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## GEOGRAPHICAL VARIATION IN THE CHAT FLYCATCHER (*BRADORNIS INFUSCATUS*)

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### INTRODUCTION, GENERAL RANGE, AND DIVISION OF THE SPECIES

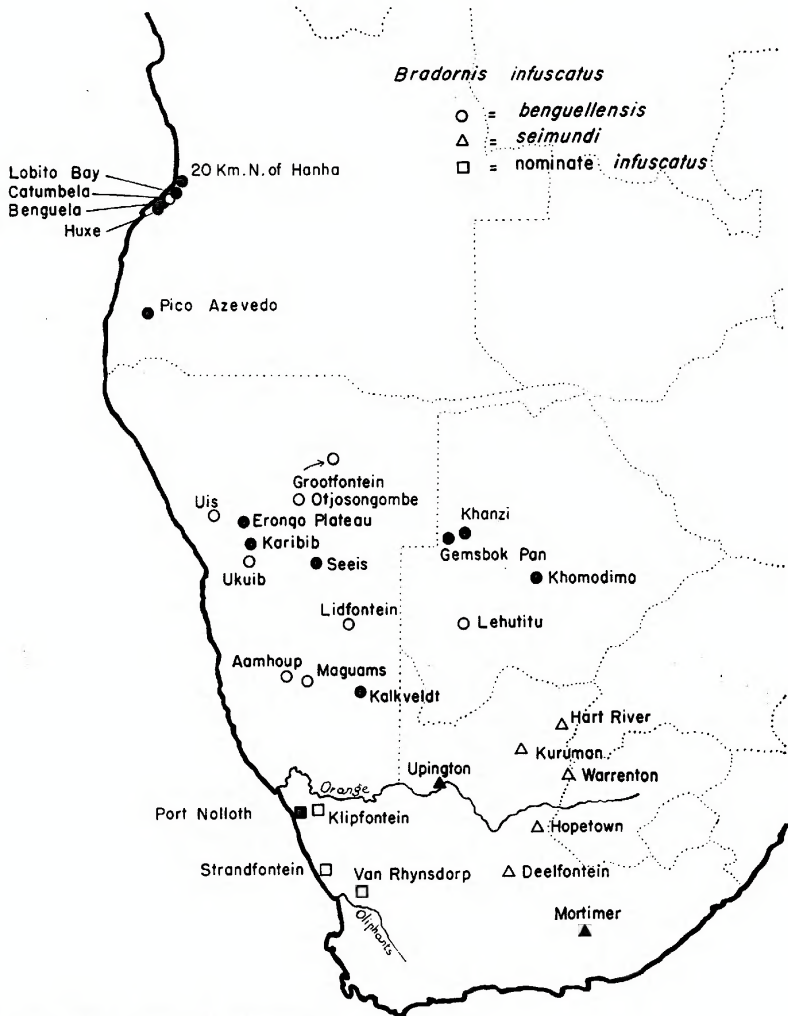
In a generic revision of the flycatchers of the tribe Muscicapini now in press I had the occasion to examine all the specimens of *Bradornis infuscatus* available in the leading American collections. Opportunity is taken to revise the species and to discuss the geographical variation presented by these specimens.

The range of this species (fig. 1), which inhabits the dry or more arid parts of south Africa, extends from western and central Cape Province north through Bechuanaland and South West Africa to the coastal region of Benguela Province in Angola. In the south, the range of the species extends eastward to about the borders of Transvaal.

Four races have been described. These races, recognized by Sclater (1930), are: nominate *infuscatus* in western Cape Province, *seimundi* in central Cape Province north to Griqualand West and to the borders of Transvaal, *benguellensis* from Great Namaqualand and western Kalahari to Benguela, and *ansorgei* in "Huxe and Catumbella in northern Benguela," according to Sclater.

Before discussing my data, I may remark that I believe only three forms can be recognized nomenclaturally, *ansorgei*, despite the recent opinion advanced by White (1951) upholding its validity, being a pure synonym of *benguellensis*.

The localities of the specimens examined are shown in figure 1. An additional locality, from which I have a specimen of *seimundi*,



closed symbols = specimens examined  
 open symbols = localities from the literature

FIG. 1. Distribution of *Bradornis infuscatus*.

“Halesowen, Cape Colony,” was not found. The localities of specimens cited in the literature by Hoesch and Niethammer (1940), Ogilvie-Grant (1913), Roberts (1940), and Sclater (1930), are shown.

#### GENERAL VARIATION

Insufficient specimens of the southern populations (nominate *infuscatus* and *seimundi*) were examined, but a more or less well-

indicated cline of decreasing size and pigmentation runs from south to north, from Cape Province to Benguela. The differences between the populations at the two extremes of the range are clear cut, but the two southern forms appear to be poorly differentiated from each other.

