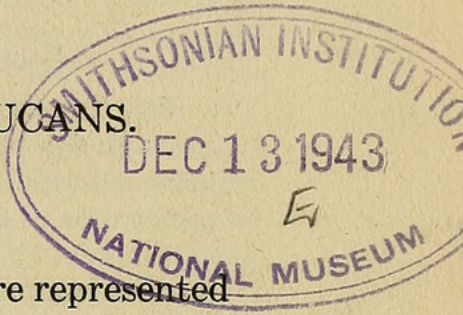


PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

CRITICAL REMARKS ON THE TOUCANS.

BY W. E. CLYDE TODD.



The Ramphastidae, or Family of Toucans, are represented in the collection of the Carnegie Museum by 670 specimens¹, belonging to 55 species and subspecies. The group appears to reach its highest development in the Amazonian region, from which we have excellent series of nearly all the endemic forms. With material of such good quality available, the temptation is very strong to undertake a complete review of the entire group from the taxonomic and geographic standpoints, as Dr. Frank M. Chapman has satisfactorily done for the Motmots. But since such a comprehensive study would require more time than I can well spare, I shall content myself by putting on record certain of the more important points discovered in working up our collection. For the loan of additional specimens pertinent to the inquiry my thanks are due to the authorities of the U. S. National Museum, the American Museum of Natural History, the Museum of Comparative Zoölogy, and the Field Museum.

Concerning the limits of the genera in this family there is virtual agreement, but the number of species which merit recognition is still far from settled. The hindrances and difficulties besetting the path of the investigator venturing into this field are suggested and are aptly illustrated by Messrs. Griscom and Greenway in their remarks on *Ramphastos tucanus* (Bulletin Museum Comparative Zoölogy, 71, 1937, 427-429). In the absence of any accepted criteria for discriminating between specific and subspecific characters, most recent authors have underestimated the value of the coloration of the bill as a taxonomic differential. I hold that the striking and constant differences in this respect between allied forms in this group are of themselves amply sufficient to justify specific segregation. In several cases, certain of

¹Including 59 specimens disposed of by exchange.

which are here for the first time pointed out, the respective ranges of related forms have been found to overlap, which circumstance places their specific distinctness beyond question. Because these differences in bill coloration are of course less obvious in preserved specimens than in the living bird, color sketches of the various forms made from live or freshly killed birds would be a welcome contribution.

GEOGRAPHICAL VARIATION IN *RAMPHASTOS TOCO*.

This Toucan was first made known by Daubenton (*Planches Enluminées*, pl. 82) under the name "Toucan de Cayenne". Buffon added a brief description but omitted mention of any locality. The date of publication of this plate is not exactly known, but it could not have been earlier than 1770 or later than 1776, when Müller gave the bird which it represents a proper binomial name, calling it *Ramphastos toco*. According to Comte de Germiny (*L'Oiseau*, 11, 1930, 657), "Toco" is a name used for a species of Toucan by the Arawak Indians of Guiana and the Orinoco Basin. *R. toco* is a well-known species of wide range, which extends southward to Argentina and westward to Bolivia. Its occurrence in French Guiana, however, is not so well attested, and there are no recent records from that country. Mr. Samuel M. Klages failed to find it there. Aside from the original reference, which is perhaps open to question, I know of but one actual record, in von Pelzeln, *Ornithologie Brasiliens*, part 3, 1870, 233, footnote².

