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STUDIES OF PERUVIAN BIRDS. NO. 57

## THE GENERA *COLIBRI*, *ANTHRACOTHORAX*, *KLAIS*, *LOPHORNIS*, AND *CHLORESTES*

BY JOHN T. ZIMMER

In the following paper, names of colors are capitalized when direct comparison has been made with Ridgway's "Color standards and color nomenclature."

### *Colibri delphinae* (Lesson)

*Ornismya Delphinae* LESSON, 1839, Rev. Zool., vol. [2], p. 44—no locality; Santa Fé de Bogotá suggested, Berlepsch and Hartert, 1902.

Mouth of Río Curaray, 1 ♂; Huarandosa, 2 ♂, 3 ♀, 1 (?); San Ignacio, 2 ♀, 2 (? ♀); Río Seco, 5 ♂, 1 ♀.

A series of over 90 specimens from Guatemala, Costa Rica, Panamá, Colombia, Venezuela, Trinidad, British Guiana, Ecuador, and Perú, shows no differentiation other than that due to age or sex.

Peruvian records are from Rioja, Huambo, Nuevo Loreto, and Cosñipata. The absence of records from the central-eastern part of the country, between the last two localities mentioned, is surprising.

### *Colibri thalassinus crissalis* Todd

*Colibri cyanotus crissalis* TODD, 1942 (Dec. 31), Ann. Carnegie Mus., vol. 29, p. 292—Incachaca, Bolivia; ♂; Carnegie Mus.

This is an unsatisfactory form that has already been rejected by Bond and de Schauensee (1943, Proc. Acad. Nat. Sci. Philadelphia, vol. 95, pp. 204–205) who were unable to confirm its

described character of nearly uniform under tail-coverts on which the greenish centers of the feathers were reduced or wanting. This character is, it is true, quite variable and not always clear-cut, but in general I find that *C. t. cyanotus* from Venezuela has the area in question more pronouncedly marked with green and the margins of the feathers deeper buff, on average, than is the case with birds from Perú and Bolivia, which agree so well that they must in any case belong to the same form. Furthermore, the general color of the southern birds, especially on the under parts, is rather lighter green than that of the Venezuelan series, individuals of which often show a bluish tinge in a small area in the center of the breast, not well defined. When these two geographically extreme populations are compared, without regard to the intermediate Ecuadorian and Colombian birds, there is enough difference, as seen in series, to justify a distinction in name, although the separation is not pronounced or perfect.

The Colombian and Ecuadorian birds present a greater problem, but on the whole they show an average of greater resemblance to the Venezuelan form. Perhaps a larger series from Ecuador than I have available would show a greater approach to *crissalis*, especially in the southern part of the country, but, for the present, assignment to *cyanotus* is indicated.

Presumably all Peruvian records of *cyanotus* (or *cyanotis*) belong together and may be assigned to *crissalis*. These embrace records from Tambillo, Culumachay (Maraynioc), Idma, Huaisampillo, and "High Peru."

It may be remarked that Elliot's "*Petasophora rubrigularis*" (1878, Smithsonian Contrib. Knowledge, no. 317, p. 51, footnote) was based on an abnormal individual of the *thalassinus* group, not of *coruscans* under which it has been cited by various authors. The type is before me, a bird not fully adult, having the brilliant throat area limited to an elongate median patch, leaving the chin and sides of the throat bluish green. This bright patch, as was described, is pinkish instead of green. In addition, the tail is dull in general coloration though with the characteristic pattern of the species and furthermore with the basal half of the median feathers pale brownish. Proportions are those of *thalassinus*, and the bluish tone of the chin suggests assignment to *thalassinus thalassinus* and, although there is no locality on the label other than "New Grenada" (the bird came to Elliot in a large consignment of trade-skins that he thought might have been from

Bogotá, as indeed many of them probably were), the preparation is not that of a "Bogotá-skin" but is very like numerous examples of this and other species accredited to Guatemala. Everything being considered, I believe this type may well have been from that country.

# SPECIMENS EXAMINED

## *C. t. thalassinus*.—

### MÉXICO:

San Luis Potosí, Alvarez, 7 ♂;  
Jalapa, 1 ♂, 1 ♀;  
Oaxaca, 3 ♂;  
Jalisco (Sierra de Cayutlan and Mascota), 4 ♂;  
Guerrero, Chilpancingo 4 (?);  
"México," 1 ♂, 2 (?).

### GUATEMALA:

(Vera Paz, Momcastenango, Quetzaltenango, Finca Sepacuite, Chichicastenango, and Volcán de Fuego), 7 ♂, 4 ♀, 1 (?);  
? "New Grenada," 1 (?) (type of "*rubrigularis*").

## *C. t. minor*.—

### HONDURAS:

(Merendón, Montaña Vasquez, and Rancho Quemado [Tegucigalpa]), 15 ♂, 3 ♀.

## *C. t. cabanidis*.—

### COSTA RICA:

(Escazú, Irazú, Volcán Irazú, San Jeronimo, Aguas Calientes, La Carpintera, Volcán Turrialba, San José, Cartago, La Palma de San José, and Barba), 8 ♂, 2 [♂], 3 (?).

### PANAMÁ:

(Cerro Flores, Chitrá, Boquete, and Chiriquí), 8 ♂, 3 ♀.

## *C. t. cyanotus*.—

### VENEZUELA:

(Caracas, Colonia Tovar, Cumbre de Valencia, Santa Ana Valley, Galipán, Rincón San Antonio, Cumaná, páramo at head of Chichirivichi Valley, Carapas, Mérida, Culata, Conejos, Escorial, Nevados, and Montañas Sierra), 20 ♂, 5 ♀, 1 [♀], 13 (?).

### COLOMBIA:

(Río Toché, Santa Elena, El Eden, Antioquia, La Laguna, Cerro Munchique, "Bogotá," Valparaiso [Santa Marta], and El Líbano, 10 ♂, 5 [♂], 4 ♀, 12 (?).

### ECUADOR:

(Ibarra, Gualea, El Chiral, Río Oyacachi, below San José, "Napo," Baeza, Sabanilla, and "Ecuador,"), 3 ♂, 2 [♂], 3 ♀, 1 (?).

## *C. t. crissalis*.—

### PERÚ:

Chugur, 4 ♂;  
Seques, 4 ♀, 2 [♀];

La Lejia, 1 ♂;  
Utcuyacu, 1 ♂;  
Panao, 3 ♂<sup>1</sup>;  
Santo Domingo, 1 ♂, 1 ♀;  
Oconeque, 1 ?♀.

BOLIVIA:

Incachaca, 1 "♂";  
Ocara, 1 ♂.

**Colibri serrirostris** (Vieillot)

*Trochilus serrirostris* VIEILLOT, 1816, Analyse, p. 69—Brazil.

*Trochilus petasophorus* WIED, 1821, Reise nach Brasilien, vol. 2, p. 191—Bahia, border of Minas Gerais (cited in Beiträge zur Naturgeschichte von Brasilien, 1832, vol. 4, pt. 1, p. 78); cotypes in Amer. Mus. Nat. Hist.

*Colibri crispus* SPIX, 1824, Avium species novae . . . Brasiliam, vol. 1, p. 80, pl. 81, fig. 1—Rio de Janeiro; Munich Mus.

*Grypus vieilloti* STEPHENS in Shaw, 1826, General zoology, vol. 14, p. 256.

*Trochilus ianthinotus* "Natt." WIED, 1832, tom. cit., p. 76—cited in synonymy of *T. petasophorus*.

*Petasophora gouldi* BONAPARTE, 1850, Conspectus avium, vol. 1, p. 69—Bolivia.

