CRITICAL REMARKS ON THE TROGONS.

BY W. E. CLYDE TODD.

The Trogons (Family Trogonidae) in the Carnegie Museum have recently been made the subject of critical study, the results of which seem worthy of permanent record. There are 668 specimens, representing 48 species and subspecies, in the collection. By far the larger part of this series comes from South and Middle America, and only a small portion from Africa. The Oriental Region is unrepresented. In the present paper the specimens are listed by species (including subspecies) and localities; in most cases pertinent remarks on range, taxonomy, plumage, etc., follow. Two new subspecies are described, and some changes in the status of certain other forms are proposed. In the determination of the collection I have had the benefit of considerable material for comparison from the American Museum of Natural History, the U. S. National Museum, and the Field Museum of Natural History. To the authorities of these institutions I wish to tender my thanks.

Mr. J. L. Peters (Bulletin Museum Comparative Zoology, 69, 1929, 431) decries the splitting up of the genus Trogon into four genera, as Ridgway has done. With his views I am in accord, except as regards the massena-melanurus group, which I consider is entitled to recognition as Curucujus Bonaparte, on the ground of the more strongly serrate bill, the color-pattern, and the other characters cited by Ridgway.

LIST OF SPECIES.

Pharomachrus mocinno costaricensis (Cabanis).


1 Certain locality-names not appearing on current maps will be duly listed in a future paper.

(3)
Pharomachrus auriceps auriceps (Gould).

Thirteen specimens: Paramo de Rosas, Venezuela; Las Ventanas, Colombia; Incachaca, Bolivia.

So far as I can see, specimens from these several localities are indistinguishable. According to Chapman (Bulletin American Museum of Natural History, 55, 1926, 328) they are all typical auriceps.

Pharomachrus paroninus (Spix).

Twenty-four specimens: Villa Braga, Hyutanahan, Arimã, São Paulo de Olivença, Tonantins, and Caviana, Brazil.

Griscom and Greenway (Bulletin Museum Comparative Zoology, 81, 1937, 426) have described the bird of the lower Amazon as a distinct race, viridiceps. They must have overlooked our four specimens from Villa Braga, on the Rio Tapajóz; at any rate, they do not list them. Comparing these with the rest of the series, I am unable to verify the characters ascribed to this alleged form, and with the material before me I should certainly not indorse it.

Pharomachrus fulgidus fulgidus (Gould).


Following Hellmayr and von Seilern (Archiv für Naturgeschichte, 78, 1912, 153), I had called these festatus; but according to Peters (Auk, 46, 1929, 115) and Wetmore (Proceedings U. S. National Museum, 87, 1939, 208) they are not the same as the Santa Marta birds, and they are entitled to the name fulgidus Gould, the identity of which was long uncertain. The upper tail-coverts are greener, with less golden sheen, and are a little shorter than in festatus; in the male they project only slightly (16–19 mm.) beyond the tail. I cannot make out the alleged differences in the loral plumes. Some time ago Hellmayr marked two of our specimens fulgidus.

Pharomachrus fulgidus festatus Bangs.

Eight specimens: Valparaiso, El Libano, Sierra Nevada de Santa Marta (6,000 feet), Las Vegas, and Heights of Chirua, Colombia.

Compare my remarks on this form in Annals Carnegie Museum, 14, 1922, 243. According to Peters (l. c.), however, it is a race of fulgidus— with which dictum I agree after comparing our material. The differences are not striking. The upper tail-coverts in both sexes are longer than in fulgidus, and in three adult males project 32, 34, and 39 mm. beyond the tail; they are also more golden, less greenish, in that sex. The general size is a little larger in the present form.

Pharomachrus antisensis (D’Orbigny).

Twenty-four specimens: Anzoategui and Paramo de Rosas, Venezuela; Las Ventanas, Colombia; Incachaca and Yungas de Cochabamba, Bolivia.
I can find no characters whereby to distinguish Venezuelan specimens from topotypical birds from Bolivia. Two young males in transition dress are dated September 21 and October 3; both come from the latter country.

Curucujus massena (Gould).

Forty specimens: Guapiles, Guacimo, Cuabre, Rio Sicsola, Pozo Azul de Pirris, La Hondura, El Hogar, and Boruca, Costa Rica; San Pedro Sula, Honduras; Manatee Lagoon, Duck Run, Cockscomb Mountains, and Freetown, British Honduras.

