal surface more olivaceous, less warm, brown and the under parts extensively whitish, with a slight amount of ochraceous or buffy color on the breast in some examples. There is no solidly ochraceous or brownish coloration as in *peruwiana*.

For a certain distance west of the Rio Madeira, the females have the characters of *hesterna* and could be assigned to that form with little hesitation. Males, on the other hand, show a gradually increasing depth of pigmentation that prevents such positive identification. Nevertheless, I find a closer approximation to *hesterna* than to *peruwiana* at least as far as Teffé which is the most western locality from which I have adult males. Of four birds of this sex from that locality, none is so pale as the Tapajoz examples of *hesterna* but none is so dark as *peruwiana*, and three specimens from the lower left bank of the Madeira are intermediate between the Teffé birds and the Tapajoz skins. It is difficult to suggest the proper assignment of these birds either to one or the other form and, since they are so intermediate in character, it seems inadvisable to propose a new subspecies for their inclusion, especially since the females show such approximation to the full characters of one of the described forms.

One male, the only one from Rosarinho, stands out from the entire series by the unusually bright red (near Coral Red) throat which is, however, nearer the Coral Red \times Jasper Red of some other examples of *hesterna* than to the Brazil Red of *peruviana*.

For the present, therefore, I refer all these middle-Amazonian birds to *hesterna* with a full realization that they are, at best, intermediate between that form and *peruviana*.

Peruvian records of *peruviana* are from Chayavitas and Monterico as well as from some of the localities from which material has been examined in the present study.

Habia rubica rhodinolaema

(Salvin and Godman)

Phoenicothera rhodinolaema SALVIN AND GODMAN, 1883, Biol. Cent. Amer., Aves, vol. 1, p. 300, footnote—Sarayacu, Ecuador; ♂, ♀; cotypes in British Mus.

The characters of this form are not too positive but the few specimens at hand from extreme northeastern Ecuador are just distinguishable from *peruviana* (noticeably different from *hesterna*) and may be taken to represent this subspecies.

The original description makes no mention of *peruviana* or of any other South American form but, after a Latin description, says merely that it is "A small species differing in many respects from all hitherto described. The female is peculiar in its light-colored underparts." Consequently, later authors must be consulted for comparative notes on the typical specimens. Hellmayr appears to be the only person who has reported on the original pair from Sarayacu. He says (1907, Novit. Zool., vol. 14, p. 44) that the male differs from *peruviana* by having the throat and crest of a much brighter, more scarlet red; the dusky margins of the crest rather better defined; female not distinguishable from that of *peruviana*. However, he included in *peruviana* the lower Amazonian population which is quite distinct, as noted above in the discussion of *peruviana*.

In a later account (1936, Field Mus. Nat. Hist., zool. ser., vol. 13, pt. 9, p. 304) he comments briefly on a restriction of the

red gular area in the male. The east-Ecuadorian males now before me show no such character. The gular area is very slightly lighter in tone than it is in *peruviana* males and the dorsum in one specimen is darker red than that of most *peruviana* while the crown-patch has somewhat more obvious dusky lateral borders than in all but a few Peruvian and Bolivian specimens. The females, however, show a little differentiation. Whereas the upper parts in *peruviana* are relatively warm brown or a moderately light olive brown, the same region in the Ecuadorian females is darker and without much warm tone. The under parts are paler than in most *peruviana* females and in none of the specimens are they as noticeably ochraceous as in the average Peruvian or Bolivian bird, nor so whitish as in *hesterna*.

Two females from northeastern Perú, north of the Amazon, presumably belong here. Their upper parts are not quite so dark as in the darkest Ecuadorian bird and the under parts are even paler and more whitish, approaching *hesterna* in that respect, but *hesterna* females have the back still lighter olivaceous brown. It is possible, because of the paleness of the under parts in these two birds, that they are more like the female cotype of *rhodinolaema* than the Ecuadorian females at hand.

Two males from the Rio Uaupés, Brazil, likewise appear to belong to *rhodinolaema*. They agree with the Ecuadorian males in most respects and, although they have the belly a little paler, about as in Teffé skins of *hesterna*, the throat is more scarlet than rosy red and the sides of the crown, in one of the two skins, is noticeably dusky. Additional specimens may show distinctions that are not apparent with this limited material, but for the present I must refer the Uaupés birds to *rhodinolaema*.

SPECIMENS EXAMINED

H. r. rubra.—

TRINIDAD:

(Valencia, Savannah Grande, Laventilla, Caparo, Chaguaramas, and Princetown), 15 ♂, 2 ♀.

VENEZUELA:

Cristóbal Colón, 8 ♂, 1 ♀, 1 (?); Campos Alegre Valley, 1 ♂; Quebrada Seca, 4 ♂, 4 ♀;

- Cumanacoa, 1 ♂;
 Río Neveri, 3 ♂.
- H. r. coccinea*.—
 VENEZUELA:
 La Azulita, Mérida, 1 ♂.
- H. r. rhodinolaema*.—
 BRAZIL:
 Río Uaupés, Tahuapunto, 2 ♂.
- ECUADOR:
 Río Suno, above Avila, 2 ♂, 1 ♀;
 lower Río Suno, 1 ♂, 3 ♀.
- PERÚ:
 Mouth of Río Curaray, 1 ♀;
 Apayacu, 1 ♀.
- H. r. peruviana*.—
 PERÚ:
 Río Negro, west of Moyobamba, 1 ♂, 1 ♀;
 Yurimaguas, 1 ♂, 1 ♀;
 Chamicuros, 2 ♂;
 Jeberos, 1 ♀;
 "Peruvian Amazons," 1 ♀;
 La Merced, 1 ♂, 1 ♀;
 Lagarto, 3 ♂, 1 ♀;
 Santa Rosa, 1 ♂;
 Puerto Bermúdez, 2 ♂¹, 1 ♀¹.
- BOLIVIA:
 La Paz region, 1 (?);
 Todos Santos, 2 ♂, 1 ♀;
 Mission San Antonio, 10 ♂, 4 ♀;
 mouth of Río San Antonio, 2 ♂, 1 ♀;
 San Mateo, 1 ♂, 1 ♀;
 Juntas, 1 ♂;
 Río Chimoré, 1 ♂;
 Province Sara, 1 ♂, 1 (?).
- H. r. hesterna*.—
 BRAZIL:
 Río Xingú, Tapará, 3 ♂;
 Río Tapajoz, Boim, 1 ♂;
 Caxiricatuba, 1 ♂, 1 ♀;
 Santarem, 6 ♂, 2 ♀;
 Igarapé Brabo, 4 ♂, 6 ♀;
 Villa Braga, 1 ♀;
 Río Jamauchim, Tucunaré, 1 ♂;
 Villa Bella Imperatriz, 13 ♂, 6 ♀;
 Río Madeira, Borba, 1 ♂;
 Igarapé Auará, 4 ♂, 1 ♀;
 Humaythá, 2 ♂, 1 ♀;
 Calamá, 1 ♂, 2 ♀;
 Rosarinho, 2 ♂;
 Teffé, 4 ♂, 5 ♀.

Lanio fulvus peruvianus Carriker

Lanio atricapillus peruvianus CARRIKER, 1934,
 Proc. Acad. Nat. Sci. Philadelphia, vol. 86, p.
 331—Moyobamba, Perú; ♂; Acad. Nat. Sci.,
 Philadelphia.

A series of 64 specimens of this species from various parts of its range shows that the suggested characters of *peruvianus* are not perfectly constant. In fact, if the form is to be recognized, it must include all the birds from Ecuador and Colombia in dis-

tinction from those of the Guianas, Venezuela, and northern Brazil. In this area, the adult males have the back averaging lighter and more uniformly yellow, sometimes with the upper tail-coverts also yellow at the tips, although not so dark as in true *fulvus fulvus*. Owing to the lighter color of the back as a whole, the yellow collar is less in contrast to the lower part of the mantle. An occasional specimen has the back about as dark as in some *fulvus fulvus*, but in these the collar, also, is relatively dark. The under parts are, on average, but little lighter than in *fulvus fulvus* and often no different.

The females are puzzling but the difficulty may lie in the differences due to age and the sex of immature birds. In both *fulvus* and *peruvianus* there are some birds that are strongly brownish over the whole under parts and others that have a distinct greenish tinge on the breast. Some obviously immature examples as well as probable adults are in both color groups. Any attempt at segregation on this basis is quite unsatisfactory.

Except for the type record from Moyobamba, there are no Peruvian records of the species.