The only basis for the consideration of this species as a Peruvian bird is the record by Tschudi (1844, Arch. Naturgesch., 10th year, vol. 1, p. 297, and 1845, Fauna Peruana, Aves, pp. 246, 250) from the "Waldregion" which presumably indicated the Chanchamayo-Junín territory. His description of the plumage is reasonably satisfactory, but the measurements are not. The total length is given as 8 inches, the tarsus 3 lines, and the proportion of tarsus to wing as 1:18 which supplies a wing length of some 4.5 inches, about that of *Pterophanes cyanopterus* but considerably larger than is found in any member of the present genus. Furthermore, *Colibri thalassinus crissalis*, as is noted on a previous page, occurs in the Chanchamayo region and may have fairly pale (but not pure white) under tail-coverts, but it was not found by Tschudi. Other collectors in the region have failed to find *serrirostris*. The nearest locality of record appears to be Sandillani, in the La Paz region of Bolivia, which is not too far from the Chanchamayo region of Perú to discredit the possibility of the bird's appearance in the latter area, but confirmation is much to be desired.

It may be well to call attention to the fact that specimens from Rio de Janeiro, São Paulo, Goiás, and Minas Gerais examined in

<sup>1</sup> Specimens in Chicago Natural History Museum.

the present connection have the "ear-tufts" on average bluer and less reddish than birds from Matto Grosso, Bahia, and Argentina. There are, however, too many intermediate examples to permit any taxonomic distinction, although the extremes are not matched in both series. Enough names are available in the synonymy to supply a subspecific term for whichever part of the population might be found in need of one, a point that would require determination of the exact application of some of the names (including *serrirostris*).

I believe the systematic position of *serrirostris* is adjacent to the *thalassinus* group, to which it shows greater affinity than to *coruscans*.

#### SPECIMENS EXAMINED

##### *C. serrirostris*.—

###### BRAZIL:

[Bahia], 2 ♂ (cotypes of *petasophorus*);

Morro de Chapéu, 2 ♂;

Goiaz, Fazenda Esperança 1 ♂, 2 ♀, 1 (?);

Minas Gerais (São Benedicto, Fazendinha, Santa da Pedra Menina, Rio Caparaó, As Macieras, west of Bôa Espera, and Varzea da Congonhas), 10 ♂, 1 ♀, 1 (?);

Rio de Janeiro, Alto Itatiaia, 1 ♂;

"Rio," 2 (?);

São Paulo (Piquete and Ypanema), 5 ♂, 1 (?);

Matto Grosso, Chapada, 8 ♂, 2 ?♂, 6 ♀, 2 ?♀, 4 (?);

"Brazil," 2 (?);

Mattodentro, 1 (?).

###### ARGENTINA:

Tucumán, 2 ♂;

Vipos, Tucumán, 1 ♂, 1 ♀.

#### *Colibri coruscans coruscans* (Gould)

*Ramphodon Anais* LESSON, 1833, (not *Ornismya Anais* Lesson, 1831 = *Colibri t. thalassinus*), Les trochilidéés, p. 146, pl. 55—"México."

*Trochilus (Petasophora) coruscans* GOULD, 1846, Proc. Zool. Soc. London, pt. 14, p. 44—South America; British Mus. (Aberration.)

*Petasophora iolota* GOULD, 1847, Proc. Zool. Soc. London, pt. 15, p. 9—Bolivia; British Mus.

*Pinarolaema buckleyi* GOULD, 1882, Ann. Mag. Nat. Hist., ser. 5, vol. 5, p. 489—Misque, Bolivia; British Mus. (Melanism.)

*Colibri iolatus brevipennis* CORY, 1918 (March), Field Mus. Nat. Hist., zool. ser., vol. 13 (pt. 2, no. 1), p. 221—Caracas, Venezuela; ♂; Chicago Nat. Hist. Mus.

Seques, 1 ♂; Chugur, 6 ♂; Huancabamba, 5 ♂, 1 ♀; Palambla, 6 ♂; Chachapoyas, 3 ♂; La Lejia, 1 ♂; Uchco, 1 ♂, 1 (?); San Pedro, 3 ♂, 2 ♀; Huarandosa, 3 ♂, 2 ♀; Huamachuco, 1 [♂]; Araqueda 1 [♂]; Cushi Libertad, 1 ♀; Oroya, 3 ♂; Chipa, 1 ♂; Utcuyacu, 3 ♂, 4 ♀; Acobamba, 1 ♂, 4 ♀; Ollantaytambo, 1 ♂, 2 ♀; Ttica-Ttica, 3 ♂, 2 ♀; Santo Domingo, 4 ♂; Puno, Lake Titicaca, 1 ♂; Arequipa, 1 ♂; Tinta, 1 ♂, 1 (?); Pisac, 2 ♂.

A long series of specimens from all parts of the range of this species shows no positive distinctions except in the case of the birds of the southern-Venezuelan highlands, *C. c. germanus*. Specimens examined are from northern Venezuela, Colombia, Ecuador, Bolivia, and northern Argentina, in addition to the Peruvian material listed above and 25 *germanus* from Mts. Roraima, Duida, and Auyan-tepui, Venezuela. Other Peruvian records are from Tambillo, Callacate, Chusgón, Cajabamba, Cajamarca, Macate, Hacienda Llagueda, Río Utcubamba, Choquisongo, Succha, Paucal, Achamal, Chirimoto, Nuevo Loreto, mountains near Huánuco, Panao, Vista Alegre, Chinchao, La Merced, La Garita, Tarma, Tapo, Hacienda Huarapa, Chospiyoc, Soriano, Acancocha, Algamarca, Maraynioc, Idma, Torontoy, Cuzco, San Miguel, Río Cadena, Cosñipata, Anco, Pausa, Huanta, Motil, Tulpo, and Matucana.

Four aberrations are at hand in the series of the typical subspecies. Two of these have the throat-patch largely purplish red as described for the type of *coruscans*. One of them, in fact, was compared by Elliot with the type. A third bird is melanistic, showing the pattern of the species obscurely except on the tail where it is a little more obvious. These three birds are all "Bogotá-skins." The fourth specimen is from Ttica-Ttica, Perú, and apparently was included by Chapman (1921, Bull. U. S. Natl. Mus., no. 117, p. 67) in "*iolata*" without comment. It is, however, an obvious hybrid and, although *coruscans* seems probable as part of the combination, the other part of the parentage I have not been able to determine satisfactorily.

The specimen is quite young, with soft plumage, with measurements matching those of adult *Colibri coruscans* (wing, 75 mm.; tail, 46; bill, 24.5). The general color is near Hair Brown, paler on the belly; all the dorsal feathers have narrow ochraceous tips which are stronger in the superciliary region and around the back of the head, forming a coronal border; there is a whitish spot be-

hind the upper posterior corner of the orbit; the belly feathers have whitish tips, and there is a somewhat elongate patch of white under the wing in the femoral tract; the throat shows a very faint gloss on the margins of the feathers which also have more dusky centers, suggesting the characteristic pattern of *coruscans*. The tail-feathers are narrower than in adult *coruscans* and show the subterminal dark band weakly in dorsal aspect, somewhat stronger in ventral aspect where the band is greenish; the basal area of the median rectrices is bluish gray and the same color appears progressively more restricted basad; beyond the dark band, the tips of the feathers are broadly grayish (near Mouse Gray) with a fine pale edge which on the outermost feathers is broader and continued well along the terminal third of the outer margin. The bill is quite noticeably arcuate—as much so as in *Campylopterus falcatus*, for example—and is black in color. Its present length, considering the immaturity of the plumage, is suggestive of much greater length when growth would have been completed, since the bills of very young hummingbirds are quite short compared with those of the adults. This is shown by some normal young *Colibri coruscans* now before me which do not resemble the Ttica-Ttica specimen in any of its peculiarities. For the present, therefore, I am unable to cite the specimen other than as *Colibri coruscans coruscans* ≥ ?. It is additional to the five birds from the same locality listed above.