The southern forms, which may be described together, are larger, darker above and below, being rather dark clay brown above and light gray-brown below, more or less strongly tinged with fawn, the whitish markings on the lores are vague, the whitish area of the throat is restricted, and the center of the abdomen is pigmented. The northern populations (*benguellensis*) are smaller, paler above and below, being more or less gray brown above, and whitish below tinged with buffy gray and with pale fawn on the flanks and under tail coverts. The fawn, which is more or less well indicated, is paler than in the southern populations, the whitish area of the throat is larger and purer, the whitish lores are better indicated, many specimens show a vague whitish area below the eye, and the center of the abdomen is whitish or not heavily pigmented.

These color comparisons apply to specimens in fresh or slightly worn plumage, the large majority of the specimens examined being in fresh unworn plumage, a number of them having just completed, or are completing, the molt. With wear all specimens become considerably paler, grayer, and whiter, and fine discrimination is no longer reliable.

### ***Bradornis infuscatus infuscatus* Smith**

*Saxicola infuscata* A. SMITH, 1839, Illustrations of the zoology of South Africa, vol. 2, Aves, pl. 28. Type locality, between Oliphants and Orange rivers, western Cape Province.

**RANGE:** Western Cape Province between Oliphants and Orange rivers.

Only one specimen with a definite locality (Port Nolloth) was examined.

This specimen taken in August is in worn plumage and is pale and gray above, and indistinguishable on the back from two topotypes of *benguellensis* in worn plumage taken in October. Below, however, it is browner on the breast and has the whitish throat patch more restricted and has less whitish on the lores. The tinge of fawn is lacking. Two specimens in fresh plumage but without date and definite locality (the label reads "Cape of Good Hope")

and one specimen in moderately worn plumage without date or locality are darker brown above and below and are more strongly tinged with fawn on the belly and under tail coverts than any other specimens of the species examined. These specimens are also larger, chiefly as regards the length of the tarsus and bill (see list of measurements), and appear to belong to nominate *infuscatus*. Two of the four specimens are faintly streaked below. Roberts (1940) states that this race is occasionally streaked.

### ***Bradornis infuscatus seimundi* Ogilvie-Grant**

*Bradyornis infuscatus seimundi* OGILVIE-GRANT, 1913, *Ibis*, p. 636. Type locality, Deelfontein, central Cape Province.

RANGE: Central, northern, and northeastern Cape Province (to about the borders of Transvaal).

Seven specimens from Cape Province are generally smaller (wing, tarsus, and bill) and somewhat paler throughout than the specimens of nominate *infuscatus* in fresh or moderately worn plumage. One specimen taken on December 5 at Mortimer is in worn plumage and indistinguishable from the worn specimen of nominate *infuscatus* from Port Nolloth. This specimen also shows some faint shaft streaks. Two specimens are in fresh plumage; one was taken at Upington on the Orange River on June 13 and the other in August at Halesowen (not located). The other four specimens which are rather worn are without date or definite locality; two are labeled "Cape of Good Hope," and the other two were taken "from north of the Orange River south to Colesberg."

Although I find that *seimundi* is apparently somewhat paler than nominate *infuscatus*, Roberts (1940) states the reverse. Adequate series should be compared, for the color difference seems to need confirmation and the measurements should be compared critically. According to the measurements given by Roberts there is a good deal of overlap in the length of the tarsus. Roberts gives the length of the tarsus as 23 to 29 in nominate *infuscatus* and 24 to 28 in *seimundi*, and it should be noted that in *ben-guellensis* specimens are found in which the tarsus measures 27 and 28 (see list of measurements). The bill difference seems better marked but is slight in my specimens, the bill measuring 23 to 25 in nominate *infuscatus* and 20 to 23 in *seimundi*. It is questionable whether *seimundi*, which is apparently but poorly



differentiated from nominate *infuscatus*, deserves nomenclatural recognition.

The specimens examined of the remaining populations of the species are more abundant and are all supplied with exact data.

### ***Bradornis infuscatus benguellensis* Sousa**

*Bradornis benguellensis* SOUSA, 1886, Jor. Sci. Math. Phys. Nat. Lisboa, vol. 11, p. 160. Type locality, Benguela town, Angola.

*Bradornis infuscatus ansorgii* (*sic*) OGILVIE-GRANT, 1913, Ibis, p. 636. Type locality, Catumbella and Huxe, Benguela Province, Angola.

RANGE: Bechuanaland (Kalahari), South West Africa (Great Namaqualand, inner edge of the Namib, Damaraland), the coastal region of Huila ("Mossamedes") and Benguela Provinces in Angola.