The matter of the type-locality becomes important in view of the tendency of the species to vary geographically. Specimens from the southern part of the range of the species not only average smaller but also have more uniformly white throats than those from the northern part. They are entitled to the name *albogularis* of Cabanis (*Journal für Ornithologie*, 10, 1862, 334), based on the bird of southern Brazil and Paraguay. Of this race I have examined in our collection three specimens from southern Bolivia (Yacuiba) and one from northern Argentina (Miraflores), and also in other collections nine from Paraguay and three from Brazil. A specimen from Las Palmas, Chaco, Argentina (No. 284,814, U. S. National Museum) I would refer to this race, although it has a very narrow black line around the bill at the base. A specimen from Fort Wheeler, Paraguay (No. 149,448, American Museum of Natural History), is definitely intermediate between *toco* and *albogularis*. Stolicman (*Annalibus Zoologicis Musei Polonici Historiae Naturalis*, 5, 1926, 135) was apparently the first author to revive Cabanis' name for the south Brazilian bird. This action was later indorsed by Brodkorb (*Occasional Papers Museum Zoology, University of Michigan*, No. 349, 1937, 3) and by Griscom and Greenway (*Bulletin Museum Comparative Zoölogy*, 88, 1941, 194).

The latter authors inadvertently attribute the name *albogularis* to Cassin instead of to Cabanis. Inadvertently also they state that lower Amazon specimens "do not differ from a Cayenne series in the Carnegie Museum"—a statement not to be reconciled with the fact that we have

² For calling my attention to this I am indebted to Mr. John T. Zimmer.

no specimens from Cayenne or any other place in French Guiana. They further state that "Specimens from Bolivia . . . are inseparable from *toco*." With this dictum I disagree if our four birds from Santarem correctly represent that form. Our adults from this locality agree in that the throat is distinctly tinged with yellow and its lower border strongly red. In our Bolivian series, on the other hand, the throat is white with little or no yellow tinge and has a mere trace of a posterior red border; the pileum, too, is generally duller, brownish rather than black. In all these respects the Bolivian birds more nearly agree with Daubenton's plate than do the Santarem specimens. There is reason to believe that these two series respectively represent different subspecies. I am restrained from describing one or the other of these as a new race only by uncertainty as to which of them is the true *toco*. Mr. Zimmer writes me that specimens in the American Museum from the lower Amazon agree well enough with Chubb's description of a male from British Guiana (Birds British Guiana, 1, 1916, 453) to make him think that there is likely to be little distinction in this general region. The possibility remains, however, that the yellow-throated birds represent a race which is confined to the region south of the Amazon and east of the Rio Tapajóz. Final conclusions on the points here raised must await the receipt of more pertinent material.

RAMPHASTOS TUCANUS, R. CUVIERI, AND R. INCA.

These three forms constitute a natural group, characterized by their white throats and yellow or orange upper tail-coverts. They are distinguished from each other mainly by their differently colored bills. Some authors consider them races of one inclusive species, for which they use the earliest name, *tucanus* of Linnaeus. From this conclusion I dissent, since I hold that the color of the bill in this case is a character of specific value. This is certainly strongly suggested by the fact that within the range of *R. tucanus* there lives a fourth member of this particular group, *R. aurantiistrostris* Hartert, whose main claim to distinction is in its differently colored bill. I have examined four specimens of this bird from British Guiana (in the Rothschild Collection, now in the American Museum) and have no difficulty in recognizing it as specifically distinct from *R. tucanus*.

Although Hartert (Novitates Zoologicae, 32, 1925, 143) refused to accept the name *tucanus*, Griscom and Greenway (Bulletin Museum Comparative Zoölogy, 81, 1937, 430) have validated it by restricting its application to the dark-billed bird of Surinam. Our French Guiana specimens (five) clearly belong to this form, as do also those from the Rio Caura (Rio Mocho). Our single Pará specimen (Benevides) is indistinguishable from the rest except for its obviously longer bill. Otherwise I see absolutely no evidence or suggestion of any approach to or intergradation with *R. cuvieri*. According to Griscom and Greenway the latter is the form that occupies the region west of the Rio Tapajóz. Relying on Hellmayr's statement (Novitates Zoologicae, 17, 1910, 396) that Rio Madeira specimens agree with Wagler's type,

they fix on Borba as the type-locality (*ex von Pelzeln*)—a perfectly proper procedure. For the population east of the Rio Tapajóz they set up a new name, *oblitus*. I cannot understand why they compare their new form primarily with *tucanus* and make it a subspecies thereof. It has nothing to do with *tucanus*, from which it is indeed “strikingly different,” but it is so closely related to *cuvieri* that it is hard to find characters to separate it therefrom. I cannot verify any essential difference in size between the two, but the upper tail-coverts are more shaded with orange in *cuvieri*, and purer yellow in *oblitus*. Also, the red pectoral crescent is perhaps a little narrower in *oblitus*.

