

The brilliant color of the bare skin of the head and pouch shows considerable variation, traces of the pigment frequently persisting in the dried skin.

The light coloration of the lower surface in the adult is prominent, carrying to an extreme this tendency found in the smaller *murphyi* immediately to the north. The lower surface has the feathers white basally, with a distinct line of white down the shaft to the tip, bordered on this distal portion with gray. The lower surface, therefore, from the base of the neck to the tail is distinctly streaked. As the season advances the dark portions wear away and the basal white correspondingly becomes more prominent. In younger birds that are changing to adult plumage, the lower surface remains extensively white centrally, and above, these birds are more heavily streaked.

The markedly larger size, the caruncles on the bill in the adult, and the brighter coloration of the bare skin of the head and pouch are so different from what is found in other Brown Pelicans that it may develop with complete information that *thagus* should stand as a species.

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A NEW SWIFT FROM CENTRAL AND SOUTH AMERICA

BY JOHN T. ZIMMER

IN a collection of Colombian birds submitted for identification and study a short time ago by Brother Nicéforo Maria of the Instituto de la Salle, Bogotá, there was found to my astonishment a specimen of *Cypseloides cherriei*, previously known only from two skins collected on the top of Mt. Irazú, Costa Rica, and preserved in the U. S. National Museum. Through the kindness of Dr. Herbert Friedmann of that institution, I have been enabled to study the type and paratype from which the Colombian bird, taken at San Gil, Santander, in January, 1939, by Brother Nicéforo Maria (No. 308462, American Museum of Natural History), differs principally by the possession of a narrow white chin spot.

This difference, even though slight, is positive and in view of the wide hiatus in the localities, I was at first disposed to regard the Colombian bird as subspecifically distinct from the Costa Rican examples. Before committing myself to the description of a new form, however, I made a careful examination of other Neotropical forms of the genus *Cypseloides* to determine the probability of individual variations in the

direction noted in some other species. The result was another surprising discovery of another sort.

There is another species of swift in the Americas that occasionally has a white chin. Examples of this bird have been identified as "*Cypseloides fumigatus*" and "*Nephoecetes niger costaricensis*," but they are, in reality, quite distinct. Just how far this confusion has extended it is impossible to say without an examination of all the pertinent material, but it is quite possible that other specimens will be found that have been similarly misidentified.

The first ray of light appeared with a specimen from São Francisco de Paula, Rio Grande do Sul, Brazil, which, from the general position of the locality, should represent true *fumigatus*. There is some confusion with respect to the type locality of *fumigatus* which was described by Streubel (Isis, 5: col. 366, 1848) from "Paraguay" (ex Natterer) and "Brasilien" (ex Müller), with the name credited to Natterer's manuscript designation of a bird presented to the Berlin Museum. There is no authentic record of the species from Paraguay and Natterer obtained none in that country. Burmeister (Syst. Uebers. Thiere Brasiliens, 2: 367, 1856) cites Natterer's bird in the Berlin Museum as from "Para" which is equally puzzling. In the report on Natterer's collections, Pelzeln (Orn. Bras.: 16, 1868) gives three localities for *fumigatus* of which two are in the state of São Paulo, and one in Paraná (Curitiba), and it seems rather clear that Streubel's "Paraguay" and Burmeister's "Para" should be interpreted as Paraná. Accordingly, I propose the restriction of the type locality of *Hemiprocne fumigata* Streubel to Curitiba, Paraná, Brazil.

In any case, the São Francisco de Paula bird, an adult male, agrees well with the better-known *C. f. major* Rothschild, of Tucumán, Argentina, from which it differs by being distinctly darker in general coloration and slightly smaller than most of its own sex of that form. Two Argentine examples, both sexed as males, are still smaller but agree in this respect with an Argentine female, and it is possible that at least one of them is wrongly sexed. At any rate, *fumigatus fumigatus* is certainly no more than subspecifically distinct from *f. major* and I revert to the trinomial for both forms.

To substantiate this belief, I wrote to Dr. Olivério Pinto of the Department of Zoology, Secretariat of Agriculture, Industry and Commerce, São Paulo, for critical data on several east-Brazilian skins at his command, and Dr. Pinto's kind reply amply confirms the characters of east-Brazilian birds, representing *fumigatus*.