SPECIMENS EXAMINED

- L. f. fulvus*.—
 FRENCH GUIANA:
 "Cayenne," 4 ♂;
 Ipousin River, Approuague, 1 ♀.
- DUTCH GUIANA:
 "Interior," 1 ♀.
- BRITISH GUIANA:
 Ourumee, 1 ♂;
 River Carimagua, 1 ♂;
 "interior," 1 ♂.
- VENEZUELA:
 Mt. Auyan-tepui, 7 ♂, 3 ♀, 1 (?);
 Mt. Duida, Caño Seco, 1 ♂, 1 ♀.
- BRAZIL:
 Faro, 2 ♂, 2 ♀;
 São Antonio de Cachoeira, Río Jary, 1 ♂,
 1 ♀.
- L. f. peruvianus*.—
 COLOMBIA:
 "Bogotá," 6 ♂, 1 ♀.
- ECUADOR:
 Río Suno, above Avila, 2 ♂, 3 ♀;
 lower Río Suno, 1 ♂;
 below San José de Sumaco, 1 ♂, 1 ♀;
 Macas region, 1 ♂;
 "Napó," 1 ♂;
 Sarayacu, 1 ♂;

Zamora, 2 ♂;
 Sabanilla, 1 ♂;
 Ecuador, 1 ♂.

PERÚ:

Apayacu, 1 ♂;
 mouth of Río Curaray, 1 ♂, 1 ♀;
 Pomará, 1 ♂, 1 ♀;
 Río Negro, west of Moyobamba, 2 ♂;
 Río Seco, 1 ♂.

Lanio versicolor versicolor
 (D'Orbigny and Lafresnaye)

T[achyphonus] versicolor D'ORBIGNY AND
 LAFRESNAYE, 1837, Mag. Zool., vol. 7, cl. 2,
 "Syn. Av.," p. 28—Yuracares (rep. Boliviana);
 cotypes in Paris Mus.

Peruvian birds of this species are best referable to the Bolivian form although, judging by the limited Bolivian material at hand, they reach a greater extreme of size than Bolivian specimens.

On the other hand, the birds from Matto Grosso and the upper Rio Madeira region of Brazil, assigned by authors to *v. versicolor*, may be better placed in *parvus*, the small subspecies described from the Rio Jamauchim, an affluent of the Tapajoz. The measurements of the birds from the four areas, as shown by the series before me, are as follows:

	WING	TAIL
♂ Perú	82-89 mm.	66-75.5
Bolivia	80.5-87	68-72.5
c. Brazil	77-81.5	65-69
Tapajoz	77-80	66-69
♀ Perú	75-82.5	64-70.5
Bolivia	75.5	64
c. Brazil	73-76.5	60.5-65.5
Tapajoz	72-72.5	59-63.5

There is little difference in coloration of the males throughout the specific range, and nothing that is accurately diagnostic. Males of *versicolor* have a little more pronounced subterminal blackish bar on the lower mantle feathers than those of *parvus*, at least as an average condition, but it is far from constant. They also have the yellow area on the top of the head more frequently extended posteriad over the occiput, but this is too variable to be of much service. The females of *versicolor* have browner or more ochraceous brown, less olive or olive brown, throat, breast, and flanks, and darker under tail-coverts, than those of *parvus*, and in this respect the cen-

tral Brazilian examples are readily placed with *parvus* rather than *versicolor*.

A single male from Teffé, Brazil, agrees with Peruvian birds (wing, 83 mm.; tail, 70.5). One specimen in the series is labeled "Moore Napo" but the locality is certainly in error. It may have come from the south bank of the Amazon opposite the mouth of the Napo near Orosa from which locality I have two specimens. There is no evidence that the species crosses the Amazon at any place. Its range complements that of its congener, *L. fulvus*, quite exactly, although there is a region in northwestern Brazil from which no member of the genus is yet known.

Peruvian records of *versicolor* are from San Gaban, Chaquimayo, Cosñipata, Monterico and Río Javari (Brazil?).

Taczanowski (1884, Orn. Pérou, vol. 2, pp. 500-501) cites also "Ucayali supérieur, Santa Cruz (Bartlett)," but this citation is open to suspicion. Selater (1873, Proc. Zool. Soc. London, pp. 252-311) gives a condensed account of all of Bartlett's Peruvian collections with additions from other sources, and on page 262, *Lanio versicolor* is accredited only to Bates from the Río Javari. *Eucometis penicillata* is recorded from the upper Ucayali and Santa Cruz from Bartlett's material, and it is likely that Taczanowski repeated this citation for *Lanio versicolor*. In any case, while the record from the upper Ucayali (in Bartlett's case this means near Cashiboya) is plausible, owing to other Ucayali records, that from Santa Cruz, on the lower Hualaga, is less so although not impossible.

SPECIMENS EXAMINED

L. v. versicolor.—

PERÚ:

Orosa, 1 ♂;
 Lagarto, 1 ♂;
 Huachipa, 3 ♂¹, 1 ♀¹;
 ?"Napo," 1 ♂;
 Pozuzo, 1 ♂, 1 ♀;
 Chuchurras, 1 ♂;
 Astillero, 3 ♂, 2 ♀;
 Marcapata, 1 ♂;
 Candamo, 1 ♂;
 La Pampa, 2 ♂, 2 ♀;
 Río Távara, 1 ♂.

¹ Specimens in the Chicago Natural History Museum.

BOLIVIA:

Mission San Antonio, Río Chimoré, 1 ♂;
mouth of Río San Antonio, 1 ♂, 2 ♀;
lower Beni, 1 ♀.

BRAZIL:

Teffé, 1 ♂.

L. v. parvus.—

BRAZIL:

Matto Grosso, Monte Cristo, 1 ♂, 1 ♀;
Rio Roosevelt, Camp 8, 1 ♂, 2 ♀;
mouth of Río Cherrie, 1 ♀;
Rio Madeira, Humaythá, 1 ♂;
Alliança, 1 ♂;
Rio Jamauchim, Santa Elena, 1 ♀;
Rio Tapajoz, Caxiricatuba, 3 ♂;
Tauary, 1 ♂, 1 ♀.

***Tachyphonus rufus* (Boddaert)**

Tangara rufa BODDAERT, 1783 (Dec.), Tabl. Pl. Enl., p. 44—based on Daubenton, Pl. Enl., pl. 711—♀; Cayenne.

Oriolus melaleucus SPARRMAN, 1787, Mus. Carlson., fasc. 2, pl. 31—Surinam; ♂.

Oriolus leucopterus GMELIN, 1788, Syst. Nat., vol. 1, pt. 1, p. 392—based on Latham, Gen. Synop. Birds, vol. 1, pt. 2, p. 440—Cayenne; ♂.

Tanagra nigerrima GMELIN, 1789, Syst. Nat., vol. 1, pt. 2, p. 899—based on Daubenton, *op. cit.*, pl. 179, fig. 2 (♂), and pl. 711 (♀).

Tachyphonus cirrhomelas VIEILLOT, 1819, Nouv. Dict. Hist. Nat., nouv. éd., vol. 32, p. 357—based on Desmarest, Hist. Nat. Tangaras, livr. 9, pl. 49 (young ♂); Guiana.

Tachyphonus beauperthuyi BONAPARTE, 1851, Compt. Rend. Acad. Nat. Sci. Paris, vol. 32, p. 82—no locality; cotypes in Paris Mus. from "Côte ferme" near Cumaná, Venezuela.

Tachyphonus rufus subulirostris PINTO, 1935, Rev. Mus. Paulista, vol. 19, p. 268 (in text)—Bomfin, northeastern Bahia, Brazil; cotypes in Mus. Paulista.

Santa Ana, 2 ♂; Río Seco (near Moyobamba), 2 ♂; Perico, 5 ♂, 1 ♀; Jaen, 4 ♂, 2 ♀; Uchco, 1 ♂; Huayabamba [Valley], 2 ♂, 2 ♀.

This wide-ranging species appears not to have broken up into any recognizable subspecies. There are certain individual variations in size, in the exact quality of the metallic sheen of the males and the tone of rufous in the females, and even in the occasional presence of a rufous coronal patch in the males, but none of these features shows any geographical correlations.

