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DISTRIBUTION AND VARIATION OF
CAPRIMULGUS MACULICAUDUS

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Ten specimens of *Caprimulgus maculicaudus* (Lawrence), collected for Chicago Natural History Museum at Tutla, Oaxaca (alt. 1,475 meters), Mexico, by Mario del Toro Aviles, from February 1 to April 22, 1941, constitute a remarkable extension of range for the species, and one of the most surprising additions to Mexican avifauna in recent years. The novelty of finding an apparently resident population of this typically South American species north of the Isthmus of Tehuantepec led to a detailed study of its relationships based upon direct comparison with thirty-one South American specimens representing most of the recorded localities.¹

A pair of the Oaxaca poor-wills was forwarded to Mr. James Peters for preliminary identification in the absence of any comparative material in Chicago. Commenting on these birds, Mr. Peters wrote: "Your two poor-wills appear to fall into the section of *Caprimulgus* that Ridgway named '*Antiurus*.' I should say your birds are conspecific with *Caprimulgus* (*Antiurus*) *maculicaudus* Lawrence. Our material is too sketchy to hazard an opinion as to just how they differ subspecifically from this form, but they appear to be a little smaller and average rustier. . . . With all the collecting in Mexico in recent years, it is strange that no one seems to have gotten on to this bird and described it. . . . Not too much is known of the life history of some of these South American things such as *Nyctiprogne*, *Nyctiphrynus*, *Caprimulgus maculicaudus*, *C. nigrescens*

¹ For the loan of comparative material I am indebted to Dr. Herbert Friedmann, of the United States National Museum; Mr. Rodolphe Meyer de Schauensee, of the Philadelphia Academy of Sciences; Mr. W. E. Clyde Todd and Dr. Arthur C. Twomey, of the Carnegie Museum; and Dr. John T. Zimmer, of the American Museum of Natural History. I am indebted also to Mr. William H. Phelps, of Caracas, Venezuela, for information regarding a previously unreported Venezuelan record; to Mr. James L. Peters, of the Museum of Comparative Zoology, for suggesting the relationships of the Oaxaca form; and to Dr. Austin L. Rand and Mr. Melvin A. Traylor, Jr., of Chicago Natural History Museum, for numerous helpful suggestions.

and the like; there may be some sort of migratory movements involved."

The range of *maculicaudus* is notably extensive, being equaled by that of few other neo-tropical birds. Its distribution appears to be erratic and more or less discontinuous, as shown by the following summary of records.

MEXICO.—Oaxaca: Tutla.

BOLIVIA.—Beni: Chatarona. Cochabamba: Todos Santos. Santa Cruz: Buena Vista.

BRAZIL.—Amazonas: Arumanduba (Rio Solimões); Humaytá (Rio Madeira). Pará: Santarem; Obidos; Marajó (Pindobal, S. Natal); Pará. São Paulo: Ipanema; Cachoeira.

BRITISH GUIANA.—Takutu Mountains.

COLOMBIA.—Bolívar: Lórica. "Bogotá."

FRENCH GUIANA.—Mana.

PERU.—Cuzco: Cosñipata.

VENEZUELA.—Barinas: Santa Bárbara.

Hitherto *maculicaudus* has been treated as a monotypic species by most taxonomists. There is surprisingly little evidence that the status of specimens from remote localities has been questioned. Apparently the scarcity of this species and its very limited representation in any single collection have effectively discouraged detailed study of adequate series from localities that might be expected to support differentiated populations.

Subspecific variation was first described in 1935 with the separation of a Bolivian race, *romainei* Carriker. This form was based upon a single male which, unfortunately, was compared with only three topotypical specimens (two males, one female) of the nominate race. The type of *romainei* differs from the latter in several minor respects discussed below, but subsequently the race was reduced to synonymy by Peters (1940, pp. 201–202). This action seems to be supported by a comparison of the type and two Bolivian females (Rio Chapare, Beni, and Buena Vista, Santa Cruz) with the representative series of *maculicaudus* now assembled.