Three specimens misidentified as *fumigatus*, from British Guiana, eastern Venezuela, and Perú, were compared with the São Francisco de

Paula example of *fumigatus* and found to represent a very distinct species. Somewhat later a fourth example was found from Costa Rica, identified as "*Nephoecetes niger costaricensis*," and still more recently another specimen from eastern Venezuela, in the collection of Mr. William H. Phelps of Caracas, has been available through the kindness of Mr. Phelps. With five specimens from a variety of localities, the distinction and variations of the new species can be determined in some detail. The new bird may, therefore, be known as follows.

***Cypseloides cryptus*, new species**

TYPE from Inca Mine, Río Távora, Perú. No. 72095, American Museum of Natural History. Adult male collected November 16, 1899, by H. H. Keays. Original No. 5.

DIAGNOSIS.—Differs from *C. fumigatus* and *C. niger* by shorter wing but longer tarsus; bill smaller and with culmen more sharply arcuate; nostril usually more rounded, less elongate, and with the adjacent feathering less advanced anteriorly on the outer margin (not reaching the anterior end of the nostril) though a little more advanced on the inner margin than in *fumigatus* and *niger*; plumage somewhat duller and without pronounced metallic gloss; tail even (as in *fumigatus*) but somewhat stiffer; pale markings on the top of the head restricted to the sides of the forehead; chin often markedly white.

RANGE.—Known from Perú, British Guiana, mountains of eastern Venezuela, Costa Rica, and probably Panamá.

DESCRIPTION OF TYPE.—Upper parts dark Chaetura Drab;¹ sides of forehead paler, with narrow whitish tips; a narrow line of feathers with fine, white terminal margins extending over the lores posteriorly above the middle of the orbit; a slight suggestion of a pale area just behind the eye; anterior part of lores Hair Brown; posterior part occupied by a lunate patch of deep black, with the bases of the feathers distinctly paler. Under parts Hair Brown × Chaetura Drab but with the chin clear white; throat with rather prominent dark shafts. Exposed surfaces of wings and tail a little lighter than Chaetura Black. Shafts of remiges and rectrices black above, pale brownish beneath. Tail nearly even, being forked about 1 mm. Bill and feet (in dried skin) blackish. Wing, 136.5 mm.; tail, 43; exposed culmen, 5.3; culmen from base, 9; tarsus 16.

REMARKS.—A specimen from Kaietur Falls, British Guiana, and one from Mt. Auyan-tepui, Venezuela, both without indicated sex,

¹ Names of colors are capitalized when direct comparison has been made with Ridgway's 'Color Standards and Color Nomenclature.'

differ from the type by having the chin-spot varied by dark shaft-stripes. A female from Sororan-tepui, Venezuela, and one from San Pedro, Costa Rica, have the chin-spot virtually obsolete, although there is a slight suggestion of it at the very point of the chin in both examples. The Costa Rican bird further has the whole belly and under tail-coverts marked by broad white tips on the feathers. These are slightly indicated in the British Guianan and the Venezuelan birds but are lacking in the type.

How much of this variation between the clear white chin of the type and the dark chin of the two known females is due to individual or sexual variation is still to be determined. The fact that the Sororan-tepui and Auyan-tepui birds are different in this respect while the Costa Rican specimen agrees with the Sororan-tepui example, strongly suggests that the pure white throat of the Peruvian skin is no more than an extreme condition of individual variation.

It may be noted that a slight trace of white on the chin is sometimes to be found in *C. niger*—at least as much as in the minimum development of that character in *cryptus*.

There is much the same bill and feathering of the nostrils in *C. cherriei* as in *cryptus*, and the feet of *cherriei*, although actually as small as in *niger* and *fumigatus*, are relatively larger in proportion to the length of the wing, being between the figures for *niger* and *fumigatus* and those for *cryptus*. In the same ways, "*Aëornis*" *senex* is like *cryptus*. The curvature of the bill and the nostril feathering are the same and the feet, although apparently much heavier, are not so in proportion to the length of wing.

I can see no good reason, therefore, to recognize the genus "*Aëornis*" for which I can find no satisfactory characters. It was long included in *Cypseloides* and its original description by Bertoni (Anal. Cient. Paraguayos, ser. 1, 1: 66, 1901) was in distinction from *Chaetura*, which distinction I concede. Unfortunately, Bertoni earlier (Revista de Agronomía, 2: 58, 1900) applied the name *Chaetura major* to the species *senex* and this, with the inclusion of *senex* in *Cypseloides*, necessitates another name for *Cypseloides major* Rothschild (Bull. Brit. Orn. Club, 52: 36, 1931) for which I propose the name *Cypseloides fumigatus rothschildi*.