Our specimens of *cuvieri* come from the upper and middle Amazon (São Paulo de Olivença, Manacapurú) and the Rio Purús (Hyutanahan, Nova Olinda, Arimã), with one specimen from Bolivia (Buena Vista). As noted by other authors, the color of the upper tail-coverts varies somewhat, but it is always more or less orange- or crimson-shaded—different from the almost pure yellow of *oblitus*. I fail to see how birds from Mount Duida, Venezuela, could possibly be intermediate between these two races, as claimed by Griscom and Greenway, and actual examination of the specimens in question confirms this doubt. They are easily referable to *cuvieri* in coloration but are slightly smaller in size. Specimens in the American Museum from Amazonian Colombia (Florencia and Barrigon), eastern Ecuador, Matto Grosso (one from Rio Teodoro), and Venezuela (Munduapo, Rio Orinoco) I refer without hesitation to *cuvieri*, although certain of them show a faint indication of dark reddish color at the base of the upper mandible. (The Munduapo example is the one discussed by Hellmayr in *L'Oiseau*, n.s., 3, 1933, 247.) One of our specimens from Manacapurú shows the same character. While the differences between *tucanus* and *cuvieri* are perfectly obvious even in preserved skins, they are better brought out by Mr. Klages' descriptions of the coloration of the bill in fresh specimens. In *tucanus* the bill is “dark sanguineous red, with blackish *nebulae*; culminal stripe bright greenish yellow; basal band cerulean blue.” In *cuvieri* the maxilla is “black, with a blotch of dark blood red; basal and culminal bands light greenish yellow; mandible lemon or citrine yellow, with a basal band of azure; adjoining this azure band there is an azure line on the maxilla also.” In dried specimens of *cuvieri* the sides of the bill are virtually uniform black, while in *tucanus* they are largely dull yellowish red.

Considerable controversy has arisen over the status of *Ramphastos inca* Gould, originally described from a single specimen from Bolivia. Zimmer (Field Museum Zoological Series, 17, 1930, 305) would throw it out, and Griscom and Greenway (Bulletin Museum Comparative Zoölogy, 81, 1937, 428) “agree heartily.” But with a series of nine specimens (all from Buena Vista, Bolivia) available in our collection, I find that *inca* is a perfectly good form; and I believe it should be ranked as a species—if for no other reason than that we have one entirely typical specimen of *cuvieri* from Buena Vista, as already noted. At any rate, it is certainly not subspecifically related to *tucanus*, than which it has a much larger and differently colored bill; its upper tail-coverts are orange,

not pure yellow; and its crimson breast-band is wider. If anything it is more nearly related to *cuvieri*, which it resembles in all respects except in the color of the bill. Unfortunately none of the labels on our specimens give the bill colors; but the dried specimens certainly differ decidedly and constantly from both *tucanus* and *cuvieri* in the colors of this part, and undoubtedly this difference would be emphasized in the living birds. Most of our specimens have the bill much more extensively pale (reddish in life?) on the sides (both mandibles) than Gould's figure, which shows only a small red area near the base of the upper mandible. Four specimens in the American Museum collection from Bolivia agree precisely with ours. Our series alone suffices to validate *inca*, but its exact range remains to be worked out. While von Berlepsch and Hartert record it from Munduapo, on the upper Orinoco, I have little hesitation in referring their specimen from that place to *cuvieri*, as I have already said. Chapman (Bulletin American Museum of Natural History, 55, 1926, 345-6) lists specimens of the latter from Colombia to Bolivia. Accordingly the ranges of *cuvieri* and *inca* must overlap—as indeed we know they do. It is desirable to examine and to compare specimens from other localities in this connection.