In spite of the broad area occupied by the species, there are some areas where it has never been taken but where it might reasonably be expected to occur. Its absence from the extensive collections made in these areas is surprising but may some-

time be explained when adequate field studies are made. Thus, while the bird occurs in Colombia as far south as Ricaurte and in northern Perú on the Río Chinchipe, it has never been taken in Ecuador. It appears to be absent from central Perú but reappears in the Urubamba Valley. It has not been taken in Bolivia but occurs in Matto Grosso, Brazil, in Paraguay and northern Argentina, and through eastern Brazil from São Paulo northward to the Pará district and west along the southern bank of the Amazon to the Río Tapajoz, but the whole Amazon Valley above that tributary, including both sides of the main stream, the whole course of the Río Negro, and the far western tributaries, the Río Ucayali and the Río Napo, have no records of the bird. It reappears again in the three Guianas, on the middle Orinoco, on Trinidad and Tobago and in northern Venezuela, rather widely in central and southern Colombia, and again in western Panamá and eastern Costa Rica. Such distribution is difficult to explain.

Peruvian records, other than those from localities listed above, are from Maranura, Huiro, Potrero, Pintobamba, Idma, Moyobamba, Bellavista, Chirimoto, Huambo, and Corral (eggs only).

Tachyphonus valeryi

(J. and E. Verreaux)

Pyrrota valeryi J. and E. VERREAUX, 1855, Rev. Mag. Zool., ser. 2, vol. 7, p. 351—"l'Amérique centrale," *errore*; type and paratype in Paris Mus. are labeled "Pebas, Haut Amazone."

There has been considerable mystery surrounding this bird. Selater (1856, Proc. Zool. Soc. London, vol. 24, p. 114) places "*valerii*" in the genus *Tachyphonus* (of which *Pyrrota* is a synonym) without having seen the original material or any specimens he could refer to it, and later (1886, Cat. Birds Brit. Mus., vol. 11, p. 207) puts it in the synonymy of "*melaleucus*" (= *T. rufus*) in spite of its black under wing-coverts and black shoulder which he had noted in the earlier citation. Extensive material has been collected in the Pebas region in recent years without the discovery of any *Tachyphonus* or generic affine with

the characters of *valeryi*, but no critical study of the type and paratype was ever made to confirm Sclater's assignment to *Tachyphonus*.

Mr. James Bond (*in litt.*) suggested to me the possibility that the species was not a tanager at all, but possibly the troupial, *Lamprosar tanagrinus*. I have made a careful examination of a good series of that bird and find myself in perfect accord with Mr. Bond's suggestion. Measurements are in excellent agreement, the general resemblance to *Tachyphonus* is notable, and the locality, Pebas, is well within the range of *Lamprosar*. Pending a critical study of this troupial, *Pyrrota valeryi* may thus be withdrawn from the Thraupidae and placed as a synonym of *Lamprosar tanagrinus tanagrinus* (Spix).]

Tachyphonus cristatus (Linnaeus)

Tanagra cristata LINNAEUS, 1766, Syst. Nat., ed. 12, vol. 1, p. 317—based on "Le Tangara noir hupé de Cayenne" Brisson, Orn., vol. 6, Suppl., p. 65, pl. 4, fig. 3 (adult ♂); Cayenne; Madame de Bandeville Coll.

The identification of Peruvian specimens of this species has led to an examination of all the described subspecies, the arrangement of which has not been entirely satisfactory. The nominate form from Cayenne ranges southward to the Amazon in the neighborhood of Faro and Obidos, gaining a little increase in reddish tinge of the crest of the males in the more southern localities, but retaining a maximum length of tail (69–73 mm. in males) and moderate length of crest (long occipital feathers, 10.5–13 mm.) with well-developed post-frontal band of buff, carried along the sides of the head. The females are relatively dull in color but have a little brown on the cap, while the forehead is light buffy. Females from Faro are like French Guianan examples.

The yellow-crowned *intercedens* of Dutch and British Guiana (and the Orinoco Delta) occupies a limited range in the area mentioned. Four birds from Mt. Auyan-tepui have been referred by the writer and Mr. Phelps (1945, Amer. Mus. Novitates, no. 1274, p. 8) to this form, although some discussion of them should be added. The

males might readily be assigned to *c. cristatus* (in spite of the interposed *intercedens*) but the other two birds, neither of which is fully adult, although nearly so, disagree with the females and young of that form and agree exactly with those of *intercedens* in their olive coloration above, with no brown coronal patch, and the particular hue of Yellow Ocher on the under parts. The strong orange color on the crests of the males certainly is not typical of *intercedens*. It is quite possible that the Auyan-tepui birds should be separated as new, but this action may better await larger series with fully adult females. In the meantime, the nearest geographical representative, with which the two young birds quite agree, is *intercedens*.

On the middle Orinoco and Caura rivers, *orinocensis* occurs, with the male crest more reddish than that of *cristatus* and with the females more warmly colored above, with a stronger and darker brown crown and a distinctly gray, instead of dull buffy, front. The tail averages a little shorter than in *cristatus* (63–71 mm. in the males) and the male crest a little shorter (9–12 mm.).

In the vicinity of Mt. Duida and south-east through the Cassiquiare region and the course of the Rio Negro in Brazil, the males have the most pronounced red on the crest of any of the forms found north of the Amazon, with the maximum development of the frontal band, and the females have the lower under parts most strongly and deeply colored (Mars Yellow × Xanthine Orange in full-plumaged examples). They agree with "Bogotá-skins" and thus should be referred to *cristatellus*, described from "Bogotá" examples. One male from Loretoyacu, Colombia (formerly in Perú) and one from Apayacu, Perú, east of the mouth of the Napo, agree with the remainder of this series and indicate the southwestern extension of range of *cristatellus*.

Some of the females from the Duida-Negro series are very like those of *orinocensis* in the color of the under parts, but most of them are in worn and, presumably, faded plumage from which much of the brilliant orange-ochraceous color has been lost. Even in these few examples, the coro-

nal patch is usually deeper rufescent brown than in fresher *orinocensis* examples, enabling their being recognized as *crisatellus*.

Some adult males have the crest no deeper red than those of *orinocensis*, which occasionally matches the deeper color of *crisatellus*, but the series are quite recognizably distinct.

In view of the assignment of other Duida birds to *crisatellus*, I have transferred the record of *orinocensis* from the western foot of Duida (Zimmer and Phelps, 1945, Amer. Mus. Novitates, no. 1274, p. 8) to *crisatellus*. It is an immature male and not certainly determinable as to subspecies.

Some south-Venezuelan and north-Brazilian females show the throat quite pale and the breast tinged with grayish, in considerable contrast to the deeply colored belly, but others from the same localities are only a little lighter ochraceous on the same area. These more uniform birds agree with the few "Bogotá" females at hand, although those at the other extreme are noticeably distinct as indicated. The resemblance in general richness of coloration is such that I am unwilling to suggest any separation on the basis of the extreme examples.

While all the forms from north of the Amazon have the gular patch in the males more restricted than do those from south of the river (with the exception of *nattereri* which may belong to this species, as discussed below), some of the specimens of *crisatellus* are the most marked in this respect of all that I have seen. One male from Mt. Duida, for example, has only a trace of bright color on the tips of a few feathers and some others have but little more. The measurements of male *crisatellus* may be given as: wing, 75.5–81 mm.; tail, 62–71; long occipital feathers, 9.5–13.

Specimens from eastern Ecuador and northeastern Perú, on both sides of the Amazon but not east of the mouth of the Napo, are quite different from *crisatellus* and, in the male sex, show considerable resemblance to *crisatus*. They have shorter tails, however, and the buff frontal

band is less prominent in the males while the females are darker above, somewhat more intensely colored below (on average), and have the forehead gray as in *crisatellus*. In view of the interposition of *crisatellus* over a wide terrain between the Napo and the range of *crisatus*, these birds appear to deserve separation; their description is given below.

Near the Río Chinchipe, in northwestern Perú, though east of the Andes, the long-crested *huarandosae* has its limited range. Some examples of the Napo form approach it in the length of crest, but *huarandosae* represents the extreme limit of variation in that geographical direction. The color of the crest is about that of *crisatus* at its lighter limits. Females of this form are not yet described.

South of the Amazon in Brazil, all the males have the general body color less deeply black than in the various forms mentioned above, with a duller, somewhat more brownish tone. This is shown by fresh examples from the various regions and is not due to any post-mortem change in the specimens. In extreme eastern Brazil, the relatively long-crested *brunneus* ranges from São Paulo at least as far north as Pernambuco. I have not seen Maranhão examples which may also belong to this subspecies. The crest is not only long (the long occipital feathers measure 13 to 18 mm.) but very full and moderately deeply colored, like the lighter individuals of *crisatellus*, with the buff frontal band moderate in extent and not marked on the sides of the crown. Males have the wing, 70.5–82 mm.; tail, 68–75.