Discovery of an unsuspected population of *maculicaudus* in southwestern Mexico extends the range of the species northward approximately 1,000 miles. Much of the intervening country has long been subjected to intensive collecting, a circumstance partially supporting the thesis that Oaxaca birds, at least, are non-migratory

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and occupy a very limited range. In seeking to account for their presence in Mexico, and determine with certainty their relationship to the South American form, I assembled an unprecedented series of thirty-one specimens of the latter for comparison, including the type of the nominate race and of *romainei*.

It is at once evident from the specimens now available that *maculicaudus* may be separated into two distinct and geographically significant (isolated) groups. For purposes of discussion these may be designated respectively as the Santarem-Obidos series and the specimens from all other localities represented in this study. Both groups are minutely similar in basic pattern, but there is a consistent difference in their color tones.

Specimens from Santarem (twelve males, seven females) and Obidos (one male) are uniformly characterized by having a pale buffy abdomen; superciliaries, throat and spots of the breast dull white, or only faintly washed with buff; and gray vermiculation or freckling of the nuchal area, coverts, axillaries and middle rectrices. All other specimens examined, with a single exception discussed below, can be distinguished by their somewhat more richly colored under parts, and by having the entire plumage, particularly that of the throat, more or less strongly diffused with rufescent buff that washes out much of the gray vermiculation found in Santarem and Obidos birds.

Geographical separation of these plumage types is absolute, with the sole exception of a female from Pará (Phila. Acad. Nat. Sci. No. 80369) that differs strikingly from the other four topotypical specimens and falls precisely within the narrow range of color tone that proves to be so uniformly characteristic of the Santarem-Obidos series. This specimen is enigmatic, but of particular interest because it serves as a direct link between two otherwise distinguishable populations that present records indicate may be separated geographically by more than 300 miles.¹

A noteworthy quality of the Santarem-Obidos population, as represented by a series of twenty specimens, is the consistency of color tone in its components, which exhibit only a minor degree of individual variation.² So alike are all of the Santarem-Obidos specimens examined that it is safe to assume that the apparent

¹ Continuity of the lower Amazon flora and fauna, the scarcity of collecting stations there, and the difficulty of collecting birds of this family in forest areas obviously discredit the reality of such isolation.

² Sexual dimorphism in *maculicaudus* apparently is limited to the tail.

uniformity of this population will be little altered by further sampling.¹

In marked contrast is the range of variation found among the birds from other localities. Although readily distinguishable, with a single exception, from the homogeneous Santarem-Obidos population, they exhibit varying degrees of rufescence. The most extreme example (C.N.H.M. No. 119449) is suggestive of a distinct rufescent "phase." However, the occurrence of corresponding extremes of variation in widely separated localities (Oaxaca and Pará), as well as within single populations, emphasizes the actual unity of this plumage group.

Having reviewed the recorded distribution of the species and delineated the characteristics of two apparently distinct plumage groups represented in South America, we may now profitably consider the status of the Mexican population. The similarity between all Oaxaca specimens and South American examples of the species, other than birds of the Santarem-Obidos plumage group, is at once evident. The most rufescent specimen of the Oaxaca series is practically indistinguishable from the type of *maculicaudus* itself, and each of the Mexican birds is duplicated here and there by South American specimens. In brief, a most painstaking search reveals no character by which these geographically remote populations may be separated subspecifically.

Oaxaca birds agree closely in size with specimens of the rufescent buff plumage group in South America, and both populations average slightly larger than that of Santarem and Obidos. The size differential, possibly indicative of a trend, is shown in the following summary of measurements:

	Wing	Tail
Oaxaca		
4 males.....	132-139 (135)	100-105 (102.5)
6 females.....	128-135 (133.5)	94-101 (98)
Santarem-Obidos		
13 males.....	128-138 (133.5)	94-110 (101)
7 females.....	124-131 (127.7)	90-98 (93.7)
South America (not Santarem-Obidos)		
6 males.....	132-141 (135)	97-114 (103)
7 females.....	122-132 (129.8)	92-100 (96)

¹ By way of caution to later investigators it may be remarked that the "make" of all Santarem and Obidos specimens examined (Carnegie Museum series collected by S. M. Klages) so exposes the dark under feathers of the breast as to create an element of contrast that is illusionary rather than actual.