Considerable variation, affecting the sheen of the breast and upper-parts, and the markings on the tail, is evident; but locality has nothing to do with it. In young males the tail is tipped with white and its outer web barred with the same color, and the secondaries are edged with buff. The green of the breast is merely indicated. Individuals showing the moult of the remiges bear dates from August to December. A specimen from Boruca, August 8, shows the rectrices in full moult.

Curucujus australis Chapman.

Four specimens: Malagita, Colombia.

I consider the characters of this form to be specific rather than racial. So far as I know australis and massena do not approximate each other geographically.

Curucujus clathratus (Salvin).

One specimen: Guapiles, Costa Rica.

Carriker (Annals Carnegie Museum, 6, 1910, 563) erroneously lists five specimens of this species in the collection. He mistook four immature specimens of massena for clathratus.

Curucujus melanurus melanurus (Swainson).

Forty-eight specimens: Buena Vista, Bolivia; Upper Arucauá, Santarem, Villa Braga, Mirídituba, Obidos, Huutanahan, Nova Olinda, Arimã, São Paulo de Olivença, Tonantins, and Manacapurú, Brazil; Tamanoir and Pied Saut, French Guiana.

Variation in the male affects the intensity of red on the abdomen, the vermiculation of the wings, the sheen of the tail, and in particular the width of the white pectoral band. In birds from Bolivia, without exception, this is narrow and even obsolete, but in those from the lower Amazon it is well developed and quite conspicuous. I am satisfied that this is not a matter of the makeup of the skins. The species was described from British Guiana. I have seen no specimens from that country, but birds from French Guiana vary in respect to this character. Two from Rio Purús agree with the Bolivian birds—as do also two from Manacapurú. Two immature examples from the upper Amazon show a rather wide band. If any further subdivision of this species is to be made I think it is the Bolivian birds that would have to be separated.

Curucujus melanurus macrourus (Gould).

Twenty-three specimens: Fundación, Trojas de Cataca, Puerto Zapote, Jaraquiel, Gamarra, Soatatá, Murindó, and Quibdó, Colombia.

The width of the white band in males varies considerably; in one young male which is moulting into the adult plumage it is entirely missing.

Trogon bairdi Lawrence.

Seven specimens: Pozo Azul de Pirris and El Pozo de Terraba, Costa Rica.

Trogon strigilatus strigilatus Linnaeus.

Thirty-nine specimens: Pará, Demonty, Cayari Island, Upper Arucauá, Santarem, Villa Braga, Obidos, Nova Olinda, Manacapurá, and Rio Manacapurá, Brazil; Cayenne, Mana, and Pied Saut, French Guiana; Maripa, Rio Mocho, El Llagual, Rio Yuruan, and Santa Lucia, Venezuela; Carenage and Heights of Orepouche, Trinidad.

There is variation in this series, but it is not correlated with locality. One specimen from Trinidad is very pale below, but I lay this to season (August). In fresh plumage the colors are more brilliant than at other times.

Trogon strigilatus chionurus Sclater and Salvin.

Eleven specimens: El Tambor, Soatatá, Murindó, El Tambo, Anda-goya, and Malagita, Colombia.

In this form the gloss of the upperparts is much more purplish, less greenish, than in typical strigilatus.

Trogon melanocephalus illetabilis Bangs.

Twelve specimens: Bebedero, Miravalles, and Bagaces, Costa Rica.

Bangs separated the bird of western Costa Rica from the northern bird mainly on the lighter color of the head, throat, and chest—a charac-ter which I am unable to confirm in our series. So far as I can see specimens from Costa Rica are just as dark-colored as those from British Honduras, when examples comparable for sex and condition of plumage are used. However, the color of the posterior underparts in the Costa Rican bird is uniformly paler, less orange, than in the northern bird; this difference, as well as the slightly larger size, will serve to validate the race.

Trogon melanocephalus melanocephalus Gould.

Twenty-six specimens: San Pedro Sula, Honduras; Manatee Lagoon, Quamin Creek, All Pines, and Freetown, British Honduras; Tampico, Mexico.

The white spots on the tail vary greatly in size; in worn specimens they have almost wholly disappeared. April and May specimens are in fine fresh plumage.
Todd—Critical Remarks on the Trogons.

_Trogon citreolus_ Gould.