From the Pará district westward to Teffé, there is a graduated progression of stages in variation that is difficult to define. In the environs of Pará and on the Tocantins, all the adult males at hand demonstrate a paler gular patch than that which exists in true *brunneus* and, in addition, some of them have the crest more deeply red than the same area in *crisatellus*—much redder than the crest of *brunneus*. The long occipital feathers of the male are 11 to 15 mm. in length; wing, 79–84.6; tail, 67–75.

From the Xingú west to Teffé and up the

Madeira, the color of the male throat perceptibly deepens. The deepest color is found in examples from the Madeira, but specimens from the Xingú and the Tapajoz often agree with the lighter Madeiran examples, although there is an occasional suggestion of the pale extreme of the Pará and Tocantins birds. Some specimens of *brunneus* also agree with the lighter Madeiran birds in the color of the throat. The crest is the deepest red, on average, of any of the forms of the species, although *cristatellus* and the Pará population occasionally show a close approach. The crest is relatively short in the males—11–15 mm.; the wing and tail are long, 77.5–86.5 and 65–76, respectively. This entire population belongs to *madeirae*. The population of Pará and the Tocantins, however, although it agrees with *madeirae* in dimensions and approaches it in the color of the crown, shows an extreme character of unusually pale throat that sets it sufficiently apart to warrant its separate recognition. It is described and named below.

It is observable that the males of *brunneus* sometimes have the whole area of the under wing-coverts white and never seem to have the carpal margin wholly blackish, although there may be a blackish patch or stripe at the base of the primaries, extending submarginally anteriorly. On the other hand, males of *madeirae* frequently have the whole bend of the wing blackish, although sometimes there is a certain amount of white on the carpal margin, always separated from the white inner coverts by the dusky submarginal stripe. The Pará form resembles *madeirae* in this respect.

Females of *madeirae* average somewhat lighter in color than those of *brunneus*, with a tendency toward greater contrast between the more deeply colored feathering along the carpal margin and the lighter color of the inner under wing-coverts. The distinction is not constant.

It may be stated that the line between *madeirae* and the Pará form is not sharply drawn since there is complete intergradation. When birds from Pará and the Tocantins are compared with others from the Madeira, the distinction is pronounced. Because it is possible to match some Xingú

and some Madeira specimens, I prefer to include the Xingú series in *madeirae*.

The question of the reputedly specifically distinct *nattereri* from Matto Grosso cannot be answered with the material at hand. The male is said to be smaller than *cristatus* (wing, 73 mm.; tail, 64), with a more orange crest, more restricted uropygial patch, and no light gular area. The female is still smaller (wing, 71) and more rufous below and on the rump than the same sex of *cristatus*. These differences are not convincing as specific characters. As noted under *cristatellus*, some males of that subspecies have almost no gular patch, and the tail is sometimes only 62 mm. in length, although I have seen no male with its wing less than 75.5, not much longer than that of *nattereri*. I seriously question the assignment of a female from Salto do Girão to *nattereri*. The locality is but a few miles from Calamá, and the description and measurements of the specimen agree well with certain examples of *madeirae*. Pelzeln, the author of *nattereri*, was himself in doubt of the association of the male from Villa Maria and this female.

In any case, I am confident that *nattereri* can be at best no more than a subspecies of *cristatus* to which Pelzeln compared it.

The citations of the Peruvian forms, with the descriptions of the new subspecies, follow.

Tachyphonus cristatus huarandosae Chapman

Tachyphonus cristatus huarandosae CHAPMAN, 1925 (Sept. 28), Amer. Mus. Novitates, no. 187, p. 8—Huarandosa, Chinchipe Valley, Perú; ♂; Amer. Mus. Nat. Hist.

The characteristics of this subspecies have been given in an earlier paragraph. It is known only from the three original specimens from the type locality.

Tachyphonus cristatus cristatellus Sclater

Tachyphonus cristatellus SCLATER, 1862, Cat. Coll. Amer. Birds, p. 86—New Granada [= Bogotá, Colombia]; ♂; British Mus.

The strongly reddish crest of this form, with the buff frontal band strongly developed and carried posteriorly along the sides of the crown, distinguishes this sub-

species from the other Peruvian members of the species. One example is at hand from Apayacu, east of the mouth of the Napo, in Perú, and one other from Loretoyacu, formerly in Perú but now in Colombia. Records from Pebas, which lies between Apayacu and Loretoyacu on the north bank of the Amazon, presumably belong to this form.

***Tachyphonus cristatus fallax*,**
new subspecies

TYPE: From Puerto Indiana, mouth of the Río Napo, Perú. No. 232913, American Museum of Natural History. Adult male collected August 3, 1926, by Carlos Olalla and sons.

DIAGNOSIS: Similar to *T. c. cristatus* of French Guiana but with slightly shorter tail; coronal patch of males averaging more orange, less scarlet, in hue; buff frontal band less well developed and less extended along the sides of the crown. Even more noticeably different from the intervening *T. c. cristatellus* by the lighter crown and less-developed buffy frontal band. Differs from *huarandosae* by the shorter crest of the males (10-13.5 mm. instead of 14.3-17).

RANGE: Eastern Ecuador and north-eastern Perú, crossing the upper Amazon to the lower Ucayali.

DESCRIPTION OF TYPE: General color dull black; crest slightly redder than Orange Chrome, separated from the black frontal band by an indistinct and narrow area of dull Pinkish Buff; long occipital crest-feathers 10 mm. in length; lower back rich Cinnamon-Buff; upper tail-coverts black like the mantle. An oval, restricted throat patch deep Cinnamon, not reaching the base of the bill; inner margins of secondaries basally whitish; most of under wing-coverts white, but a broad stripe along carpal margin blackish. Bill (in dried skin) blackish; feet blackish. Wing, 77 mm.; tail, 64; exposed culmen, 13; culmen from base, 15; tarsus, 19.

REMARKS: Females not certainly distinguishable from those of *T. c. cristatus*, although some examples at hand have the throat a little paler than available specimens of *cristatus*.

The short crest of the males of this form furnishes the only certain character to distinguish it from *huarandosae* of the Chinchi Valley. In ascertaining this measurement, the length of the occipital feathers should be taken rather than the distance from the exposed base of the culmen to the tip of the crest, since stretching or contraction of the skin of the head in preparation of the specimen will give a totally false conclusion.

Records from Iquitos and the Río Tigre in Perú should belong to *fallax*.

***Tachyphonus cristatus pallidigula*,**
new subspecies

TYPE: From Mocajuba, Rio Tocantins, Brazil. No. 431554, American Museum of Natural History. Adult male collected November 24, 1931, by Alfonso M. Olalla.

DIAGNOSIS: Similar to *T. c. brunneus* of Rio de Janeiro and other parts of easternmost Brazil, but crest shorter and deeper red; throat and uropygium lighter ochraceous. Similar to *T. c. madeirae* of the Rio Madeira region but throat and uropygium paler. Measurements inconclusive, being intermediate between the two forms mentioned.

RANGE: Eastern Pará district, including the lower Tocantins.

DESCRIPTION OF TYPE: General color between Fuscous and Fuscous Black; top of the head largely occupied by an elongated crest of Scarlet-Red (slightly inclined toward Scarlet), with the long occipital feathers 13 mm. in length; the blackish area across the front at the base of the bill separated from the red of the crest by a narrow bar of Cream Buff continued very finely along the sides of the coronal patch for a short distance; lower back Cream Buff × Chamois, but upper tail-coverts like the mantle. Throat with a central oval area of Cream Buff × Cartridge Buff, not reaching the base of the bill. Wings externally uniform with the mantle except for a large patch of white along the radial margin; inner margins of remiges narrowly white toward the base; under wing-coverts largely white but with a blackish submarginal area near the base of the outer primaries. Bill (in dried skin)

brownish black; feet dusky brown. Wing, 82 mm.; tail, 71.5; exposed culmen, 12; culmen from base, 17; tarsus, 19.

REMARKS: Females near Amber Brown on the back, with the upper tail-coverts somewhat brighter; top of the head darker and warmer, with the forehead and lores noticeably paler and duller. Under parts warm Ochraceous-Buff, slightly paler on the throat and darker and browner on the flanks. Wings near Saccardo's Umber, with brighter margins on the remiges and upper wing-coverts; under wing-coverts near Pinkish Buff, approaching the color of the breast near the carpal margin; inner margins of remiges largely whitish or pale pinkish buff. Tail near Saccardo's Umber with brighter outer margins on the rectrices. Bill (in dried skin) brown; mandible more whitish on lower portion; feet brown.