AN INTERMEDIATE RACE OF RAMPHASTOS SULFURATUS?

I follow Peters, Griscom, and Van Tyne in adopting *sulfuratus* as the specific name for this form. (The original orthography is as here given.) I have compared our considerable series of specimens from British Honduras with specimens from Mexico (Vera Cruz) and Guatemala and have found them to be the same. I fully agree with Van Tyne (University of Michigan Museum of Zoology, Miscellaneous Publications No. 27, 1935, 22-24) that they should be called *sulfuratus*; if not, then they would have to stand as a connecting race, *intermedius* of Carriker and DeSchauensee (Proceedings Academy Natural Sciences of Philadelphia, 87, 1935, 427). But so many of our British Honduras birds are indistinguishable from Mexican birds, either by the size of the bill or by the width of the red post-pectoral band, that the proposed separation seems highly questionable; and I am inclined to ignore it in naming our specimens.

THE IDENTITY OF RAMPHASTOS AMBIGUUS.

Ramphastos ambiguus of Swainson (Zoological Illustrations, 3, 1823, pl. 168) was based solely on a colored drawing by an unknown artist, made "from the bird just dead." The locality was also unknown, and as to the size of the bird the drawing gives no clue whatever. Gould (Monograph Ramphastidae, ed. 2, 1854, pl. 5 and text) used the name for the larger bird of the Bogotá region of Colombia, and in so doing he has been followed by later authors, down to Ridgway (1914) and Chapman (1917). The latter author even suggests Buena Vista, Colombia, as the type-locality. But after a comparison of our specimens with Swainson's original description and figure I am convinced that these actually

represent the smaller Colombian form of *Ramphastos* identified (wrongly as I believe) by Chapman as *abbreviatus*. Presumably, the plate shows the bird in its natural colors, and those of the bill correspond closely with the colors noted by Carriker on the labels of his specimens, as follows: male (No. 64,597, Quibdó, Colombia), "bill black below, bright yellow above; ridge pale blue." Female (No. 66,878, Cordoba, Colombia), "bill black below, yellow above." And by the same token, they do *not* correspond with the bill colors of the larger form from interior Colombia as recorded on the labels. Since the matter of size is not in question and the relative proportions are the same in both forms, I do not see how we can avoid taking Swainson's name *ambiguus* for the form which it best fits, regardless of previous usage. Measurements of our three specimens agree very well with those cited by Chapman (Bulletin American Museum of Natural History, 36, 1917, 329). Compare also, in this connection, Lönnberg and Rendahl's remarks (Arkiv för Zoologi, 14, No. 25, 1922, 65) on Ecuadorean specimens. *Ramphastos ambiguus*, as here defined, is a bird of the Tropical zone of western Colombia and western Ecuador.

This shift leaves the larger bird of interior Colombia nameless, so I propose to call it

***Ramphastos innominatus*, sp. nov.**

Type, No. 59,280, Collection Carnegie Museum, adult male; El Tambor, Santander, Colombia, January 12, 1917; M. A. Carriker, Jr.

Description.—Black, the nape and the sides of the neck more or less shaded with maroon; upper tail-coverts white; throat and breast lemon yellow, bounded posteriorly by a narrow and indistinct whitish line followed by a band of nopal red; rest of underparts black except the under tail-coverts, which are nopal red; "iris olive gray; feet cobalt blue; bill blackish maroon, greenish yellow on ridge" (Carriker). Wing (type), 228 mm.; tail, 161; tarsus, 54; exposed culmen, 174; width of bill at base, 40.

In the case of another specimen (No. 36,289, El Hacha, Venezuela) the bill is described in more detail: "the dark portion is black, with a shade of dark blood red towards the base; the light portion is Indian yellow, the ridge shaded with grass green. The exposed skin of the orbital region is greenish yellow, more green around the eye."