There appears to be even less necessity to recognize "*Nephoecetes*" (originally *Nephocaetes*) as distinct from *Cypseloides*. The forked tail of "*Nephoecetes*" and the unforked one of *Cypseloides* are the only criteria that are available, and the distinction is not constant. Females of the *niger* group sometimes have no more emargination of the tail than various examples of the *fumigatus* group where the sexes are

alike in this respect. I consider "*Nephoecetes*," therefore, as a synonym of *Cypseloides*.

The range of *C. cryptus* is probably extensive through the mountains of western and northern South America. There is a record of "*fumigatus*" from Cosñipata, southeastern Perú, which is doubtful. Taczanowski's description (Orn. Pérou, 1: 232, 1884) of the critical specimen notes an entirely fuliginous color, which is not determinative, but gives the tarsal length as only 13 mm., agreeing with *fumigatus* or *major* but not with *cryptus*. There is also a record of "*fumigatus*" from Gualaquiza, Ecuador (Salvadori and Festa, Boll. Mus. Zoöl. ed Comp. Univ. Torino, 15, no. 368: 13, 1900) but no description nor measurements are available. Hartert (Cat. Birds British Mus., 14: 496, 1892) lists the Cosñipata bird, three Brazilian skins, and one Ecuadorian example under "*fumigatus*" without mention of a white chin-spot in any of them but with a minimum wing-length of 144.8 mm. (converted). The same author (Tierreich, Aves, 1: 80, 1897), records "*fumigatus*" from Brazil, Perú, and Ecuador, without mention of a white chin and with a minimum wing-length of 144 mm. None of these accounts points definitely toward *cryptus* but there is no assurance that some of the records or references do not pertain to that species. Rogers (Auk, 56: 83, 1939) assigns a specimen from Port Obaldia, Panamá, to *fumigatus* after comparison with the British Guianan, Peruvian, and Auyan-tepui birds in the American Museum collection, and notes the white chin and large feet as characters of *fumigatus* on the basis of which he proposed the specific separation of *fumigatus* and *major*. There is no doubt, therefore, that the Port Obaldia bird belongs to *cryptus*.

I am puzzled by the poor development of the white tips on the feathers of the belly in the Sororan-tepui example of *cryptus*, sexed as a female by the collector, Fulvio Benedetti, who is particularly reliable in this particular as I am informed by Mr. Phelps. The Costa Rican female, on the other hand, has quite broad white tips on the feathers of the lower under parts. As a rule, the relative prominence of these spots in the two sexes of all the species of *Cypseloides* is a good character for sexual distinction, although it is not always exact. Some males may show a slight development of white at the tips of these feathers and occasionally a female will have less than the others. Of the two small examples of *C. fumigatus rothschildi* mentioned earlier, one has strong white ventral spotting in agreement with the bird sexed as a female and is certainly of that sex; the other lacks the white marking and may be only a small male.

The proportionate amount of white in the sexes differs among the

various subspecies of *C. niger*. In typical *C. n. niger*, even the females have but a little white at the tips of the ventral feathers, but there is always some of it. In *borealis*, the tips are broader and the males more often show some trace of narrow pale tips. In *costaricensis*, there is about the same development as in *borealis*, judging by the few specimens I have seen. These distinctions have, at least in part, been pointed out by Ridgway (Bull. U. S. Nat. Mus., 50, pt. 5: 707, footnote b, 1911), but he makes no mention of another feature that is important. This is the relative depth of fork in the tails of the two sexes of the species in question. In eighteen males of *niger*, the tail is forked for a depth of 8–16 mm. (av. 12.2), although two doubtful skins show only 3 and 5 mm., respectively. Eight females have the fork 0–8 (av., 4.5). In *borealis*, eleven males have the fork 5–11 mm. (av., 8.5), with another doubtful skin only 2, possibly due to wear. Nine females show 0–3 (av., 1). Two males of *costaricensis* have the fork but 7 mm. each, and one female has it 3. Four females in all—three of *borealis* and one of *niger*—have the tail virtually even, and this fact, with the amount of variation shown by the remainder of the series, furnishes evidence as to the poor value of the forked tail of "*Nephoecetes*" as a generic character. It may be added that one male of *borealis* from Monterey County, California, has the tail distinctly rounded, with the outer rectrices 4 mm. shorter than the median ones. The significance of this peculiarity is not evident, but it may possibly be due to age distinction.