Worn and faded females may lose much of the color in the plumage and appear much duller than fresher individuals.

SPECIMENS EXAMINED

T. c. cristatus.—

FRENCH GUIANA:

- Tamanoir, 1 ♂;
- Pied Saut, 1 ♂, 1 ♀;
- "Cayenne," 3 ♂;
- Ipousin, 1 ♀.

BRAZIL:

- Faro, 7 ♂, 6 ♀;
- Obidos, 3 ♂.

T. c. intercedens.—

DUTCH GUIANA:

- Lelydorp, Paramaribo, 1 ♂;
- "interior," 2 ♂, 1 ♀.

BRITISH GUIANA:

- (Bartica Grove, Tumatumari, Potaro Landing, Rockstone, Demerara, and "British Guiana"), 10 ♂, 4 ♀.

VENEZUELA:

- Mt. Auyan-tepui, 2 ♂, 2 ♀.

T. c. orinocensis.—

VENEZUELA:

- Río Caura (Nichare River, Suapure, La Prisión, La Union, La Vuelta), 15 ♂, 3 ♀;
- Sabana Canaracuni, 1 ♂¹.
- Río Orinoco, Maipures, 1 ♂;
- Caño Cataniapo, 3 ♂¹, 2 ♀¹;
- Sanariapo, 2 ♂¹, 1 ♀ (type)¹;
- Isla Ratón, 1 ♀¹;
- Caño Cuão, 1 ♂¹, 1 ♀¹;

- San Fernando de Atabapo, 4 ♂¹, 3 ♀¹;
- Río Paragua, Río Tonoro, 2 ♂¹.

T. c. cristatellus.—

COLOMBIA:

- "Bogotá," 2 [♂], 3 [♀];
- opposite Tahuapunto, Río Uaupés, Brazil, 1 ♀;
- Loretayacu, 1 ♂.

VENEZUELA:

- Mt. Duida (Caño Seco, Caño León, Foot-hills Camp, "Pie del Cerro," Campamento del Medio, Playa del Río Base, Valle de los Monos, Río Pescada, Esmeralda, and western foot of Duida); 27 ♂, 12 ♀;
- Río Orinoco, La Laja, 2 ♂, 1 ♀;
- Río Cassiquiare (Solano, Buena Vista, El Merer, opposite El Merer, mouth of Río Ocamo, opposite mouth of Ocamo), 11 ♂, 7 ♀;
- Río Huaynia, junction of the Cassiquiare, 8 ♂, 4 ♀;
- terrain between the Huaynia and the Cassiquiare, 1 ♂.

BRAZIL:

- Río Uaupés, Tahuapunto, 1 ♂, 1 ♀;
- Iauarete, 2 ♂, 2 ♀;
- Río Negro (Tatú, Yucabí, San Gabriel, Tabocal, Santa Maria, Camanaos, Mt. Curycuriari, Muirapinima, Igarapé Cacao Pereira, and Manaos), 24 ♂, 17 ♀, 1 (?).

PERÚ:

- Apayacu, 1 ♂.

T. c. fallax.—

ECUADOR:

- Río Suno, above Avila, 3 ♂, 2 ♀;
- lower Río Suno, 1 ♀;
- mouth of Lagarto Cocha, 1 ♂, 1 ♀;
- below San José, 1 ♂, 1 ♀;
- El Loreto, 1 ♂;
- Sarayacu, 2 ♂.

PERÚ:

- Mouth of Río Curaray, 4 ♂, 1 ♀;
- Puerto Indiana, 1 ♂ (type);
- Río Mazán, 1 ♀;
- Sarayacu, 1 ♂.

T. c. huarandosae.—

PERÚ:

- Huarandosa, 3 ♂ (incl. type).

T. c. madeirae.—

BRAZIL:

- Teffé, 2 ♂, 3 ♀;
- Río Madeira, Rosarinho, 1 ♂, 1 ♀;
- Borba, 1 ♂;
- Igarapé Auará, 3 ♂, 1 ♀;
- Humaythá, 1 ♂;
- Calamá, 4 ♂ (incl. type);
- Matto Grosso, Barão Melgaço, 1 ♂, 1 ♀;
- Río Roosevelt, Camp 8, 1 ♂;
- Villa Bella Imperatriz, 6 ♂, 2 ♀;
- Río Tapajoz, Igarapé Brabo, 7 ♂, 3 ♀;
- Limoal, 3 ♂, 1 ♀;
- Caxiricatuba, 2 ♂, 2 ♀, 1 (?);
- Boim, 1 ♀;
- Río Xingú, Villarrinho do Monte, 1 ♀;
- Tapará, 5 ♂, 5 ♀.

T. c. pallidigula.—

¹ Specimens in collection of William H. Phelps, Caracas, Venezuela.

BRAZIL:

- Rio Tocantins, Mocajuba, 5 ♂ (incl. type),
3 ♀;
Baião, 3 ♀;
Pará, 1 ♂;
Peixe-Boi, 1 ♂;
Igarapé Assú, 2 ♂;
Benevides, 1 ♂, 1 ♀;
Patagonia, 1 ♀.

T. c. brunneus.—

BRAZIL:

- Pernambuco, São Lourenço, 1 ♂;
Bahia, Taguaquará, 2 ♂;
Cajazeiras, 3 ♂, 3 ♀, 1 (?)
"Bahia," 3 ♂, 2 ♀;
Minas Gerais, Resplendor, 1 ♂, 1 (?)
São Benedicto, 1 ♀;
Espírito Santo, Baixo Guandú, 4 ♂, 1 ♀;
Lagôa Juparaná, 3 ♂, 2 ♀;
"Rio de Janeiro," 4 ♂, 2 ♀;
São Paulo, São Sebastião, 4 ♂;
"Prov. S. Paulo," 1 ♂.

Tachyphonus surinamus napensis

Lawrence

Tachyphonus Napensis LAWRENCE, 1864, Ann. Lyceum Nat. Hist. New York, vol. 8, p. 42—"Napo River" (part *errore*); ♂♂; cotypes in Amer. Mus. Nat. Hist.

Tachyphonus surinamus saturatus PINTO, 1941 (May 9), Papeis Avulsos Dept. Zool., Secr. Agr. São Paulo, vol. 1 (22), p. 209—Santa Cruz, right bank of Rio Eirú, Brazil, above Juruá near São Felipe or João Pessoa; ♂; Museu Paulista.

Tachyphonus surinamus uropygialis GYLDENSTOLPE, 1941 (June 26), Arkiv. Zool., vol. 33 B (no. 12), p. 2—João Pessoa, upper Rio Juruá, Brazil; ♂; Stockholm Mus.

There is some uncertainty with respect to the name that must be applied to this excellent subspecies. Hellmayr (1907, Novit, Zool., vol. 14, p. 45) commented on the deeply colored rump of a male from Teffé, Brazil, and somewhat later (1930, Field Mus. Nat. Hist., zool. ser., vol. 17, p. 451), I noted the same characteristic in a male from Puerto Bermúdez, Perú, but there was not sufficient material available in either case to determine the constancy or geographic significance of the variation.

Still more recently, Pinto and Gyldestolpe independently described a new form based on the character mentioned, and a series of birds from northeastern Perú south of the upper Amazon amply substantiates the validity of the distinction. The males are separable from those of *brevipes* and *surinamus* by the much deeper rufescence of the rump and crest, with the

patches on the sides of the breast pure white and well developed. Females are not certainly recognizable from those of *brevipes*, although they are more strongly colored on the anterior under parts than those of *surinamus* and *insignis*.

Unfortunately, one of the two cotypes of *napensis*—the better of the two skins and the one from which Lawrence must have taken most of his characters—belongs to this dark-rumped form; the other is a specimen of *brevipes*. It would be possible to restrict the name "*napensis*" to the form that actually occurs on the Rio Napo, which is *brevipes*, and credit to misidentification the assignment of the other cotype to the same form, except for a number of considerations. In the first place, as noted above, Lawrence must have taken most of his descriptive details from the dark-rumped bird. He describes the rump of *napensis* as "chestnut" or "reddish chestnut" and, although the area in the specimen in question is lighter than would be called "Chestnut" according to the relatively recent charts of Ridgway's "Color standards and color nomenclature" (being Xanthine Orange × Sanford's Brown), in the other specimen it is decidedly lighter (near Mars Yellow × Ochraceous-Tawny) and hardly likely to be called "chestnut" even in comparison with the Ochraceous-Buff or Light Ochraceous-Buff (Lawrence called it "pale fulvous") of *T. surinamus surinamus* with which Lawrence compared his new form. Furthermore, comment is made in the original description about the "reddish fulvous orange" of the crest which is said to be "less in extent" than in *surinamus*, but so little of this crest remains in the lighter of the two cotypes that its extent is indeterminate, while the existing feathering is deep Cinnamon-Buff. In the other skin it is as described. The only character that could have been taken exclusively from the light-rumped bird is the measurement of the tail— $2^{12}/_{16}$ inches. Lawrence gives $2^{11}/_{16}$ and the dark-rumped bird measures just over $2^8/_{16}$. Possibly Lawrence considered the larger measurement to be more satisfactory for some reason, although the tails of both specimens are equally well developed.