### ***Anthracothonax nigricollis* (Vieillot)**

*Trochilus nigricollis* VIEILLOT, 1817, Nouveau dictionnaire, (nouv. éd.), vol. 7, p. 349—Brazil; I suggest Belem, Pará, as restricted type locality.

? *Lampornis nigricollis caeruleicauda* FLOERICKE, 1920, Mitteilung Vogelwelt, vol. 19, pp. 2, 3—? Colombia.

*Anthracothonax violaccicollis* CHAPMAN, 1928, Nat. Hist., vol. 28, no. 3, p. 284, 2 figs.—Barro Colorado, Canal Zone; a *lapsus calami*, not intended as new.

*Anthracothonax nigricollis miki* DUNAJEWSKI, 1938 (June 8), Acta Ornith. Mus. Zool. Polonici, vol. 2, no. 15, p. 324—Cumaria, Ucayali region, Perú; ♂; Warsaw Mus.

Puerto Indiana, 2 ♂; Apayacu, 3 ♂, 1 ♀; Santa Rosa, Ucayali, 4 ♂, 2 ♀; Pachisa, Río Huallaga, 1 ♂; Yarina Cocha, 1 (?); Nauta, 1 ♂.

These birds have been compared with a series of over 200 additional specimens from almost all parts of the known range of *nigricollis* (none are at hand from Tobago), without any basis

for the distinction of an east-Peruvian form having been discovered. In fact, I can find no distinctions of value in any part of the range and am not sure that the population of western Ecuador, *iridescent*, is clearly to be assigned to the same species, as will be discussed below.

The characters given for "*miki*" were said to consist of a decided blue border on each side of the median black stripe on the under parts, greener back than in Brazilian *nigricollis* (darker than in *iridescent*), blue instead of green median rectrices, and shorter bill. In all these respects Peruvian birds can be matched by many examples from other parts of the range, including Brazil.

It is curious that there appears to be no authentic record of *nigricollis* from eastern Ecuador. It occurs in southeastern Colombia (Morelia) and just north of the Amazon in Perú (Nauta, Puerto Indiana, and Apayacu), but the citation of Ecuador was based on an error. Ridgway (1911, Bull. U. S. Natl. Mus., vol. 50, pt. 5, p. 462) quoted the record of Sclater and Salvin (1866, Proc. Zool. Soc. London, p. 193) from Sarayacu, Perú, as "Sarayacu, e. Ecuadór," and later authors have continued the mistake. As far as I can learn, there is no other basis for Ecuadorian citation, although the occurrence of *nigricollis* in that country would not be surprising.

Peruvian records are from Yurimaguas, Jeberos, Pebas, Sarayacu, Chanchamayo, and La Merced.

I have cited only the synonyms that are reasonably certain to belong to *nigricollis*. There are eight other original descriptions of birds that have been assigned to this species with or without a query, five of which antedate *nigricollis* while the other three are of the same date. Since positive identification of these names appears out of the question with present information, I follow Simon in omitting reference to them.

Hellmayr (1929, Field Mus. Nat. Hist., zool. ser., vol. 12, no. 18, p. 388, footnote) remarks that *nigricollis* had not been found in French Guiana. In the material at hand are three "trade-skins" of characteristic "Cayenne-make" which suggest the possible occurrence of *nigricollis* in that country. A number of examples from Faro, Brazil, also suggest the possibility, since many birds show even subspecific identity in the populations of the two regions. Nevertheless, there appear to be no Cayenne specimens on record with accurate data.



### ***Anthracothorax prevostii iridescens* (Gould)**

*Lampornis iridescens* GOULD, 1861, Introduction to the Trochilidae, p. 65—Guayaquil, Ecuador; cotypes in British Mus.

I am not satisfied with the placement of *iridescens* as a conspecies of *nigricollis*. It is true that they have considerable similarity, but there are certain differences in which *iridescens* shows more resemblance to the *prevostii* group. The bill is both longer and heavier than in average *nigricollis*; the malar region of the adult males has a different luster and color, including the lores in some instances; the black ventral median stripe of the young males has, in most cases, prominent green tips, and the white lateral stripes are often strongly rufescent brown; the white of the cheeks in the females is broader, approaching the orbit more closely. In all these respects there is close approximation to some members of the *prevostii* group, but not to *nigricollis*.

There is, furthermore, some possibility of conflict in range with *nigricollis*. Todd (1942, Ann. Carnegie Mus., vol. 29, p. 294) recorded two examples of *iridescens* from Yumbo, north of Cali, Colombia. Three examples now before me from Cali are, on the other hand, unquestionable *nigricollis*. The two localities are less than 10 miles apart on the same side of the same cordillera, and unless there has been an error in labeling or identification, it must be assumed that the two forms occur virtually together. Yumbo would be an unusual locality for *iridescens* which otherwise is known to occur only at very low elevations in the arid coastal portion of western Ecuador and extreme northwestern Perú, and the record should be confirmed by other material from the Cauca Valley. It has been questioned by de Schauensee (1949, Caldasia, vol. 5, no. 23, p. 545).

I have no Peruvian specimens of *iridescens*, although a male from Santa Rosa, Ecuador, was taken not far from the border. Taczanowski, however (1877, Proc. Zool. Soc. London, p. 745), recorded two examples from Lechugal, which is on the Peruvian side of the Río Zurumilla, establishing the occurrence of the bird in Perú. Later (1884, Ornithologie du Pérou, vol. 1, p. 281) he synonymized *iridescens* with "*violicauda*" under which he placed the Lechugal birds, the only Peruvian specimens he had examined. Parts of his description of the different plumages rather certainly indicate *iridescens* but may have been taken from west-Ecuadorian birds which he had undoubtedly seen, having recorded Guayaquil

specimens in the previous year in a joint paper with Berlepsch (1883, Proc. Zool. Soc. London, p. 566). Nevertheless the Lechugal population is certain to be the same as that of Santa Rosa in the present instance.

It may seem that the range of *iridescens* is too far removed from that of other members of the *prevostii* group to favor consideration of conspecific relationship, but *A. p. viridicordatus* is equally distant from its nearest conspecies as far as present records indicate.

It is not impossible that *prevostii* and *nigricollis* ought to be considered as a single specific unit. The suggestion has been made by van Rossem (1938, Field Mus. Nat. Hist., zool. ser., vol. 23, p. 260) who claimed to have intergrading examples but was deterred from formal consolidation by a statement from Hellmayr (unpublished) that *nigricollis* and *viridicordatus* occurred together in parts of Caribbean Venezuela. I am not sure that they actually occur together. I have before me a series of eight examples that are certainly of the *prevostii* group and apparently referable to *viridicordatus*, although the locality, San Félix, Cumaná, Venezuela, is far from El Panorama, Río Auraré, the type locality. I also have four specimens of *nigricollis* from Cumanacoa, which San Félix closely approximates. I suspect, however, that *viridicordatus* may inhabit more open country and *nigricollis* the more wooded places, both of which I understand exist in that area. This possibility should be explored. It would help to explain the segregation of *iridescens* on the west coast of Ecuador without connection across the exceedingly humid west-Colombian terrain and eastern Panamá to join with *prevostii gracilirostris* in Costa Rica which is said to frequent more open places such as gardens and roadsides and not to enter the forest. A logical connectant a little closer to South America is the form *veraguensis* of the less humid Pacific section of western Panamá which has usually been considered as a distinct species but which differs from the *prevostii* group only by having the throat of the adult males entirely green instead of with a black median stripe. In other respects it resembles *prevostii*, and I suggest that it be placed with it as a well-defined but conspecific form. Until more is learned of the ecological restrictions of *nigricollis* and the *prevostii* group, however, I prefer not to propose their specific union.