Range.—Subtropical Zone of the Andes of Colombia and Venezuela, and southward into Ecuador and Peru (*vide* Chapman, Bulletin American Museum of Natural History, 55, 1926, 345).

Remarks.—This is the *Ramphastos ambiguus* of Chapman and (in part) of earlier authors, but not of Swainson, as I have tried to show. It appears to be a zonal representative of *R. swainsoni* of the Tropical Zone, and preserved specimens of the two sometimes resemble each other rather closely. However, even in dry skins the lower mandible is uniformly darker than in *swainsoni*, and in life the color-differences must be accentuated. The species is represented in our collection by four specimens: one from El Hacha, Venezuela; two from El Tambor, Colombia; and one from Palmar, Colombia.

At this point there arises the question of the real identity of *Ramphastos abbreviatus* Cabanis, Journal für Ornithologie, 10, 1862, 334. The possibility that this name might pertain to the form under consideration must be taken into account. Cabanis' description is brief and unsatisfactory; translated, it runs as follows: "Somewhat smaller [than *tocard*, i.e., *swainsoni*]; bill a little over $4\frac{1}{2}$ " long; crown, nape, upper back, and the black underparts, especially the breast, reddish-shaded. Naked eye-region, according to the collector, green." Puerto Cabello, on the coast of Venezuela, is given as the type-locality. The species must be very rare, since no recent collectors have encountered it. However, I have examined a specimen labeled "Caracas"—the same as is discussed by Cassin, Proceedings Academy Natural Sciences of Philadelphia, 1867, 104. Its bill is badly broken and has been mended, so that satisfactory measurements cannot be taken. As the bill stands it is about the same size as that of a young specimen of *swainsoni*; the cutting edge of the maxilla is smooth, without trace of teeth—a condition which suggests immaturity. However, the dark band on the maxilla is sharply defined. Wing, 212 mm.; tail, 157; tarsus, 50; bill from gape, 150. The crown and neck are strongly washed with purple maroon—much more deeply than in any other specimen of related forms with which I have compared it.

One thing is certain: this bird has nothing to do with the small *Ramphastos* from the Pacific coast region of Colombia which Chapman calls *abbreviatus*. On geographical grounds alone such an allocation would be highly improbable. Nor can it be satisfactorily identified with the larger form from the interior of that country which he calls *ambiguus*—wrongly as I believe. Examination of the type-specimen might settle the question, but not if the sex and age of the bird are unknown. Our specimen from El Hacha is clearly not the same species as the bird from Caracas described above. From present information it is probable that in the Tropical Zone of the north coast of Venezuela there lives a Toucan allied to *Ramphastos swainsoni*, but with a smaller bill and a strongly maroon crown and nape. For this form Cabanis' name *abbreviatus* would be pertinent, but for the present the exact application of the name must remain doubtful.

We have one specimen of Toucan from La Azulita, Venezuela, which almost certainly represents a second race of *innominatus*, peculiar to the Maracaibo Basin. In size and in the color of the bill it agrees with the female from Palmar. But the red pectoral band is wider and extends downward over the breast, and the black of the underparts is more or less washed with maroon. The form impresses me as a good one, but I hesitate to describe it on the basis of a single specimen.

A NEW LOCALITY FOR RAMPHASTOS CITREOLÆMUS.

A specimen of this species from Santa Elena, Venezuela (No. 90,659) extends its range to the Maracaibo Basin. The specimen differs in certain respects from our single skin from Colombia (El Tambor) and may possibly belong to a new race.

THE RAMPHASTOS VITELLINUS GROUP.