With this confusion and the composite nature of Lawrence's material, it would still be possible to continue the acceptance of "Napo River" as the type locality of *napensis* and arbitrarily restrict the concept of that form to the Napo population together with such other populations as agree with it. However, Chapman (1917, Bull. Amer. Mus. Nat. Hist., vol. 36, p. 616) "selected" the dark-rumped example as the [lecto] type of *napensis*, and a certain school of zoologists who accept the principle of the lectotype will be able to argue that this has automatically closed the door to any subsequent rearrangement. Although I much prefer the principle of restriction of type locality to that of lectotype specimen, I dislike to suggest a procedure that could result in continual conflict between the two schools of thought.

The best solution seems to be one that will reconcile them. There is no doubt as to the identity of the specimen that Chapman selected as type of *napensis*, but there is grave doubt that it was collected on the Napo River. I have examples from various localities along the course of that stream down to its mouth, and all of them are of the lighter-rumped coloration recognizable in *brevipes*. The darker-rumped example, therefore, probably came from the south bank of the upper Amazon, perhaps directly across from the mouth of the Napo. The collector, William E. Moore, is credited by Lawrence (1858, Ann. Lyceum Nat. Hist. New York, vol. 6, p. 259) with having crossed South America near the equator, and although all of his birds in the Lawrence collection that I have seen are labeled "Napo," I have found an occasional specimen that disagrees with the assigned locality (see account of *Lanio v. versicolor*).

In view of the present considerations, then, it is necessary to assign a new type locality to Lawrence's "*napensis*," and for this purpose I suggest Orosa, Perú, somewhat east of a point directly across the Amazon from the mouth of the Napo and a region where birds matching the darker of Lawrence's two skins are found. This necessity for reassignment is regrettable since it gives the name *napensis* to a form not found on the Napo. The same dif-

ficulty would, of course, have arisen had Lawrence had but the single dark-rumped specimen before him.

The Puerto Bermúdez specimen furnishes the only earlier record from Perú.

Tachyphonus surinamus brevipes

Lafresnaye

Tachyphonus brevipes LAFRESNAYE, 1846, Rev. Zool., vol. 9, p. 206—Colombia = "Bogotá"; ♀; cotypes in Mus. Comp. Zool., Cambridge, Mass.

This Andean form has a rather broad range, occurring on the eastern side of the Andes from eastern Colombia to the north bank of the Amazon in Perú, from Pomará to the mouth of the Napo, crossing the Marañón to the lowlands between the middle Marañón and the Huallaga. Eastward it is found on the upper Rio Negro and on the Cassiquiare, but at the mouth of the Negro (both banks) and about Mt. Duida and the Orinoco, it is replaced by *T. s. surinamus*. The Cassiquiare birds show a trend toward *surinamus* in a little lighter coloring of the rump and an occasional suggestion of buff on the white latero-pectoral patches, but they are closer, on average, to the Rio Negro and Andean series.

It is possible, also, that the Rio Negro birds have the latero-pectoral patches slightly less extensive, on average, than the Andean birds, but the distinction is not clear and, in any case, not constant. Authors have reported these patches to be smaller in *brevipes* than in *surinamus*, but this distinction is not consistent, and much the same degree of variation exists in both forms throughout their ranges. The pale buffy rump and the tinge of buff on the sides of the breast in the males furnish the best characters for the recognition of *surinamus*. The females are much like those of *insignis* of the south bank of the lower Amazon and Pará, being paler below than those of *brevipes*, at least on average.

Additional records of *brevipes* are from Iquitos and Moyobamba.

SPECIMENS EXAMINED

T. s. surinamus.—

DUTCH GUIANA:

("Surinam," "interior," and Paramaribo),
9 ♂, 6 ♀.

FRENCH GUIANA:

(Iposuin and "Cayenne"), 3 ♂.

BRITISH GUIANA:

(Bartica Grove, Tumatumari, Wismar, Potaro Landing, Rockstone, Minnehaha Creek, and "Demerara"), 8 ♂, 7 ♀, 1 (?).

VENEZUELA:

(Mt. Auyan-tepui, Guanoco, Suapure, Nichare western foot of Duida, Valle de los Monos, Caño Seco, Playa del Río Base, Pie del Cerro, and Boca de Sina), 35 ♂, 20 ♀.

BRAZIL:

(Manaos and Igarapé Cacao Pereira), 2 ♂.

T. s. brevipes.—

VENEZUELA:

(Río Cassiquiare—El Merey, Buena Vista, and Solano), 4 ♂, 1 ♀;
junction of Huaynia and Cassiquiare, 5 ♂, 3 ♀;
terrain between Huaynia and Cassiquiare, 1 ♂, 1 ♀.

BRAZIL:

(Tatú, Yucabí, Tahuapunto, and Iauarete), 12 ♂, 14 ♀.

COLOMBIA:

Opposite Tahuapunto, Brazil, 1 ♂, 1 ♀;
La Morelia, 3 ♂.
Villavicencio, 1 ♂;
"Bogotá," 3 ♂, 2 ♀.

ECUADOR:

Río Suno, above Avila, 2 ♂;
lower Río Suno, 1 ♂, 1 ♀;
below San José, 1 ♀;
Coca, 1 ♂;
"Napo," 1 ♂ (a cotype of *napensis*).

PERÚ:

Mouth of Río Curaray, 3 ♂, 1 ♀;
Puerto Indiana, 1 ♂;
mouth of Río Santiago, 1 ♂;
Pomará, 6 ♂, 3 ♀;
Chayavitas, 2 ♂;
Jeberos, 4 ♀.*T. s. napensis*.—

PERÚ:

Orosa, 11 ♂, 5 ♀;
Río Ucayali, Lagarto, 2 ♂, 1 ♀;
Santa Rosa, 4 ♂;
Puerto Bermúdez, 1 ♂.

BRAZIL:

Teffé, 1 ♂, 1 ♀.

PERÚ OR BRAZIL:

"Napo" (*errore*), 1 ♂ (cotype and "lecto-type").*T. s. insignis*.—

BRAZIL:

Río Madeira, Borba, 1 ♂;
Villa Bella Imperatriz, 8 ♂;
Río Tapajoz (Santarem, Limoãl, Tauary, and Caxiricatuba), 7 ♂, 6 ♀, 1 (?);
Río Xingú (Porto de Moz and Villarinho do Monte), 4 ♂, 2 ♀; Río Tocantins (Mocajuba and Baião), 3 ♂, 3 ♀;Pará (Utinga, Patagonia, Peixe-Boi, Igarapé Assú, Prata, Ananindeua, and "Pará"), 10 ♂, 7 ♀;
Pará, Bemfica, 2 ♂ (incl. type).***Tachyphonus phoenicius* Swainson***Tachyphonus phoenicius* SWAINSON, 1837 (Dec. 11), Anim. in Menag., p. 311—"Inhabits —? In the collection of Mr. Horsfield of Everton, near Liverpool, who believes it came from Fernando Po, on the African coast" (*errore*); subst. eastern Perú, Berlepsch, 1908; subst. Cayenne, Berlepsch, 1912.*Tachyphonus saucius* STRICKLAND, 1844, Ann. Mag. Nat. Hist., vol. 13, p. 419—"Colombia or Central America" (*errore*); University Mus., Cambridge, England.

Berlepsch (1912) gives no reasons for altering his earlier restriction of type locality from eastern Perú to Cayenne, and until the type is found, if ever, the original restriction should stand. There is, furthermore, no positive record from French Guiana except for the purchased skin (? trade skin) without definite locality, in the British Museum. Two certain localities are available in eastern Perú. The matter of type locality may prove to be of importance since there is a possibility of distinguishing two forms of the species, one north and one south of the Amazon.