In discussing the features of adult males, young males, and adult females in the preceding account, I have used the commonly accepted concept of those plumages. Van Rossem (*loc. cit.*)

suggested the possibility that fully adult females might resemble the adult males, having progressed from a plumage like that of young males, over a period of several years. Such a situation may indeed exist, as I found to be the case in some individuals of *Florisuga mellivora*, discussed in an earlier number of these Studies, but I have been unable to detect the same condition in the present species and am unable to discuss it formally.

### **Klais guimeti pallidiventris Sztolcman**

*Klais guimeti pallidiventris* SZTOLCMAN, 1926 (Dec. 31), Ann. Zool. Mus. Polonici Hist. Nat., vol. 5, no. 4, p. 213—Huambo, Perú; ♂; Warsaw Mus.

Peruvian birds are distinguishable from those of Colombia, Venezuela, and Central America by their paler under parts, justifying the recognition of *pallidiventris*. Ecuadorian examples are intermediate. Some of the latter, especially those from the southern part of the country (Zamora and Sabanilla), approach the Peruvian population to a noticeable degree, but not all examples at hand are equally marked and some are indistinguishable from the darker *g. guimeti*. A single specimen, labeled "Napo," is likewise of possible assignment to *pallidiventris*, but may represent the extreme of individual variation in the nominate form. Without material from definite localities on the lower Napo, the possible occurrence of the Peruvian subspecies in that area is left in doubt. Birds from the region of the upper Napo average closer to *guimeti*.

I am inclined to resurrect *Mellisuga Merrittii* Lawrence (1860, Ann. Lyc. Nat. Hist., New York, vol. 7, p. 110—Veraguas, "New Grenada" [= Panamá], for the Central American population. Adult males from this region show the glittering cap, at least posteriorly, more bluish than do any of the South American examples, which have the crown violaceous or purplish. There are very few examples that are not assignable by this character, and the extremes of the two series are well apart. Only two adult males from Central America lack any decided bluish tinge on the head, and none of the South American birds has any pronounced blue except one or two molting specimens where the full color may not have been reached. Females appear to show no definite difference. On the basis of the adult males as shown by the present series, *merrittii* appears to deserve recognition and is separately listed in the material examined.

Peruvian records of *pallidiventris* are from Chayavitas, Huambo, Nuevo Loreto, Chanchamayo, Borgoña, Huaynapata, and possibly "Upper Amazons."

#### SPECIMENS EXAMINED

##### *K. g. merrittii*.—

###### NICARAGUA:

(Vizagua, San Juan Talpaneca, and Quilali), 2 ♂, 1 ♀.

###### COSTA RICA:

(Guayabo, Carrillo, Boruca, Escazú, Vera Blanca, and San Pedro), 9 ♂, 5 ♀, 2 "♀" [? = ♂], 1 (?).

###### PANAMÁ:

Veraguas, 1 (?) [? = ♂ imm.] (type), 4 ♂;

(Chiriquí, Tacarcuna, Ventorillo, and Gobernador Is.), 3 ♂, 2 [♂], 1 [♀].

##### *K. g. guimeti*.—

###### VENEZUELA:

(Cumbre de Valencia, Las Quiguas, San Esteban, El Limón, and Ejido), 5 ♂, 1 ♀, 1 [♀].

###### COLOMBIA:

(Andalucía, near Honda, Buena Vista, Bogotá, and "Colombia"), 4 ♂, 15 [♂], 1 ♀, 4 [? ♀].

###### ECUADOR:

Below San José, 7 ♂, 4 ♀;

Sabanilla, 1 ♂;

Zamora, 2 ♂, 3 [♂], 3 ♀;

"Napo," 1 ♂.

##### *K. g. pallidiventris*.—

###### PERÚ:

Santa Rosa, Río Marañón, 2 ♂, 2 ♀, 1 ? ♀;

Santa Rosa, upper Ucayali, 1 ♂;

Río Huacamayo, 1 ♂, 1 [♂], 1 ♀;

Candamo, 2 ♂.

#### *Lophornis delattrei delattrei* (Lesson)

(*O[rnysmia]* *Lophorinus*) *De Lattrei* LESSON, 1839, Rev. Zool., vol. 2, p. 19—no locality; "la Colombie" suggested by Lesson, 1843; Perú suggested by Simon, 1921, and Laubmann, 1930; I propose Moyobamba, Perú, as restricted type locality; [♂]; ? type lost.

*Trochilus (Lophornis) regulus* GOULD, 1846, Proc. Zool. Soc. London, pt. 14, p. 89—"Interior of Brazil"; ♂♂, ♀ cotypes in British Museum accredited to "[Bolivia]."

*Lophornis lophotes* GOULD, 1861, Introduction to the Trochilidae, p. 83—Perú; ♂; British Mus.

There is a slight possibility that Bolivian birds may prove to be separable from north-Peruvian ones. With the limited

amount of Peruvian material available I am unable to determine the point. A single adult north-Peruvian male is not distinguishable from Bolivian specimens, but three Peruvian birds sexed as females differ from the Bolivian females I have for comparison. Unfortunately, there is considerable variation in the females and young males throughout the genus *Lophornis*, and I have not been able to determine with accuracy the differences that may be due to age and sex.

Six females from Bolivia have the throat predominantly ochraceous-tawny or at least with distinct terminal spots of that color on the upper part, becoming sooty on the lower throat in three of the specimens, and developing a bronzy patch on the lowermost part of the throat in all but one of them, variable in size. The lower under parts also are strongly light cinnamomeous with little suggestion of green. One other example, sexed as a female, is somewhat more heavily speckled on the throat and has the breast distinctly greenish. An eighth Bolivian bird, marked as a female, is immature and has the whole lower part of the throat dusky, the upper part dull buffy whitish; the breast is distinctly greenish as in the last-named example, the occiput is dull brownish, and the back is slightly darker green than in the other Bolivian "females."

The three north-Peruvian "females" have the back darker green than the Bolivian specimens, and the lower rump and upper tail-coverts less coppery. The throat is whitish, with only a trace of cinnamomeous tinge, and strongly speckled with dusky. One of the three, an immature individual judging by the dark maxilla, has the spots on the lower throat shining green, suggesting that it is a young male. The breast also is greenish in the three examples.

A quite young "female" from the upper Ucayali (Santa Rosa) has most of the throat blackish, with some cinnamomeous brown feathers on the lower part and the center of the breast also cinnamomeous. The occiput is dusky and the back is not so dark green as in the north-Peruvian specimens, approaching the color of the Bolivian females.

The principal distinctions between the Peruvian and Bolivian specimens, therefore, are the darker back and more whitish and more heavily spotted throats of the former. The dorsal difference may be due to the fact that the Peruvian birds are of considerably more recent collection, or it may be that the Peruvian

examples are wrongly sexed young males. The latter is more likely since the males from the two regions are alike in this respect, and the north-Peruvian "females" match their dorsal color, with further close approximation in the young Bolivian "female" that has the very dark throat. It, too, probably is a male.

Should further collections in Perú and Bolivia authenticate a difference in the populations of the two regions, Gould's name *regulus* should be available for the Bolivian form. An examination of the cotypes of *regulus* should then be made, although I am unable to suggest any distinction likely to be found in the adult males since none is apparent in the specimens before me. Since one of the cotypes is said to be a female, its characters should prove of value.

In spite of Lesson's secondary suggestion of Colombia as the habitat of *delattrei* (1843, *Echo du Monde Savant*, 10th year, 2<sup>e</sup> semestre, p. 758), his original description is of the present form, not of the Colombian subspecies later named *lessoni*. Simon (1921, *Histoire naturelle des Trochilidae*, p. 285, footnote) suggested the Peruvian origin of the type, since various other species described in the same paper came from Perú. On the same basis I have suggested a further restriction to Moyobamba which is specifically mentioned in connection with some of these other birds, and the material at hand verifies the occurrence of *delattrei* in the Moyobamba area.