Two specimens: Coyuca (Guerrero), Mexico.

_Trogon ambiguus ambiguus_ Gould.

Seven specimens: Escuinapa (Sinaloa), Sal se Puerdes (Jalisco), Guemes (Tamaulipas), Arroyo de la Presa (Tamaulipas), Jacala (Hidalgo), Axtla (San Luis Potosí), and Mesa de Chipinque (Nuevo Leon), Mexico.

A female specimen from Escuinapa may be the _canescens_ of Van Rossem (Bulletin Museum Comparative Zoology, 77, 1934, 443), since it fits the description of that form. This author calls _elegans_ and _ambiguus_ conspecies, but as for myself, I am not so sure.

_Trogon elegans australis_ Griscom.

One specimen: Bebedero, Costa Rica.

Should _Curucujus_ be merged with _Trogon_ this form would have to be re-named, on account of _Curucujus massena australis_ Chapman, 1915.

_Trogon collaris collaris_ Vieillot.

Thirty-two specimens: Buena Vista, Bolivia; Villa Braga, Mirirituba, Hyutanahan, Nova Olinda, and Caviana, Brazil; Tamanoir and Pied Saut, French Guiana.

Some males are decidedly bronzv above, others are more greenish. In Bolivian specimens the bars on the tail are comparatively narrow, the black ones about equal in width to the white. Although the barring tends to be wider in French Guiana birds, I should range the latter with those from Bolivia, with which they agree in their relatively shorter tails.

_Trogon collaris exoptatus_ Cabanis and Heine.

Thirty-two specimens: Carenage, Trinidad; Las Quigus, La Cumbre de Valencia, San Esteban, El Hacha, Sierra de Carabobo, Puerto La Cruz, El Limon, Colonia Tovar, SantaLucia, San Rafael, Mirasol, and La Elvecia, Venezuela.

These agree with each other in having the tail of the male heavily and broadly barred with black and white; the black bars are wider than the white ones. In Bolivian specimens, as already noted, the tail-bars are narrower, and the two colors are about equal in width. French Guiana birds show intermediate tendencies in this respect, but on the whole they are nearer the southern form. There is also a difference in the length of the tail, which is longer in the Venezuelan birds. Moreover, the females of the two respective series differ, since there is more dusky mottling on the tails of the Venezuelan birds. These latter are entitled to the name _exoptatus_ of Cabanis and Heine, based on a specimen from Puerto Cabello. Hellmayr and von Seilern (Archiv fur Naturgeschichte, 78, 1912, 154) seem to have surmised as much, but they had only one female example at the time.

The sheen of the upperparts and breast varies in adult males from green to golden bronze.
Trogon collaris virginalis Cabanis and Heine.

Five specimens: Heights of Caldas and Bitaco Valley, Colombia. Males are readily recognizable from those of true collaris by the narrower barring and smaller white tips of the rectrices. The rectrices and upperparts in general are bluer than in either collaris or puella. Females are a little paler than those of either of these forms.

Trogon collaris puella Gould.

Thirteen specimens: Volcano Irazú, Tobosí, Volcano Turrialba, Carrillo, La Hondura, Juan Viñas, and Las Mesas, Costa Rica.

I have come to agree with Griscom (Bulletin Museum Comparative Zoology, 69, 1929, 162) that puella should stand as a subspecies of collaris. Intergradation between them seems to be complete.

Trogon aurantiventer underwoodi Bangs.

Eight specimens: La Hondura and Miravalles, Costa Rica.

A young male has the secondaries mottled with buff, and the outer rectrices mottled and (toward their tips) barred with black and white. Adult females are much paler below than those of puella.

Trogon personatus personatus Gould.

Fifty-two specimens: Las Nubes, Valparaiso, El Libano, Las Taguas, Sierra Nevada de Santa Marta (6,000 feet), San Lorenzo, Las Vegas, Cincinnati, Pueblo Viejo, Heights of Chirúa, San Miguel, Las Ventanas, Paramo Guerrero, La Pica, and Vista Nieve, Colombia; Guarico, Paramo de Rosas, Guamito, La Cuchilla, and Tabay, Venezuela.

In general, males from the Eastern Andes have the white bars on the outer rectrices narrower and less prominent than in males from the Santa Marta region, but so many specimens are indistinguishable that no separation would be justified. I can find no constant differences between Colombian and Venezuelan examples.