Ramphastos vitellinus Lichtenstein and *R. ariel* Vigors are admittedly closely related; but not so closely, in my opinion, as to justify uniting them as conspecies, as some recent authorities do. Moreover, their respective ranges are separated by the Amazon, with no possibility of intergradation. Just where the range of *ariel* meets that of *theresæ* and whether they intergrade are still undetermined. *R. culminatus* Gould is another member of this group and is regarded by Zimmer (Field Museum Zoological Series, 17, 1930, 306) as also conspecific. With this I disagree, as do Griscom and Greenway (Bulletin Museum Comparative Zoölogy, 88, 1941, 146). (Compare also Hellmayr, Novitates Zoologicae, 17, 1910, 397.)

In *culminatus* the throat is normally white, but in some specimens there is a wash of yellow along its lower edge. The so-called *osculans* (discussed by Zimmer, *l.c.*, and by Hellmayr, L'Oiseau, n.s., 3, 1933, 244-251) is probably based on hybrids between *culminatus* and *vitellinus*. I have seen no specimens of undoubted *osculans*, but the variability which characterizes it would suggest hybridism rather than racial intergradation. The locality Rio Negro would be just the place where this would be expected to occur. Thus, we have *vitellinus* from Obidos, on the Amazon east of the Rio Negro, and *culminatus* from Manacapurú, west of this stream. Chapman is perfectly correct in claiming that *culminatus* and *cuvieri* are distinct from each other (Bulletin American Museum of Natural History, 55, 1926, 346), and our series confirms his views.

A NEW RACE OF PTEROGLOSSUS TORQUATUS.

Pteroglossus torquatus pectoralis, subsp. nov.

Type, No. 90,725, Collection Carnegie Museum, adult male; Santa Elena, Zulia, Venezuela, August 17, 1922; M. A. Carriker, Jr.

Subspecific characters.—Similar to *Pteroglossus torquatus nuchalis* Cabanis of the coast region of Venezuela and the Santa Marta region and Magdalena Valley of Colombia, but bill larger; black pectoral spot larger; and black band across abdomen blacker and wider.

MEASUREMENTS (IN MILLIMETERS).

No.	Sex	Locality	Wing	Tail	Bill	Depth of bill	Tarsus
90725 ¹	♂	Santa Elena	144	158	117	31.5	31
90726 ¹	♀	Santa Elena	143	154	108	31	33
34508 ²	♂	Encontrados	140	155	102	31	32
43403 ²	♀	Empelado Savanna	145	153	98	29	34

¹ Collection Carnegie Museum.

² Collection Field Museum.

Range.—Maracaibo Basin of Venezuela.

Remarks.—This is an easily recognizable form, if the specimens

above listed are a fair sample of the population of the Maracaibo region. No specimen of our series of *nuchalis* (twelve kinds) has a bill so large. A third specimen from Santa Elena is a young bird. Recognition of this race leaves the range of *nuchalis* discontinuous, since it is divided by the Gulf of Maracaibo. The male type has a large pectoral spot, which is joined above to the black of the throat.

PTEROGLOSSUS AZARÆ AND ITS ALLIES.

Pteroglossus azaræ is precisely like *P. flavirostris* Fraser and *P. mariæ* Gould in the color of the body-plumage, but it differs in the color of the bill. In the dry skin the mandible is pure yellow, but the maxilla has a dark streak for its full length, above the commissure. In freshly killed specimens, according to S. M. Klages, the bill is "white, with a greenish yellow tinge, and a narrow band of light chrome yellow around the base, and a broad stripe of dark blood red on the sides of the maxilla; serrations white, with light sanguineous red spaces between." Our two specimens come from Manacapurú, on the middle Amazon.

In fully adult examples of *P. flavirostris* the principal specific character of this form, the elongated patch of ochraceous color along the cutting edge of the mandible, is perfectly obvious in the dry skin. In younger individuals this color is more diffuse and spreads out more over the mandible; then the effect is more as in *mariæ*. These immature examples also have the black band on the lower throat poorly defined and invading the red of the pectoral band. S. M. Klages gives the bill in fresh specimens as "whitish, with a faint greenish wash; edges of maxilla alternately white and black; apical third of culmen pale olivaceous green; sides of mandible with a stripe of pale shellac brown."