Two adult males from near Moyobamba, Perú, an adult male from Borba, and one from Vilhena, Matto Grosso, Brazil, are doubtfully distinct from examples collected North of the Amazon in Brazil, Venezuela, and British Guiana. They have the bill somewhat stubbier than the northern birds—wider at the base in proportion to the length and shorter than most of the others—and the red area on the shoulder appears to be slightly less extensive. A female from Río Negro, Perú, and another Borba bird, sexed as a male but probably a nearly adult female, has the bill no different from comparable specimens from the north, but a female from Humaythá agrees with the adult males in this respect. More material from south of the Amazon will be needed to determine the validity of the characters noted.

In any case, before any name can be applied to any separable form, it will be necessary to determine the application of the name *saucius* as well as of *phoenicius*. In¹ Specimen in Chicago Natural History Museum.

the meantime, the species may be left intact under the name *phoenicius* with type locality eastern Perú.

The apparently interrupted distribution of this species is unexplainable in view of our paucity of information concerning its habits. The young Borba bird is inscribed (transl.) "Noted in the savanna. Does not fly in the forest."

Peruvian records are from Jeberos and "E. Perú." The citation of "Cuzco (coll. Raimondi)" by Taczanowski (1884, Orn. Pérou, vol. 2, p. 506), is without confirmation and probably erroneous.

SPECIMENS EXAMINED

T. phoenicius.—

PERÚ:

Río Negro, west of Moyobamba, 2 ♂, 1 ♀.

BRAZIL:

Borba, 1 ♂, 1 "♂" [= ♀];

Humaythá, 1 ♀;

Faro, 2 ♂.

VENEZUELA:

Mt. Duida (Campamento del Medio, Primer Pico, Primer Campamento, Valle de los Monos, Cerros de Sabana, and Savana Grande), 12 ♂, 6 ♀, 1 (?);

Mt. Roraima, 2 ♂;

Mt. Auyan-tepui, 9 ♂, 6 ♀.

BRITISH GUIANA:

River Carimang, 1 ♀.

DUTCH GUIANA:

"Interior," 1 ♂.

Tachyphonus rufiventer (Spix)

Tanagra rufiventer SPIX, 1825, Av. Bras. Spec. Nov., vol. 2, p. 37, pl. 50, fig. 1—"in sylvis Parae," *errone*, subst. São Paulo de Olivença, Brazil, by Hellmayr, 1920.

"*Tachyphonus serrirostris* Strickl." STONE, 1899, Proc. Acad. Nat. Sci. Philadelphia, p. 47—cited in synonymy of "*Tachyphonus rufiventer* Spix."

Tachyphonus metallactus OBERHOLSER, 1919 (Dec.), Proc. Biol. Soc. Washington, vol. 32, p. 240—new name for *Tanagra rufiventer* Spix (nec *Tanagra rufiventris* Vieillot, 1819).

There appears to be no significant differentiation in birds from different parts of the range in Perú, and authors have found none in northwest-Brazilian and Bolivian examples. There is individual variation in the development of the black pectoral band in the males as well as in the depth of yellow on the crest and the tone of rufescence on the under parts or even on the rump. Females vary likewise in the clarity of the gray on the head and the amount of buffy

tinge on the throat or of brown on the uropygium. Young birds have the throat as yellow as the breast and the top of the head as green as the back. These differences appear without regard to locality.

The International Rules of Zoological Nomenclature do not require that the name *rufiventer* be discarded because of an earlier *rufiventris*. Fortunately, *rufiventris* is still in the original genus *Tanagra*, far removed from possible confusion with *Tachyphonus*.

There is a further complication in the nomenclature of this species that is avoided by continuing the use of *rufiventer*, aside from the fact that *rufiventer* is the valid name. Stone (1899, Proc. Acad. Nat. Sci. Philadelphia, p. 47) recorded specimen no. 7659 of the Academy's collection as the type of "*Tachyphonus serrirostris* Strickl.," giving the reference of "Contr. Orn., 1850, p. 49," but identifying the bird as "*Tachyphonus rufiventer* Spix." Strickland never published the name "*serrirostris*," although he may have written this name on the label of his specimen prior to his belated discovery that Spix had already described and figured the species, as he discusses in the reference given by Stone. In any case, Stone's publication of the name "*serrirostris*" identified as *Tachyphonus rufiventer* Spix (although Spix's name should have been put in parentheses) would seem to validate it as of 1899 as an available name for *rufiventer* in case this latter name were not usable. Its author is, therefore, Stone, but its type would be identical with that of the original *rufiventer*. Such procedure was invalidated by the International Commission of Zoological Nomenclature as of January 1, 1931, but Stone's action antedates this amendment to Article 25 of the International Code.

Peruvian records of *rufiventer* are from the Río Javari, Moyobamba, Chamicuros, Huambo, Nuevo Loreto, La Merced, Borogña, Monterico, Cosñipata, Yahuar Mayo, San Gaban, Chaquimayo, Huaynapata, and Marcapata.

SPECIMENS EXAMINED

T. rufiventer.—

PERÚ:

Río Seco, 1 ♀;

Rioja, 1 ♂¹.
 Yurimaguas, 1 ♂;
 Chayavitas, 1 ♂;
 Sarayacu, 4 ♂, 1 ♀;
 Lagarto, 2 ♂, 2 ♀;
 mouth of Río Urubamba, 1 ♀;
 Vista Alegre, 2 ♂¹, 2 ♀¹;
 Chuchurras, 1 ♂, 1 ♀;
 Perené, 1 ♂, 1 ♀, 1 (?)¹;
 Río Cosireni, 1 ♀;
 La Pampa, 2 ♂, 2 ♀;
 Río Tavera, 2 ♂, 2 ♀;
 Santo Domingo, 2 ♂.

Tachyphonus luctuosus luctuosus

D'Orbigny and Lafresnaye

T[achyphonus] luctuosus D'ORBIGNY AND LAFRESNAYE, 1837, Mag. Zool., vol. 7, cl. 2, "Syn. Av.," p. 29—Guarayos, Bolivia; ♂, ♀; cotypes in Paris Mus.

I am unable to separate Peruvian examples from Bolivian specimens.

This form has a wide range over much of South America from Bolivia and the Matto Grosso plateau of Brazil northward to the northern part of Venezuela. It reaches the eastern side of the Andes in Perú, Ecuador, and Colombia but does not cross to the western side, although various examples of *T. l. panamensis* from western Ecuador are hardly distinguishable, as will be discussed below. Peruvian records are from Sarayacu, Río Ucayali.

I am inclined, however, to recognize a Trinidad subspecies that also occurs on the mainland of northeastern Venezuela at Cristóbal Colón and, apparently, Cumana-coa, although available Quebrada Seca and Guanoco skins are inseparable from *luctuosus*. The exact distribution here remains to be accurately determined. In any case, the Trinidad and Cristóbal Colón birds have noticeably large bills like *panamensis* but without the relatively long white wing-patch of that form in the male plumage.

The question arises as to the best name to use for the Trinidad form, since five names have been applied to birds from that region. The first of these, *Chlorospingus flaviventris* Sclater (July, 1856, Proc. Zool. Soc. London, vol. 24, p. 91), was based on two females—one from Trinidad in the collection of William Jardine, now lost, and one from "? Bolivia" in the

collection of H. E. Strickland, now in the University Museum of Cambridge, England, where it was examined by Hellmayr and found to be rather certainly a Bolivian specimen.

The second available name is *Tachyphonus albispecularis* Léotaud (1866, Ois. Trinidad, p. 300), was based on specimens of both sexes from Trinidad in the author's collection, known to have been destroyed by fire. There is thus little advantage in either name so far as the availability of the cotypes from Trinidad are concerned, although there is a very slight possibility that Strickland's specimen may some day be found. Since the name based on this bird and its Bolivian conspecific is ten years older than Léotaud's name, I propose, therefore, to restrict the type locality of *Chlorospingus flaviventris* Sclater (as cited above) to Trinidad and adopt that name for the large-billed form found on that island.

Other synonyms are *Lanio Lawrencei* Sclater (1885, Ibis, ser. 5, vol. 3, p. 272, pl. 6, fig. 2), a new name proposed for *Tachyphonus atricapillus* Lawrence (1868, Proc. Acad. Nat. Sci. Philadelphia, vol. 20, p. 360), which, in turn, was based on an unusual specimen discussed below; and *Chlorospingus leotaudi* Chapman (1893, Auk, vol. 10, p. 342), based on a female from Trinidad.