Chapman (American Museum Novitates No. 96, 1923, 2) describes the female of his Trogon temperatus as having white vermiculations on the wing instead of brown. Five of our females from the eastern Andes listed above fit this description, but they are certainly not temperatus. They seem to be adult birds, and I do not understand the significance of this variation.

Trogon temperatus temperament Chapman.

One specimen: La Leonera, Colombia.


Trogon temperatus submontanus, subsp. nov.

Seventeen specimens: Buena Vista, Cerro Hosáne, Samaipata, Inca-chaca, and Yungas de Cochabamba, Bolivia.
Todd—Critical Remarks on the Trogons.

Type, No. 80,790, Collection Carnegie Museum, adult male; Samai-
pata, Bolivia, November 20, 1919; José Steinbach.

Subspecific characters.—Similar to Trogon temperatus temperatus Chap-
man of the Colombian Andes, but bill averaging stouter; general colora-
tion of male lighter; and upperparts and breast of female duller brown.
Wing (type), 128 mm., tail, 130; exposed culmen 18; tarsus, 14.

Range.—Foothills and middle elevations of the Andes of Bolivia.

Remarks.—In Bolivian males of this Trogon the upperparts and breast
are greener than in those of true temperatus from Colombia (seven speci-
mens); the bluish sheen, which is prominent on the crown and rump of
Colombian birds, is much reduced, and in some examples is replaced by
bronzy; the whole color effect is lighter. Females have the upperparts
and breast duller brown; in all those examined the vermiculations on
the wing-coverts are buffy and dusky, instead of black and white. Chap-
man (Bulletin American Museum of Natural History, 55, 1926, 331)
notes that a female Trogon from Incachaca resembles personatus, whereas
a male has a tail like that of temperatus—precisely as in our specimens.
As a rule, however, females of temperatus have the markings on the outer
rectrices coarser than in personatus, but some examples would scarcely
be distinguishable on this score.

I have carefully read the original descriptions of Trogon propinquus
Cabanis and Heine and of T. heliothrix von Tschudi, and I do not see
how they could possibly apply to the present bird. It is true that there
is some variation in the extent and prominence of the light barring on
the outer rectrices of the male; it is obsolete in some birds, but well marked
in immature examples.

It is interesting to note that although the species temperatus is a bird
of the Temperate Zone in Colombia and Ecuador, it descends to lower
levels in Bolivia.

Trogon rufus rufus Gmelin.

Fifteen specimens: Upper Arucaú and Obidos, Brazil; Tamanoir and
Pied Saut, French Guiana; Rio Mocho, Venezuela.

I unhesitatingly reject curucui of Linnaeus for this species (cf. Zimmer,
Field Museum Zoological Series, 17, 1930, 295-6, and Schneider, Journal
fur Ornithologie, 86, 1938, 91) and instead use the next available name.
Thus I disagree with Ridgway's conclusion, and I think Griscom and
Greenway (Bulletin Museum Comparative Zoology, 88, 1941, 180) have
adopted his views without full consideration.

Cayenne is the type-locality. Unfortunately we have no specimens
from there, but only from localities to the west and the south. Birds
from the Oyapock River tend toward the lower Amazonian race. I have
also studied in this connection eight males and three females from British
and Dutch Guiana (American Museum). In the males the color of the
median rectrices varies. In one or two they are almost as bronzy as in
birds from the lower Amazon, but in others they tend toward bluish, as
in our Tamanoir birds.
Trogon rufus sulphureus Spix.

Nine specimens: Hyutanahan, Tonantins, and Manacapurá, Brazil. The Trogon sulphureus of Spix (Aves Brasilie, 1, 1824–26, 48, pl. 38) was based on two specimens, supposed to be a pair, from Tabatinga, on the upper Amazon. The left-hand figure (fig. 2), supposed to represent the female, is actually referable to the Trogon violaceus of Gmelin. The figure of the male is a very poor representation of the Trogon which has usually been called Trogon atricollis Vieillot. The green of the upper-parts and breast in the plate is a motmot green—not at all like the shining color of the real bird—but this must be laid to the inadequate methods of reproduction in that early day. Hellmayr, who has studied the type-specimen itself (cf. Abhandlungen K. K. Bayerischen Akademie Wissenschaften, II Kl., 22, 1906, 596), says that it is practically identical with a specimen in the Tring Museum from the River Carimang, British Guiana. He therefore proceeds to resolve sulphureus as a synonym of atricollis Vieillot (= rufus Gmelin).