Other Peruvian records are from Rioja and Borgoña.

#### SPECIMENS EXAMINED

##### *L. d. lessoni*.—

###### COSTA RICA:

Mojón, 1 ♂.

###### PANAMÁ:

(Chiriquí, Bogava, La Marea, Cocoplum, [Lion Hill], and "Panamá"), 8 ♂, 2 ♀.

###### COLOMBIA:

"Bogotá" and "New Grenada," 8 ♂, 10 (?);  
within 20 miles of Honda, 1 [♂].

##### *L. d. delattrei*.—

###### PERÚ:

Río Negro, west of Moyobamba, 1 ♂, 3 "♀";  
Santa Rosa, Río Ucayali, 1 ♀.

###### BOLIVIA:

Mapiri, 1 [♂], 1 ♀;

Yungas, 1 ♂;  
Province of Sara, 2 ♂, 5 ♀;  
"Bolivia," 2 ♂, 1 "♀";  
"San Augustin, E. Bolivia," 1 (?).

### **Lophornis stictolopha** Salvin and Elliot

*Lophornis Reginae* GOULD (nec Schreibers, 1833), 1847, Proc. Zool. London, pt. 15, p. 95—no locality; type or types from Antioquia, Colombia—Gould, 1855; [♂].

*Lophornis stictolophus* SALVIN AND ELLIOT, 1873 (April), Ibis, ser. 3, vol. 3, p. 280—new name for *Lophornis reginae* Gould.

Mouth of Río Santiago, 1 ♂; Pomará, 2 ♂, 3 ♀.

This species has not been recorded heretofore from Perú, although its occurrence at Zamora, Ecuador, indicated the probability that it reached the north bank of the Marañón where the present material was obtained.

A series of specimens from Colombia (Bogotá-skins), seven from Venezuela, and nine from Ecuador, with the Peruvian birds listed above, show no evident division of *stictolopha* into subspecies. The identification of females and young males is open to discussion. Simon (1921, Histoire naturelle des Trochilidae, p. 52, footnote) remarked that he knew of no character by which to identify with certainty the females of any of the species he placed in the genus *Lophornis*, and it is remarkable the similarity they show among themselves. Hartert (1900, Das Tierreich, no. 9, p. 219) stated that the bill of female "*reginae*" is 1 mm. shorter than that of female "*regulus*" [= *delattrei lessoni*], but in this I am sure he was mistaken. The reverse is true in the case of the males, at least on average, and females and young males from localities where *lessoni* has never been found show the same condition in comparison with birds from localities where *stictolopha* does not occur. In series of "Bogotá-skins" both forms occur and where the bill is apparently fully developed, with bicolored pattern, it is possible to arrange the specimens in two fairly well-distinguished series on this basis; young examples with wholly dark bill are more problematical unless the bill has already reached a length sufficient to indicate *stictolopha*.

Unfortunately, specimens of *lessoni* from Panamá and Costa Rica appear to have the bill longer, on average, than Colombian examples and equaling most *stictolopha* though not the extremes of that species. In addition, the southern subspecies of *delattrei*,

the nominate form, has the bill always of the larger size, and hence, if this form and *stictolopha* should at some future time be found to occur together, identification of the females and young males would here become a problem also. In this connection, a female labeled "Headwaters of Marañón, E. Ecuador," presumably from northern Perú, is indeterminate, since there is no indication as to the side of the Marañón from which it came, and the river appears to be the boundary between the two populations.

The separation of the females and young males in the material examined is, therefore, somewhat arbitrary; that of the adult males, of course, is based on plumage which is quite distinctive. There is an overlap in the length of bill in the males even in Colombia; two Colombian males of *stictolopha* have the bill only 8.5 mm. in length, and one Colombian and most of the Central American males of *lessoni* have it 9 mm. (the preponderating figure in *stictolopha*), while four of the Panamá birds reach 9.5. Accordingly, I have placed an arbitrary line of demarcation between 8.5 and 9 mm. for the tentative separation of the females and young with fully developed bills of the two forms in Colombia. Admittedly, some of the birds thus arranged will be wrongly identified, but on no other line of separation will the proportion of specimens of this sort in the two forms so nearly approach that of the adult males in the material at hand—a factor of possible significance.

In *stictolopha*, as in *delattrei*, I am unable to get a clear concept of the distinction of plumage in females and young males. Much of the material has no indicated sex on the labels, and the remainder is not clearly defined. Certain specimens of rather definite immaturity (with wholly dark bills) have almost the whole throat blackish, but some of these show the acquisition of a few bright green feathers that indicate they are young males. Other birds with bicolored bills have the throat nearly wholly rufescent or at least with a rufescent tinge, and a dark (blackish or dull greenish) pectoral band of varying width, and these I believe are fully adult females; several sexed examples agree with this conclusion. In an intermediate position are numerous individuals that have the pectoral band moderately broad and the throat relatively whitish, strongly speckled with blackish. Most of the birds in this condition have immature bills, but some of them do not, and if they are adults, they must be females; indeed, several are so sexed. A careful study of ample



material, accurately sexed, would be of considerable value.

It may be noted that Elliot marked two specimens in his collection as types of *stictolopha*, both of which are now before me. Since he and Salvin proposed the name as a replacement for Gould's preoccupied "*Reginae*," as they state in their introductory remarks, the type of *stictolopha* actually is the bird from which Gould drew up his description—a specimen submitted to him by a Mr. Linden whose brother was traveling in the Antioquia region of Colombia and had obtained the specimen. The present repository is unknown.

Of the two birds mistakenly labeled as types by Elliot, the male is an undoubted *stictolopha*, but the "female" has the bi-colored bill but 8 mm. in length and presumably belongs to *delattrei lessoni*.

Although *stictolopha* and *lessoni* are found in "Bogotá" collections, there appear to be no specimens with accurate data that indicate their occurrence at the same localities. The absence of *lessoni* or *delattrei* from eastern Ecuador and Perú north of the Marañón and the appearance of *delattrei* south of that barrier suggest geographical replacement with *stictolopha* completely interrupting any continuity between *delattrei* and *lessoni*, in spite of the fact that these last two are so similar that their specific affinity can hardly be doubted. There is comparable replacement of *ornata*, *gouldii*, *magnifica*, *delattrei*, and *stictolopha* throughout the combined ranges, and considerable similarity in many particulars which makes a fairly compact group. In the other direction, except in the case of *d. delattrei* and *d. lessoni* (I have not seen the Mexican *d. brachylopha*), the differences are sufficient to justify retention of each of them as a separate species.

### ***Lophornis chalybea verreauxii* J. and E. Verreaux**

*Lophornis Verreauxii* J. AND E. VERREAUX, 1853, Rev. et Mag. Zool., ser. 2, vol. 5, p. 193, pl. 6—Perú; Moyobamba accepted by Berlepsch and Hartert, 1902.

*Lophornis Hauxwelli* BOUCARD, 1892, Genera of humming birds, p. 37—Nauta, Perú; ♂, ♀ cotypes (? Paris Mus.).

Nauta, 1 ♂, 2 ♀; Pebas, 1 ♀; Iquitos, 2 ♂; Río Mazán, 1 ♂; Puerto Indiana, 1 ♂, 5 ♀; Santa Rosa, Río Ucayali, 3 ♂, 2 ♀; "Perú," 2 ♂.