Both Chapman's and Lawrence's types are before me. Chapman's bird is a perfectly normal female of *flaviventris*, but Lawrence's specimen requires some discussion. The figure given by Sclater (1885) is helpful, as are both Sclater's and Lawrence's descriptions, but the specimen indicates something more than a simple immature plumage. Sclater's intimation that indications of black were coming out on the interscapulum is misleading, since there is no molt in progress and the black mentioned consists of dull blackish marks on otherwise dark olive green feathers. In fact, the feathering appears to be adult except for its abnormal pigmentation, and this is not a sign of immaturity since it is not that of the immature birds of either sex. The specimen is rather certainly an abnormal adult, either an "advanced" fe-

¹ Specimens in Chicago Natural History Museum.

male or a "retarded" male. Although the rufescent coloration of part of the under side suggests the possibility of admixture of another species in which some of this rufescence normally occurs, I can find no other suggestions of hybridism and believe that the individual in question is of a pure strain, however abnormal in other respects.

With regard to *T. l. nitidissimus*, I am unable to find any mention of one of the outstanding characters by which this form may be known in the female plumage as well as in that of the males. This character consists of the strong demarcation of color on the basal half of the mandible. In all forms of *luctuosus* there is a certain amount of differentiation in that region, usually no more than a more slaty, less deeply black basal area, although it sometimes shows a definite pallid tone. In *nitidissimus*, however, there is a quite sharply defined flesh-colored patch that is quite conspicuous. The nearest approach to this condition occurs, as might be expected, in the adjacent *axillaris*.

The taxonomic and geographic limits of *T. l. panamensis* are not entirely satisfactory. From the Canal Zone through eastern Panamá, across Colombia to the western side of the Eastern Andes, and south along the western side of the Western Andes into western Ecuador, there is a certain amount of agreement in respect to a relatively large bill and long white shoulder patch, reaching, in many examples, posteriorly to the upper primary-coverts. The latter character is not always easily discernible since abrasion of the plumage and the preparation of the skin sometimes conceal the true condition. As a matter of fact, certain examples show the apparent length of the white area different on the two wings! In order to obtain a better standard of comparison, the posterior inner white feathers were measured individually. This showed that in eastern Panamá the feathers in question were 13.5-15 mm. long; in central Colombia, 14.5-16; in western Colombia, 14-15; in western Ecuador, 12-14.

In lengths of wing and tail, there is similar variation. The birds of eastern Panamá have the wing, 62.1-67 mm. (average,

64.1); tail, 48-56.5 (average, 52.5). Central Colombia: wing, 66-71 (average, 68.2); tail, 54-60.5 (average, 58.1). Western Colombia (2 skins): wing, 65-67; tail, 54-54.5. Western Ecuador: wing, 58-63.9 (average, 61); tail, 47-53 (average, 50).

In these measurements, as in the extent of the white shoulder patch, the birds from Panamá overlap both the west-Ecuadorian and the central-Colombian specimens, but the Colombian and Ecuadorian series do not quite meet. Even the west-Colombian birds do not form a good transition between the Panamanian and Ecuadorian populations since they are on the borderline between the Panamanian and central-Colombian series. Nevertheless, there is too great an overlap between the Panamanian and Ecuadorian birds to justify their distinction, as there is between the Panamanian and Colombian populations.

Three of 10 central-Colombian males and six of 30 Panamanian and west-Colombian specimens fall in the zone of intermediacy in respect to length of wing, while three central-Colombian and nine Panamanian and west-Colombian examples similarly overlap in respect to the length of tail. Between Panamá and Ecuador, 17 of a total of 50 birds overlap in length of wing and 39 in length of tail. As stated above, there is no overlap between Colombia and Ecuador. I have included in the central-Colombian series three Bogotá trade-skins that have large bills and long white inner wing-coverts. One other "Bogotá" bird is uncertain, having the wing and tail within the measurements of the central-Colombian specimens but the white wing-coverts relatively short and the bill not decisively large. It agrees better with typical *luctuosus* from the eastern side of the Eastern Andes where three more Bogotá skins certainly belong. The inclusion of the three Bogotá birds with the central-Colombian series does not alter the extremes of measurement or the averages for that series.

In view of the above figures, therefore, it seems inadvisable to attempt to subdivide *panamensis*, although it leaves that form as a variable one, with the largest

examples in Colombia and the smallest in western Ecuador. The small size of the last-named may be explained as a possible trend toward *luctuosus luctuosus* of eastern Ecuador from which the smallest and smallest-billed examples from the west are not always distinguishable.

Females were not measured in detail, but inspection shows the same tendencies noted in the males. The largest and especially largest-billed birds are from central Colombia and the smallest from western Ecuador where there is not always obvious distinction from *luctuosus luctuosus*.

SPECIMENS EXAMINED

T. l. axillaris.—

COSTA RICA:

(Carrillo, Limón, Bonilla, and Aquinares), 8 ♂.

NICARAGUA:

(Río Grande and Peña Blanca), 5 ♂.

PANAMÁ:

Almirante, 1 ♂, 5 ♀.

T. l. nitidissimus.—

COSTA RICA:

(Orotina, Volcán de Oso, Puerto Jimenez, Boruca, Buenos Aires, Pozo Azul de Pirris, and Térraba), 9 ♂, 5 ♀.

PANAMÁ:

(Bogava, Chiriquí, Boquete, Boqueron, Veragua, Iguaros Is., Medidor Is., and Cebaco Is.), 10 ♂, 2 ♀.

T. l. panamensis.—

PANAMÁ:

(Río Sambú, Tocumé, Tacarcuna, Cape Garachiné, Tapalisa, Barro Colorado, Chepigana, El Real, Capeti, Darien, Gatún, and Lion Hill), 29 ♂, 6 ♀, 1 (?).

COLOMBIA:

(Opon, Río Frío, Dabeiba, La Florida, Juntas de Tamaná, Remedios, Chicoral, and "Bogotá"), 12 ♂, 5 ♀.

ECUADOR:

(Esmeraldas, coast of Manaví, Chone, Río de Oro, Chimbo, Coco, Río Jubones, Guala, Naranjo, San Nicolas, La Chonta, and Chongon Hills), 23 ♂, 3 ♀.

T. l. luctuosus.—

COLOMBIA:

La Morelia, 1 ♂;
"Bogotá," 3 ♂.

ECUADOR:

(Río Suno above Avila, lower Río Suno, below San José, Río Coca, Coca and "Napo") 10 ♂, 5 ♀.

PERÚ:

Mouth of Río Curaray, 3 ♂, 1 ♀;
mouth of Río Santiago, 1 ♂, 2 ♀;
Pachiza, 1 ♂;
mouth of Río Urubamba, 1 ♂, 1 ♀;
Santa Rosa (Ucayali), 2 ♀;
Astillero, 2 ♂, 1 ♀.

BOLIVIA:

(Todos Santos, Mission San Antonio, mouth of Río San Antonio, San Mateo, and Province of Sara), 25 ♂, 9 ♀, 1 (?).

BRAZIL:

Matto Grosso, Broken Canoe Rapids, 1 ♂;
6th of March Rapids, 1 ♂;
Río Maecurú, 1 ♀;
Río Madeira (Rosarinho, Santo Antonio de Guajará, Borba, Humaythá, Alliança, Calamá, and Igarapé Auará), 19 ♂, 10 ♀, 1 (?).
Teffé, 1 ♀;
Villa Bella Imperatriz, 8 ♂, 4 ♀;
Río Tapajoz (Aramanay, Piquiatuba, and Itaituba), 4 ♂, 1 ♀;
Río Tocantins (Mocajuba and Pirunhum), 3 ♂, 1 ♀;
Río Negro, Igarapé Cacao Pereira, 1 ♂;
Obidos, 1 ♂, 1 ♀.

BRITISH GUIANA:

Upper Mazaruni River, 1 ♂.

VENEZUELA:

Mt. Duida (Caño León and Playa del Río Base), 4 ♂, 1 ♀;
Río Orinoco (mouth of Río Ocamo, and 1 kilometer above Ihuapo), 2 ♂, 2 ♀;
Río Caura (La Unión, Suapure, La Prisión, and Nichare), 12 ♂, 3 ♀;
Río San Feliz, La Cascabel, 1 ♂;
Guanoco, 2 ♂;
El Llagual, 1 ♂.

T. l. flaviventris.—

TRINIDAD:

"Trinidad," 2 ♂ (incl. type of *atricapillus*);
Princetown, 1 ♀ (type of *leotaudi*).

VENEZUELA:

Cristóbal Colón, 2 ♂;
Cumanacoa, 2 ♂.