Now, we have one male each from Hyutanahan (on the Rio Purús) and Tonantins (on the Rio Solimoes east of Tabatinga), which differ markedly from French Guiana specimens of rufus in having the upper-parts strongly suffused with bronze and the median rectrices strongly coppery bronze (except towards their black tips). They fit the description of Aganus devillei Cabanis and Heine (Museum Heineanum, 5, 1863, 191) from Santa Maria, upper Amazon, with which form Zimmer (Field Museum Zoological Series, 17, 1930, 294) identifies his specimens from Puerto Bermudez, eastern Peru. On geographical grounds it is inconceivable that the Trogon rufus population of Tabatinga would be different from that of localities on the east and west. Indeed, Spix describes the median rectrices of his bird as “cupreo-relucente” and “cupreo-chalybeo,” and the upperparts as “aureo-viridi”—words which perfectly describe our specimens also. Moreover, the female is characterized by a marked reduction in the width and number of the black bars in the lateral rectrices; so that the effect in general is whiter.

I have handled the two specimens from Puerto Bermudez, Peru, listed by Zimmer. The adult resembles our Amazonian specimens in the color of the tail, but the yellow of the underparts is richer and more orange. This is probably due to the fresher condition of the specimen. There is no sign of a white post-pectoral band. I have also examined two specimens from the River Carimang in the American Museum (Rothschild Collection), and I have found them indistinguishable from true rufus, just as Hellmayr claims. On the basis of the type-specimen alone, therefore, he was perfectly justified in considering Spix’s sulphureus a synonym of rufus. But if we accept as correct the ascribed locality Tabatinga, in connection with the color-description already noted, a different conclusion ensues. Spix’s type-specimen and plate simply do not fit his description and locality. Either the colors of both the specimen and plate have altered, or (what is more likely) there has been some mistake involving the identity of the type itself. Which of these
considerations should have the greatest weight in fixing the name *sulphureus* is an open question; I am decidedly of the opinion, however, that in this case the description and locality are paramount, and I therefore accept the name for the bird of the upper Amazon. The specimen from La Morelia, in the Caquetá region of Colombia, which Chapman lists (Bulletin American Museum of Natural History, 36, 1917, 315) evidently belongs to this well-marked race and serves to extend its range considerably farther north. The two birds (a pair) from Mana-
capurú in our collection are referred here provisionally; they are really intermediates between *sulphureus* and the lower Amazonian race, which I call

*Trogon rufus amazonicus*, subsp. nov.

Eight specimens: Benevides, Santarem, Villa Braga, and Apacy, Brazil.

*Type*, No. 75,244, Collection Carnegie Museum, adult male; Villa Braga, Rio Tapajoz, Brazil, December 1, 1919; Samuel M. Klages.

*Subspecific characters.*—Similar to *Trogon rufus rufus* Gmelin of the Guianas, but median rectrices of tail (in male) glossed with bronze, instead of green or blue, as in the nominate form. Adult female not certainly distinguishable from the latter, but with a tendency toward narrower black bars on the tail.

*Range.*—Lower Amazonía.

*Remarks.*—Griscom and Greenway (Bulletin Museum Comparative Zoology, 88, 1941, 80) refer these specimens to *sulphureus* of Spix. As I have tried to show under the head of that form, Spix’s name must be taken for the bird of the upper Amazon to which the name *devillei* was later applied by Cabanis and Heine. Since the lower Amazon bird is recognizably different both from that of Guiana (*true rufus*) and from that of southern Brazil (*chrysochlorus*), and is thus left without a name, it will have to be christened. Griscim and Greenway could find no differences between males from Surinam and those from the lower Amazon and based their separation wholly on the characters shown by the females. These alleged differences I am unable to confirm upon comparison of a series (three each from the lower Amazon and French Guiana, one from Surinam, and two from British Guiana). The sheen of the tail in the male, however, although it naturally varies somewhat, is still sufficiently constant to justify the separation I here propose.

*Trogon rufus cupreicauda* (Chapman).

Four specimens: El Tambor, Malagita, and Cordoba, Colombia.