The migratory status of *maculicaudus* is not yet known with certainty, but available records indicate that the species is relatively sedentary. The Mexican population is not only undifferentiated from a major element of the South American population but also apparently exists in total isolation from it. Oaxaca specimens were collected February 1–April 22, and three birds from Pará, the most distant locality for which I can find specific dates, were collected April 29 and 30. The non-migratory status of the species is further suggested by an overlap of dates in the following additional records.

BOLIVIA: Rio Chapare, August 10; Chatarona, September 30; Buena Vista, December 4.

BRAZIL: Santarem, September 24–October 12; Obidos, April 28; Humaytá (Rio Madeira), September 24.

COLOMBIA: Lorica, February 19.

FRENCH GUIANA: Mana, September 3.

The abundance and variety of critical material now assembled permits a re-evaluation of the merits of *romainei* Carriker. The type differs from the two Pará males with which it was compared (Phila. Acad. Nat. Sci. Nos. 80395, 80818) in the manner stated, but the latter both prove to be exceptionally richly colored and, in this respect, are not at all representative of the species. Furthermore, each of the distinctive characters attributed to the tail of *romainei* is duplicated, with more or less precision, in various males of the nominate race.

No estimate of the extent of variation inherent in a population of birds can be made from a single specimen. However, all evidence indicates that characters of *romainei* lie well within the range of individual variation. The immaculate aspect of the white tips of its rectrices occurs repeatedly in other populations and is duplicated in the type of *maculicaudus* (Lawrence) itself. No less variable is the buffy barring of the outer webs of male rectrices. Tail bars are obscure in the type of *romainei*, but the extent of modification found in twenty males collected beyond its range removes all doubt that reduced tail barring is merely an indication of age. Likewise, the pattern of white spotting on the male rectrices of *maculicaudus* varies considerably and I find no reason for supposing that its slightly modified appearance in the type of *romainei* is of geographical significance. In brief, Bolivian material now available (one male, two females) fails to support the thesis of a separable race.

Absence of geographical variation in other populations of *maculicaudus* is universally accepted. Specimens from British Guiana, Venezuela, and Peru, and from Marajó (Pará) and São Paulo in Brazil have not been available for comparison in the present study, but there is evidence that several of these localities are represented by birds of the rufescent buff group discussed above.

Chubb's description (1916, pp. 367-368) of British Guiana specimens evidently applies to this plumage. Mr. William H. Phelps states in correspondence that the only known Venezuela specimen (a male) is similar to the type of *maculicaudus*, hence a bird of marked rufescence. The original description of *Stenopsis platyura* Pelzeln (Sclater, 1866, pp. 589-590), of São Paulo, Brazil, since combined with *maculicaudus* (Lawrence), is clearly that of a richly colored bird.

Present data fail to clarify further the status and relationship of the two distinct plumage groups found in this species. Accepted taxonomic practice might permit separation of the Santarem-Obidos population as subspecifically distinct from the more rufescent birds of other localities but sound objections to this treatment are obvious. In the absence of satisfactory data corroborating the apparent isolation and stability of these populations it is best to regard *maculicaudus* (Lawrence) as monotypic, but composed of two differentiated color "phases" or plumage groups that attain varying degrees of dominance locally.

Specimens examined.—BOLIVIA: Beni (Chatarona, 1 male); Cochabamba (Todos Santos, 1 female); Santa Cruz (Buena Vista, 1 female). BRAZIL: Amazonas (Humaytá, 1 female); Pará (Santarem, 12 males, 7 females; Obidos, 1 male; Pará, 4 males, 1 female). COLOMBIA: Bolivar (Lorica, 1 female). FRENCH GUIANA: Mana (1 female). MEXICO: Oaxaca (Tutla, 4 males, 6 females).

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