The authority for the name for this form has been given variously

by different authors. The paper comprising the original description was undoubtedly written by Jules and Edouard Verreaux, although they cite Bourcier as authority for the name, probably from the label of the type. They appear as authors of the paper also in the list of contents at the end of the number of the *Revue* in which it appeared, but in the index to the entire volume Bourcier is given as author of the paper and the name. In Mulsant and Verreaux's "*Histoire naturelle des oiseaux-mouches*" (vol. 3, p. 221) Bourcier is cited as authority for the name, but on page 229, in a bibliography of papers by J. and E. Verreaux, the title of the original article again appears. Although there is no doubt that Bourcier planned to honor Edouard Verreaux by naming this bird for him, I see no way he can be credited even as part author since he had no connection with the original publication.

The spelling, date, and authorship of the specific name are also questionable. *T[rochilus] chalybeus* was published some time in 1822 by Vieillot (*Tableau encyclopédique et méthodique, Ornithologie*, pt. 2, livr. 91, p. 574—"le Brésil"), while *Trochilus chalybeus* Temminck appears in the text to plate 66 of the "*Nouveau recueil de planches coloriées*," issued in April, 1822. In this latter work, also, in the section entitled "*Tableau Méthodique*," issued in livraison 102 in January, 1839, the specific name is spelled *chalybaeus*. This "*Tableau*" was offered to supplant one issued in livraison 87, in January, 1831, where the spelling used is not ascertainable at the moment. The point of these later references is that the altered spelling may have been used on the cover of livraison 11 in which plate 66 appeared, dated June, 1821. It is known that, while the plates themselves carried no Latin names, and no text was issued until April, 1822, the covers of some, and probably all, of the early parts bore the scientific names of the species included in them. As far as I know, no cover of livraison 11 has come to light, and it is therefore impossible to say what name Temminck may have applied to his plate 66, figure 2, published in June, 1821, before the text to that plate appeared and before Vieillot's name was published. At the moment, therefore, we are obliged to accept *chalybeus*, 1822, as the name and date, and since Sherborn (*Index animalium*) has given priority to Vieillot in this instance, Vieillot may be considered as author in spite of the fact that Temminck rather certainly antedated him in the reference now lost.

Although there are numerous specimens and records of *ver-*

*reauxii* from northern Perú, it appears to be rather uncommon elsewhere. A single Bolivian record has been published; there is one bird from Ecuador recorded as in the British Museum, and in the collection at hand there is a single male from the Río Napo which may be Ecuadorian or Peruvian; in Colombia, almost all known specimens are "Bogotá skins," although there is a record from Medina and one (based on feathers in an Indian headdress) from the Putumayo.

Peruvian records, other than those from localities listed above, are from Yurimaguas, Chayavitas, and Jeberos.

I am adopting the generic name *Lophornis* (instead of *Polemistria*) for the present species and some others, and including *Paphosia*, *Popelairia*, and *Discosura*; presumably *Lithiophanes* belongs here also, if it is not a hybrid as has been intimated by its describer. Simon recognized 10 genera for the assemblage. As remarked by Hartert (1900, *Das Tierreich*, no. 9, p. 216), the genus *Lophornis* is notable for the variety of ornamental plumes developed by the males while the females remain very similar, and consequently the group has been broken into a number of [supposed] genera. He himself recognized "*Popelairia*," and *Discosura*, but not *Paphosia* and *Polemistria*, although his remarks are equally applicable to them.

All the forms embraced in these commonly accepted genera have a variety of features in common. The shape of the bill, slender and sharp, with a slight reflexion toward the tip of the mandible, is the same in all. The white or whitish band across the rump, followed by a more or less coppery area on the upper tail-coverts; the development of a strong malar tuft in the adult males of most of the species and the presence of a broad whitish malar stripe in young males and females; the usual presence of a strong whitish or pale-colored patch in the center of the breast in nearly all of the species in adult male plumage and all of the females and young—these characters give a decidedly homogeneous aspect to the various members of this assemblage in which the only striking differences are those of the ornamental plumes of the adult males, including the variously shaped tails, crests, and gorgets.

Furthermore, in each of the commonly recognized genera (*Lophornis*, *Polemistria*, *Paphosia*, *Popelairia*, and *Discosura*) the various forms, whether species or subspecies, appear to be strictly geographical replacements of one another; there is no more than

one form of each in any locality. Although the distinctions in each group are sufficient to warrant the recognition of various species, as I have discussed under *Lophornis stictolopha*, the members of each so-called genus, with the possible exception of *chalybea* and *pavonina*, offer but a single "superspecies" in each case, making the "genera" in a sense monotypic. With all these factors considered, I think a single genus for all the forms gives the best expression of their relationship.

### *Lophornis popelairii* (Du Bus)

*Trochilus Popelairii* DU BUS, 1846, Esquisses ornithologiques, livr. 2, pl. 6 and text—Perú; I suggest Chachapoyas; ♂; Brussels Mus.

*Popelairia tricholopha* REICHENBACH, 1854 (March), Jour. f. Ornith., vol. 1, Beilage zu Extraheft, p. 12—"Columbia."

Uchco, 1 ♂; Andoas, 1 ♂, 1 ♀; headwaters of Marañón, "E. Ecuador," 2 [♂], 2 [♀].

I can find no distinctions between Peruvian and Colombian birds. Reichenbach's new nomenclature was not an attempt to separate a new form from *popelairii* but merely to alter the name, and his citation of "*Tr. Popelairii* Du Bus 1846" in the synonymy of his *tricholopha* is the only detail that serves to lift his proposal from the category of *nomina nuda*. The reference to his "*Trochilinarum enumeratio*," 1855, page 9, sometimes quoted for "*tricholopha*," is unidentifiable except by the repetition of name used in the previous year's paper. There is no bibliographic reference and no plate number since the plate on which the species is figured had not yet been published.

The type of *popelairii* was procured by Baron Popelaire de Terloo, but I have no information as to the locality in Perú from which it actually came. Since the specimen at hand from Uchco, a few miles from Chachapoyas, indicates the occurrence of the species in that vicinity, I have suggested Chachapoyas as type locality. Other records are from Huambo and Río Cadena, Marcapata District. The latter locality is surprising, being in extreme southeastern Perú, far removed from the northern part of the country where the other records originated. Berlepsch and Stolzmann (1906, Ornith., vol. 13, p. 121) note the Río Cadena bird as slightly different from north-Peruvian and Colombian specimens, being a little more bluish on forehead, throat, and belly, and lighter rufous brown on the tibiae. They rightly observe that a series from southern Perú is needed to determine the constancy of these characters.

I have included the specimens from the "headwaters of Marañón" in the Peruvian series, since the Marañón itself does not touch Ecuadorian terrain.

### ***Lophornis langsdorffi melanosternon* (Gould)**

*Gouldia melanosternon* GOULD, 1868, Ann. Mag. Nat. Hist., ser. 4, vol. 1, p. 323—Perú (Napo and Pebas mentioned and Ucayali queried); ♂, ♀ in British Museum claimed as "types" [= cotypes].

? *Colibri hirundinaceus* SPIX, 1824, Avium species novae...Brasiliam, vol. 1, p. 80, pl. 81, fig. 2—no locality.

The correct nomenclature of this western form is open to question. All authors I have consulted agree in accepting *melanosternon* (or its emendation, *melanosternum*) for this bird and placing Spix's *hirundinaceus* as a synonym of Temminck's *langsdorffi*. Spix (*loc. cit.*) described his *hirundinaceus* as differing from Temminck's bird ("Temminck [sic.], pl. 66, fig. 1") by lacking the purple band across the breast, which is the exact character of "*melanosternon*." Unfortunately, Spix's plate shows a definite purplish area on the side of the breast behind the gorget, giving more resemblance to *langsdorffi* than to the western form. How much reliance to place on the plate is doubtful, since different copies are said to show considerable variation in coloration (Hellmayr, 1905, Abhandl. K. Bayerischen Akad. Wiss., 2 Kl., vol. 22, pt. 3, p. 565). The type was lost long ago, and Spix gives no locality where it was collected, and since he traveled as far up the Amazon as Tabatinga, as well as through the range of *langsdorffi*, it is impossible to say where he secured his specimen. Some poorly prepared skins of *langsdorffi* show only traces of the post-gular band, and Spix's example may have been in poor condition. At any rate, in spite of some possibility that *hirundinaceus* belongs here, there is enough uncertainty to make me unwilling to upset the existing nomenclature by the adoption of Spix's name instead of Gould's.