These must be this race on geographical grounds. But I would not describe the tails of the males as “rich copper-bronze” as does Chapman, but rather as brassy green. Females differ markedly from the same sex of all other forms of *Trogon rufus* in having the outer rectrices rufous chestnut except for the white tips; most of the light barring on both webs is of this color. Indeed, the characters of this form, taken in con-
nection with its outlying range, go far to suggest that it is a distinct species. It is cut off by the Andes from *rufus*, and toward the north it appears to maintain its characters where its range approaches that of *tenellus*.

**Trogon rufus tenellus** Cabanis.

Twenty specimens: Volcano Turrialba, Cuabre, Rio Sicsola, Pozo Azul de Pirris, El Hogar, Miravalles, and El Pozo de Terraba, Costa Rica; Soatatá, Colombia.

In addition to the above I have handled 24 males from Nicaragua, Costa Rica, and Panama (American Museum; U. S. National Museum). In some the median rectrices have a rich blue sheen; in others they are green. However, this variation has no geographical significance, and in some cases both types occur together. Specimens taken in August, September, and October show prenuptial moult.

Of two males from Soatatá, on the lower Atrato, one has a greenish tail; the other, more bluish. Thus these specimens show no approach towards *cupreicauda* of western Colombia, which form Chapman records from Alto Bonito, a locality not far distant. Griscom notes the same circumstance with reference to birds from eastern Panama (Bulletin Museum Comparative Zoology, 72, 1932, 338). So far as known there is no direct geographical connection between *rufus* and *tenellus*, although their respective characters would suggest conspecific relationship. No form of this group is known from Venezuela, and *tenellus* and *cupreicauda* behave like distinct species where their ranges approximate. Both from a taxonomic and distributional standpoint, this is a most interesting case.

**Trogon violaceus ramonianus** Deville and Des Murs.

Seven specimens: Benevides, Colonia do Mojuy, Apacy, Hyutanahan, and Arimã, Brazil.

Females of this form are indistinguishable from those of true *violaceus*, but the males have the wing-coverts and secondaries with little or no light vermiculation; they appear “solid” black except on close inspection. The Benevides male is precisely like those from the Rio Purís, although Ridgway (Bulletin U. S. National Museum No. 50, 5, 1911, 786) even went so far as to give a provisional name to the bird of the lower Amazon. Hellmayr (Novitates Zoologicae, 17, 1910, 387) also remarks that birds from the lower Amazon (Rio Xingu) are identical with those from Peru. He was puzzled, however, by the occurrence of a bird which he identified as true *violaceus* on the Rio Madeira.

**Trogon violaceus violaceus** Gmelin.

Nine specimens: Cayenne, Tamanoir, and Pied Saut, French Guiana; Demonty, Brazil.

Cayenne birds (one male; two females) are a little smaller and paler than the others. They appear to have the dark color of the breast more
restricted and the white below it more in evidence; but since adult males from either side (Tamanoir and Demonty) are alike, I take it that this variation is not geographical.

Gmelin's name *violaceus* is based on Koelreuter, whose description I have been able to consult; it is perfectly pertinent. Von Berlepsch and Hartert (Novitates Zoologicae, 9, 1902, 106) fix Surinam as the type-locality.

**Trogon violaceus caligatus** Gould.

Eighteen specimens: Bonda, Cincinnati, Fundación, Jaraquiel, and El Tambor, Colombia; Sabana de Mendoza and Guachi, Venezuela.

Compare my remarks in Annals Carnegie Museum, 14, 1922, 241, under *columbianus*. Since then Peters (Bulletin Museum Comparative Zoology, 69, 1929, 432-4) has conclusively shown that Gould’s name *caligatus* is in fact applicable to the Colombian race of this species; this leaves *columbianus* Chapman as a synonym. I follow Peters also in making *caligatus* and *violaceus* conspecific. From *ramonianus* through *violaceus* to *caligatus* there seems to be an unbroken chain of characters.

The Venezuelan records are the first for the Maracaibo Basin, and they show that this species, in common with certain others heretofore supposed to be peculiar to the Magdalena Valley, crosses the Eastern Andes. I am by no means sure, however, that these Venezuelan specimens and those from El Tambor are the same as the Santa Marta series. They average more richly colored, sex for sex; the yellow below is deeper, more orange in tone; moreover, they average smaller. But since most of our Santa Marta birds are in worn and probably faded plumage, I cannot be sure how fresh birds would compare. It may be noted that El Tambor is near the type-locality of Chapman’s *columbianus*.