Our thirty-four specimens of *flavirostris* all come from the upper Amazon in Brazil (São Paulo de Olivença and Tonantins), but Hellmayr (Novitates Zoologicae, 14, 1907, 83) says that Natterer's specimens from the Rio Negro belong here, and von Berlepsch and Hartert (*ibid.*, 9, 1902, 101) give it from the Orinoco and Caura Rivers in Venezuela. I should discredit the supposed record from the Oyapock River in French Guiana, however.

Pteroglossus mariæ was discriminated by Gould, but it was soon relegated to the synonymy of *P. flavirostris*, until revived as a subspecies by Hellmayr (Novitates Zoologicae, 14, 1907, 83). It differs from *flavirostris* by having the entire lower mandible brown (in the skin) in adult birds. The bill in fresh specimens is thus described by S. M. Klages: "maxilla white, the ridge slightly tinged with ochraceous, its edges black. Mandible shellac brown, with the tip yellowish white, and a pale ochraceous band at the base." In younger birds the bill is not so deeply colored as in adults, and these might be taken for *flavirostris* were it not for the fact that the maxilla is unicolored, while in the same stage of *flavirostris* it has dark-colored areas. We have perfectly typical specimens of both *flavirostris* and *mariæ* from São Paulo de Olivença, where the respective ranges of the two forms overlap. They must there-

fore be ranked as species. In general, however, *flavirostris* inhabits the region north of the Amazon, and *mariae* the region south thereof, as Hellmayr has pointed out. We have a series of fourteen specimens of the latter, from Hyutanahan and Nova Olinda on the Rio Purús, and São Paulo de Olivença and Caviana on the Amazon, and also one from Rio Chapare, Bolivia, which is referred here provisionally (its bill is pale below).

A NEW LOCALITY FOR *SELENIDERA NATTERERI*.

A female specimen of this rare species from Tonantins, on the upper Amazon, agrees well in the color of the bill with the description of *Selenidera nattereri*, and also with a male specimen of this species in the collection of the American Museum from the Caura River in Venezuela. We have females of *S. langsdorffi* in which the yellowish orange area on the sides of the body is barely indicated; by analogy this might account for the peculiarities of our specimen in this respect. The record involves a considerable extension of the heretofore known range. *S. langsdorffi* appears to be confined in Brazil to the south bank of the Amazon.

TAXONOMIC NOTE ON *SELENIDERA GOULDI*.

It was von Pelzeln (*Ornithologie Brasiliens*, pt. 3, 1870, 238) who first called attention to the difference between specimens of this species from Pará and those from the Rio Madeira. Hellmayr (*Novitates Zoologicae*, 17, 1910, 400) also noted a difference but considered that it should be confirmed by more material. Griscom and Greenway (*Bulletin Museum Comparative Zoölogy*, 81, 1937, 431) thereupon named the alleged western race in honor of Hellmayr. In their later paper they refer all our Rio Tapajóz birds to their new race and list two males and two females from the left bank. This listing is wrong. We have but two males, one from Miritituba on the east bank, and one from Itaituba on the west bank. The former agrees closely with Gould's figure (*Mono-graph Ramphastidae*, ed. 2, pl. 32). The Itaituba male has much less black on the bill and is thus nearer the new form *hellmayri* as described. From this it would appear that the Rio Tapajóz is the dividing line between the two supposed forms, but I cannot satisfactorily distinguish two females (from Itaituba and Villa Braga) from Santarem females. After having examined Griscom and Greenway's material (except the type) and four other specimens from the lower Amazon in the American Museum, I find that the range of variation (especially as regards the black area on the bill) is so great that I cannot satisfactorily discriminate *hellmayri*.

In any case, I cannot agree to uniting *gouldi* and *maculirostris* as conspecies.



Todd, W. E. Clyde. 1943. "Critical remarks on the toucans." *Proceedings of the Biological Society of Washington* 56, 153–162.

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