Pelzel (1868, Zur Ornithologie Brasiliens, p. 32) recorded two specimens of "*Langsdorffi*" from Ribeirão, Rio Madeira, a record which Hellmayr (1910, Novitates Zool., vol. 17, p. 377) tentatively assigned to *melanosternon*. There are no other records of the species from south of the Amazon until the Río Huallaga is passed to the westward. The Ribeirão specimen is lost and there is, therefore, no assurance that it belonged to the western form.

*Melanosternon* occurs, however, well beyond its originally assigned Peruvian range, extending northeastward to the upper Rio Negro in Brazil and the Casiquiare in southern Venezuela. Although most of the material I have from this unexpected area consists of females and immature males, there are two adult males and one nearly adult example that enable comparison with the Peruvian specimens. I can find no distinctions in the combined series other than those of age and sex. The band across the breast of the adult males is the same in all, slightly more yellowish green than the rest of the gorget when examined in certain directions of the light, but easily overlooked.

The series of sexed specimens has given an opportunity to clarify the differences between females and young males which resemble each other in so many respects that they have sometimes been confused. In relatively early stages, both sexes have the throat and lower breast sooty black, extending down the middle of the belly, with a broad whitish patch on either side of the lower abdomen; the sides of the breast are somewhat greenish, tending to cross the breast; and there is a broad white patch in the malar region on each side of the throat. The tail is different in the two sexes. In the female the tail is relatively short, about 20 mm. in length; the rectrices are rounded at the tip, with a white terminal spot on each of them, broadest on the outermost pair; the median rectrices are about three-fifths the length of the tail, and the third pair (from outside) are nearly as long as the subexternal pair. In the young males, the tail is longer, from 24 to 29 mm.; the rectrices are more slender, with broad white tips only on outermost pair though sometimes with fine pale dots on others; terminal outline of three middle pairs usually acute; median pair less than half the length of the tail and third pair noticeably shorter than the subexternal ones.

The adult females appear to retain a considerable part of the white malar stripe and to acquire a definite glittering green area on the lower throat and breast, sometimes with a trace of green on the sooty upper throat; the flank patches remain white. The young males lose the white malar patches and the whole throat and breast become glittering green; the flank patches become smoky gray; and at the last the tail develops the long filiform plumes, beginning with the outermost rectrices.

Gould, in listing his material for the original description, stated that he had numerous specimens, including three males, one of

which was from the Napo, one from Pebas, and one possibly from the Ucayali. The Ucayali record needs confirmation, but the other two are authentic. In addition, there are records from Yurimaguas, Jeberos, and Chayavitas, from which last locality I have a single specimen. The Pebas skins listed below were collected by Hauxwell who obtained Gould's cotypes. They are possibly paratypes although this is impossible to ascertain.

#### SPECIMENS EXAMINED

*L. l. langsdorffi*.—

BRAZIL:

"Rio de Janeiro" trade-skins, 12 ♂, 1 ♀.

*L. l. melanosternon*.—

PERÚ:

Pebas, 1 ♂, 1 ♀;

mouth of Curaray, 2 ♂, 1 ♀;

Apayacu, 1 ♂;

Chayavitas, 1 ♂.

BRAZIL:

Rio Negro, Cucuhy, 1 ♂, 1 [♀];

Tatú, 3 ♀;

Rio Uaupés, Tahuapunto, 1 ♂.

COLOMBIA:

Río Huaynia, junction with Casiquiare, 6 ♂, 4 ♀.

VENEZUELA:

Terrain between junction of Huaynia and Casiquiare, 1 ♀.

#### ***Chlorestes notatus puruensis* (Riley)**

*Chlorostilbon puruensis* RILEY, 1913 (Mar. 22), Proc. Biol. Soc. Washington, vol. 26, p. 63—"Hyutanihan" [=Hyutanahan], Rio Purús, Brazil; ♂; U. S. Natl. Mus.

The distinction of subspecies in this species is complicated by the fact that the various characters on which separation can be based are not perfectly stable but are variously combined in birds from different parts of the range, including some 240 males, from which certain conclusions may be drawn.

In the Guianas, Venezuela, Colombia, and Trinidad, the adult males almost always have a well-defined violaceous blue patch on the chin, retaining some blue color in all positions of the specimen in which reflection can be observed. The same is true for birds from the Pará region of Brazil southeastward to Bahia. Along the south bank of the Amazon, from the Tocantins westward to the upper Ucayali in Perú, and at Faro and Obidos, north of the lower Amazon, the chin spot is weaker, less extensive and less

well defined, and may lose the blue color in certain positions. On the lower Ucayali and across the Marañón near the mouth of the Río Napo, there is little or no blue observable on the chin in any position. This is the most stable character of any noted.

Average differences are evident in the length of the bill in different regions, but there is too much overlap to utilize the character to any serviceable degree. The birds with the smallest bills are from Bahia; specimens from Pará to Pernambuco average a little longer billed; and Cayenne and Surinam examples are still greater. British Guianan and Orinocan specimens show the largest extremes and the largest averages, but at the minimum are no larger than Cayenne specimens. Lower Amazonian birds average larger than the Cayenne-Bahian series and on the Tocantins and Xingú have a minimum equal to that of the Pará-Pernambuco measurement but a maximum higher than in that series. Westward up the Amazon there is a slight increase in average bill-length without reaching the Orinocan figure. There is no sharp definition anywhere in the entire species.

The general ventral coloration is difficult to appraise owing to the change of color in different positions of the specimen, and an interesting reversal of supposed distinction may occur when the relative positions of two samples are changed. Thus, in a certain position with reference to the light, if a few specimens from one region are placed alongside an equal number from another area, those toward the right end may appear bluer than those to the left, but if the two series are reversed in relative position, the "greener" birds become bluer and vice versa. It is only when the relative greenness and blueness persist, though to a different degree, that one can be sure of the actuality of the distinction.

To recapitulate, with this test applied to the material at hand, the Cayenne and Surinam males appear as relatively greenish on the breast; the Pará to Pernambuco and Bahian birds are more variable and occasionally quite bluish, especially in the unusual and presumably aberrant type of Lawrence's "*subcaerulea*." The series from Trinidad, Venezuela, eastern Colombia, and British Guiana is somewhat more bluish than the Cayenne and Surinam assemblage and shows the bill longer on average though sometimes equally short. All these examples show the well-marked chin-spot mentioned above.

The lower Amazonian series shows somewhat more blue on the breast than the Trinidad-Venezuelan-Colombian-British Guianan



assemblage but has the chin-spot less distinct, and this combination of characters persists as far westward as the upper Ucayali in eastern Perú, although on the lower Rio Madeira and at Teffé there is a tendency toward more greenish ventral coloration. This trend is intensified on the lower Ucayali and north of the Marañón in Perú, where it is pronounced enough to warrant the recognition of a new form described hereunder, but the upper Ucayali birds retain the characters of the lower Amazonian population undiminished.

There is some variation also in the amount of golden reflections on the upper parts, and the few birds at hand from the Bahia region show the maximum amount of this variation. Cayenne and Surinam birds approach them more closely than the average sample from other regions, except perhaps the population at the mouth of the Napo in northeastern Perú. Individual specimens from other regions show the color in varying degree, sometimes fully equal to that of the Bahia birds. The significance therefore is not established.