**Trogon violaceus concinnus** Lawrence.

Twenty-eight specimens: Cascajal, Panama; Juan Viñas, Pozo Azúl de Pirris, Guapile, Guacimo, Río Sicsola, El Hogar, Bebedero, Miravalles, Esparta, Boruca, and Buenos Aires, Costa Rica.

That the coarser barring on the wing-coverts and secondaries, characteristic of the immature plumage in males, persists through the first breeding season is indicated by worn specimens dated March 21 and April 8. Adults seem to moult in July and August, and a female taken September 12 is just completing the moult of the wings. Some females are very pale below.

**Trogon violaceus sallaei** Bonaparte.

Five specimens: San Pedro Sula, Honduras; Escuintla, Guatemala; El Cayo and Freetown, British Honduras; Axtla (San Luis Potosi), Mexico.

Although Ridgway’s measurements show a considerable difference in size between northern and southern specimens of this species from Central America, he did not venture to subdivide it. Peters (Bulletin
Museum Comparative Zoology, 69, 1929, 434) calls the northern bird braccata (Cabanis and Heine), but more recently Van Rossem (Bulletin Museum Comparative Zoology, 77, 1934, 392) has reached the conclusion that Bonaparte’s name sallsei is both pertinent and earlier. After studying Bonaparte’s description I agree. Carriker and de Schauensee (Proceedings Academy Natural Sciences Philadelphia, 87, 1935, 434) are doubtful of this allocation, but if the locality Bonaparte cites (Orizaba, Vera Cruz) is correct, the description could scarcely apply to any other species.

Trogon curucui behni Gould.

Thirty-five specimens: Puerto Suarez, Santa Cruz de la Sierra, Curiche, Buena Vista, Yacuiva, Cerro Hosáne, and Bermejo, Bolivia; Rio Bermejo, Argentina.

In naming these subspecifically I follow Hellmayr, Field Museum Zoological Series, 12, 1929, 422. I have not seen the nominate race, usually called variegatus. Schneider (Journal für Ornithologie, 86, 1938, 91) insists that this species is the Trogon curucui of Linneus, which he claims was based mainly on an oil painting by Maregrave. This finding serves to confirm Zimmer’s earlier surmise (Field Museum Zoological Series, 17, 1930, 295-296), and since three of the references cited by Linneus are clearly referable to the present bird we shall have to accept curucui as its proper name. I follow Mr. Peters (in litt.) in this case, and Mr. Zimmer also agrees.

Trogon bolivianus Ogilvie-Grant.

Five specimens: Apacy, Hyutanahan, Tonantins, and Manacapurú, Brazil.

These fit the original description and plate and agree with Hellmayr’s comparative diagnosis (Field Museum Zoological Series, 12, 1929, 423). I follow Chapman, however (Bulletin American Museum of Natural History 36, 1917, 316), in considering bolivianus specifically distinct. As Hellmayr has remarked, the name was given in spite of the fact that no specimens from Bolivia were listed at the time, and none are yet known.

Apaloderma equatoriale Sharpe.
Eleven specimens: Lolodorf, Akok, Sakhayeme, and Efulen, Cameroun.

Apaloderma narina littorale van Someren.
Two specimens: Mombasa, Kenya Colony.

Apaloderma narina narina (Stephens).
Five specimens: Mount Selinda, Southern Rhodesia; Chikonje and Ruo, Nyasaland.

Apaloderma narina brachyurum Chapin.
Two specimens: Efulen, Cameroun.
Todd—Critical Remarks on the Trogons.

Heterotrogon vittatus vittatus (Shelley).

Two specimens: Cholo, Nyasaland.

Heterotrogon vittatus camerunensis Reichenow.

Three specimens: Buea and Nkongsamba, Cameroun; Mount Moco, Angola.

The Mount Moco specimen is intermediate between this race and true vittatus (cf. Chapin, Bulletin American Museum of Natural History, 75, 1939, 486).

Temnotrogon roseigaster (Vieillot).

Two specimens: Rivier Bar, Haiti; Loma del Rio Grande, Dominican Republic.

Priotelus temnurus temnurus (Temminck).

Two specimens: Guantanamo, Cuba.

Priotelus temnurus vescus Bangs and Zappey.

Twelve specimens: Nueva Gerona, Hato, and Los Indios, Isle of Pines.