The following figures show the tarsus/wing indexes of the different forms of *Cypseloides* as determined from the specimens examined:

- C. n. niger*: ♂, 7.83; ♀, 8.24
- C. n. borealis*: ♂, 7.57; ♀, 7.65
- C. n. costaricensis*: ♂, 7.71; ♀, 7.74
- C. f. fumigatus*: ♂, 7.84; ♀, 8.33
- C. f. rothschildi*: ♂, 8.42; ♀, 9.15
- C. cherriei*: ♂, 9.84; ♀, 9.70
- C. cryptus*: ♂, 11.8; ♀, 11.8
- C. senex*: ♀, 11.6

In conclusion, I wish to express my gratitude to Brother Nicéforo Maria of Bogotá, Colombia, who generously presented the Colombian specimen of *Cypseloides cherriei* to the American Museum of Natural History; to Dr. Herbert Friedmann of the U. S. National Museum for the loan of critical material; to Mr. William H. Phelps of Caracas, Venezuela, for similar courtesy; and to Dr. Olivério Pinto of São Paulo, Brazil, for valuable notes on certain specimens as detailed in the foregoing account.

SPECIMENS EXAMINED

- C. cherriei*.—
 COSTA RICA:
 Mt. Irazú, 1 ♂ (type)¹, 1 [? ♀]¹.
 COLOMBIA:
 San Gil, Santander, 1 [? ♀].
C. cryptus.—
 PERÚ:
 Inca Mine, 1 ♂ (type).
 VENEZUELA:
 Mt. Auyan-tepui, 1 [? ♂];
 Mt. Ptari-tepui, 1 ♀².
 COSTA RICA:
 San Pedro, 1 ♀.
 BRITISH GUIANA:
 Kaietur Falls, 1 [? ♂].
C. f. fumigatus.—
 BRAZIL:
 São Francisco de Paula, Rio Grande
 do Sul, 1 ♂.
C. f. rothschildi.—
 ARGENTINA:
 Tapia, Tucumán, 1 ♂ (type), 1
 "♂" [? = ♀];
 Tucumán, 1 ♂, 1 ♀;
 Perico, Jujuy, 1 ♂;
 Rosario de Lerma, Salta, 2 ♂.
C. f. rothschildi (cont.).—
 BOLIVIA:
 Tarija, 1 ♂¹.
C. n. niger.—
 SANTO DOMINGO: 7 ♂, 2 ♀.
 ST. ANDREWS IS.: 1 ♂.
 JAMAICA: 1 ♀.
 DOMINICA: 2 ♂, 3 ♀, 2 [?].
 GUADELOUPE: 2 ♂.
 ST. VINCENT: 2 ♂.
 CUBA: 5 ♂, 2 ♀.
C. n. borealis.—
 U. S. A.
 Colorado, 2 ♀;
 California, 1 ♂, 1 ♀;
 Washington, 1 ♀.
 CANADA:
 British Columbia, 12 ♂, 5 ♀.
C. n. costaricensis.—
 COSTA RICA:
 San Pedro, 1 ♂, 1 ♀;
 El Pozo, 1 ♂.
C. senex.—
 BRAZIL:
 Chapada, Matto Grosso, 1 ♀.

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THE RELATION OF SNOWY OWL MIGRATION TO THE ABUNDANCE OF THE COLLARED LEMMING

BY V. E. SHELFORD

IN 1943 the writer published a description of the variations of the abundance of collared lemming in the Churchill area. It was found that increases in abundance were correlated with heavy snowfall in mild winters and that declines were associated with absence of snow and presences of predatory birds in the area. A colleague had expressed the view that the Snowy Owl, which is one of the important enemies of the lemmings, came south when the lemmings were abundant. This suggestion, coupled with the appearance of published reports of the large southward migration of Snowy Owls in the winter

¹ Specimens in the U. S. National Museum.

² Specimen in collection of William H. Phelps, Caracas.