I am unable to find any good criteria for distinction of females from different regions, except correlation with the lengths of bill exhibited by the males in which there is too much overlap for it to be decisive.

The arrangement that shows the best correlation with geographical distribution and permits the best discrimination of subspecies allows the recognition of typical *notatus* from the Guianas, Venezuela, eastern Colombia, and Trinidad, north of the Amazon, and eastern Brazil from Pará to Bahia; *puruensis* from Faro, Obidos, and the mouth of the Negro, north of the Amazon, and the region south of that stream from the Tocantins west to the upper Ucayali; and a third form, named below, from the lower Ucayali and the mouth of the Napo in Perú.

All but two of the 11 names given to members of this species by different authors, not including Gould's "*Eucephala hypocyanea*" (1860, Proc. Zool. Soc. London, pt. 28, p. 306) which appears to have been based on a specimen of hybrid origin, apply to Cayenne or Bahian birds and hence are not available for the Amazonian population. This applies to "*T. cyanogenys*" Wied (1832, Beiträge zur Naturgeschichte von Brasilien, 1832, vol. 4, pt. 1, p. 70) which has been assigned to this form by some authors. Wied's itinerary embraced parts of the provinces of Rio de Janeiro, Espirito Santo, Minas Gerais, and Bahia, but nowhere approached

the range of the Amazonian form of this species. Of the two specimens (from Barcellos, Rio Negro, Brazil) named *Agyrtria meliphila* by Pelzeln (1868, Zur Ornithologie Brasiliens, pp. 29, 57), their original description consists merely of a comment on their close relationship to "*Agyrtria mellisuga* (Linné)" and the length of the wing as "1" 10-11'", hardly an adequate diagnosis. Simon has identified the female cotype as belonging to the present species; the male cotype is "*Chlorostilbon prasinus*" subsp. under which "*meliphila*" has long been synonymized. The only available name is that given by Riley, cited at the head of this discussion.

I am unable to be sure about the Chamicuros, Yurimaguas, and Shanusi records of this species, since I have no material from that part of Perú. The fact that *puruensis* appears to be restricted to the upper Ucayali while another form occurs lower down and north of the Marañón suggests that these western birds may belong in this second form, next to be discussed. An early record from Yarina Cocha, from which locality I have additional material, belongs with *puruensis*.

### ***Chlorostes notatus obsoletus*, new subspecies**

TYPE: From Puerto Indiana, mouth of Río Napo, northern Perú. No. 231122, American Museum of Natural History. Adult male collected August 10, 1926, by Carlos Olalla and sons.

DIAGNOSIS: Similar to *C. n. notatus* and *C. n. puruensis* but under parts greener and less bluish than in either of the other forms and blue chin spot very weak or lacking.

RANGE: Northeastern Perú, on the lower Ucayali, in the neighborhood of the mouth of the Napo, and westward, presumably, to the mouth of the Huallaga. Possibly, also, eastern Ecuador.

DESCRIPTION OF TYPE: Upper parts shining dark Grass Green × Parrot Green, approaching Cossack Green on the uropygium and with some coppery reflections on the mantle. Under parts (held away from the light) glittering Emerald Green × Night Green, with a faint bluish tinge at the apex of the chin, and a small white area on the lower belly. Remiges purplish black; upper wing-coverts like the back; under coverts like the breast. Tail steel blue. Maxilla (in dried skin) blackish; mandible dull ivory, with a dark tip; feet blackish. Wing, 52 mm.; tail, 30; culmen, 17; tarsus, 5.

REMARKS: This form is nearly approached by the birds from Teffé, although there is distinction evident there, but in comparison with birds from the upper Ucayali and from the lower Amazon the difference in coloration is quite marked. Specimens from the Rio Madeira also are intermediate, although not so close to *obsoletus* as are the Teffé examples.

A longer series of specimens from the lower Ucayali might show some trend toward *puruensis* at that point, but the two males at hand, one of which is not fully adult, indicate the occurrence of *obsoletus* on both sides of the Marañón.

Most of the specimens of *obsoletus* have the mandible somewhat dusky, less yellowish than the great majority of *notatus* and *puruensis* where this shading appears in relatively few examples, except perhaps in the Trinidad birds where it is not infrequent. Field notes on the labels of the Trinidad birds indicate duller reddish, pink, or flesh color in freshly killed birds of this sort than in those with the lighter mandibles at present. The character is of doubtful taxonomic value.

Records from Pebas, Iquitos, "lower Ucayali," and presumably Chamicuros, Yurimaguas, and Shanusi belong with *obsoletus*.

#### SPECIMENS EXAMINED

##### *C. n. notatus*.—

###### TRINIDAD:

(Caparo, Chaguaramas, Princetown, Savannah Grande, Valencia, Aripo, and "Trinidad"), 33 ♂, 7 ♀.

###### VENEZUELA:

(Cristóbal Colón, San Esteban, Caracas, Las Trincheras, and Mérida), 21 ♂, 2 ♀, 1 (?);

(Nericagua, Munduapo, El Llagual, Suapure, Sacupana, La Unión, Paloma Island, La Prisión, and "Orinoco"), 61 ♂, 31 ♀.

###### COLOMBIA:

Maipures, 9 ♂, 6 ♀.

###### BRITISH GUIANA:

(Tumatumari, Mines District, Ourumee, Rockstone, upper Mazaruni River, and "Br. Guiana"), 6 ♂, 1 (?).

###### SURINAM:

(Little Wanica and near Paramaribo), 11 ♂, 2 ♀, 4 (?).

###### CAYENNE:

(Cayenne and Roche Marie), 6 ♂, 4 ♀.

###### BRAZIL:

Pará (Utinga and Prata), 5 ♂, 4 ♀;

Maranhão, Miritiba, 1 ♂;

Pernambuco, Palmares, 2 ♂;

Bahia, 5 ♂ (including type of *subcaeruleus*), 3 ♀.

*C. n. puruensis*.—

## BRAZIL:

Obidos, 4 ♂, 1 ♀, 1 (?);

Faro, 5 ♂, 2 ♀;

Rio Negro (Muirapinima and Igarapé Cacao Pereira), 1 ♂, 1 (?);

Rio Tocantins (Baião and Mocajuba), 7 ♂, 2 ♀;

Rio Xingú (Tapará and Porto de Moz), 9 ♂, 1 ♀;

Rio Tapajoz (Tauarý, Piquiatuba, Caxiricatuba, Igarapé Brabo, Igarapé Amorín, and Santarem), 13 ♂, 9 ♀;

Villa Bella Imperatriz, 2 ♂, 1 ♀;

Rio Madeira (Borba, Igarapé Auará, Humaythá, Marmellos, and Rosarinho), 10 ♂, 4 ♀;

Rio Preto, Santa Isabel, 3 ♂, 1 ♀, 2 (?);

Teffé, 6 ♂, 2 ♀.

## PERÚ:

Lagarto, 6 ♂;

Yarina Cocha, 2 ♂;

"Ost-Peru," 1 ♂.

*C. n. obsoletus*.—

## PERÚ:

Sarayacu, 2 ♂;

Orosa, 1 ♀;

Río Tapiche, 1 (?);

Río Mazán, 1 ♀;

Puerto Indiana, 19 ♂ (including type), 10 ♀.

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A CORRECTION

In No. 54 of the present Studies (1949, Amer. Mus. Novitates, no. 1428, p. 52) I stated that four localities (La Puente, Guainche, Cebollal, and Alamor) appeared to belong to Perú through the boundary treaty between that country and Ecuador. I find that I was in error and that these localities are still in Ecuador. Records there given from these places must, therefore, be deleted from the Peruvian list. Anterior records from Alamor, Perú, are correct and refer to another locality of the same name that is in Perú.