The specimens of this race examined consist of six from the Kalahari in Bechuanaland (one from Khanzi, three from near-by Gemsbok Pan, and two from considerably farther east at Khomodimo), one specimen from Kalkveldt in Great Namaqualand, four from Damaraland, two from the region of Mossamedes in Angola, and 14, including an immature, from the coastal strip around Benguela. The specimen taken at "20 km. North of Hanha" (not to be confused with the better known inland locality of this name southeast of Benguela) is apparently the northernmost record of the species.

These specimens illustrate the cline of decreasing pigmentation referred to. The specimens from Bechuanaland, taken as a series, are paler than the specimen of *seimundi* from Upington on the Orange River and the other specimens of *seimundi*, but they are slightly darker, browner above and below, and darker fawn than the specimens from Damaraland which in turn are somewhat less grayish above and slightly but distinctly more buffy and warmer below, less whitish, than the specimens from the coastal strip around Benguela. All differences are slight, and all the specimens with the following exceptions are in very fresh or slightly worn plumage. The two specimens from Mossamedes (Pico Azevedo), two specimens from Benguela town, and the specimen taken north of Hanha are in worn plumage and are indistinguishable.

No size difference is apparent between Angola and Damaraland specimens (see also the measurements of Damaraland specimens given by Hoesch and Niethammer, 1940), but the specimens from

Bechuanaland seem to have a slightly longer wing, similar in length to that of *seimundi*.

The series from Bechuanaland is not uniform, and these and others present individual exceptions to the cline. One of the two specimens from Khodomimo is just as dark above and below as the darkest specimen of *seimundi* examined. One of the three specimens from Gembok Pan, all taken within six days, and the specimen from Kalkveldt (the southernmost specimen of *benguellensis* examined) are just as pale and gray above as the specimens from Benguela and vicinity but below are less whitish and are similar to the specimens from Damaraland. Hoesch and Niethammer report that a specimen from Damaraland (Otjongsombe) can be scarcely distinguished from *seimundi* and state also that the population of the Namib is paler above, more yellowish, than the populations of the Damara Plateau. Generally speaking, it may be stated that the populations of Bechuanaland are intermediate in coloration and size between *seimundi* and topotypical *benguellensis*.

The type locality of *benguellensis* is Benguela town, and this type locality cannot be shifted arbitrarily to some presumed region, even though White (1951) finds that the cotype of *benguellensis* in the collection of the British Museum does not agree in coloration with 10 specimens that he has examined in this collection from Benguela, Huxe, and Catumbela. These last two localities, the type locality of "*ansorgei*," are virtual suburbs of Benguela along the coastal strip, Huxe being 15 kilometers south of Benguela ("four hours from Benguela" according to Anson) and Catumbela 22 kilometers north of Benguela. White finds that this cotype of *benguellensis* is browner above and less gray and white below, more fawn, than the specimens from Benguela, Huxe, and Catumbela and agrees in coloration with specimens he has examined from Bechuanaland and South West Africa. He concludes that "*ansorgei*" is valid and that "we must consider that the types of *B. i. benguellensis* are wrongly labelled as coming from Benguela." He supports his opinion by stating that Anchieta, the collector of the specimens on which Sousa based *benguellensis*, is known to have traveled in inland and southern Angola.

However, the distribution of *infuscatus* in Angola is such that there is no reason to suppose that two races occur anywhere in this region, for in Angola this species seems to be restricted to

the dry and relatively narrow coastal strip below the Plateau where climatic and ecological conditions are probably quite uniform. Further, there is no ground upon which the origin of the specimens examined by Sousa can be questioned. Sousa is quite explicit that the specimens on which he founded *benguellensis* were collected by Anchieta at Benguela. He gives a list of five localities, one of which is Benguela, in which Anchieta collected. Sousa, furthermore, had available for examination the specimens called *Bradornis* sp.? by Bocage a few years earlier, since in his description of *benguellensis* he refers to them. Bocage in turn states very explicitly that these specimens, which were also collected by Anchieta, were collected only at Benguela town (1880, Jor. Sci. Math. Phys. Nat. Lisboa, vol. 8, p. 293).

In my opinion, "*ansorgei*" is a pure synonym of *benguellensis*, since the specimens examined by White from Huxe, Catumbela, and Benguela and the specimens examined by me from Huxe and Benguela are identical.

If it be assumed that the cotype of *benguellensis* examined by White does not owe its darker coloration to the age of the skin or to a state of plumage, it may be remarked that, as I show above, it is not unusual to find individuals of *infuscatus* in one part of the range which resemble more or less closely populations from other parts of the range. Since it is a matter of opinion as to how many continental populations can be included under the name of any one subspecies, the darker populations of Bechuanaland on the one hand and the somewhat paler and buffier populations of Damaraland described above could, if desired, be separated nomenclaturally from *benguellensis*. It seems to me, however, that it would lead much too far to separate all the slightly different, but apparently somewhat unstable, populations now included under *benguellensis*.

#### LIST OF MEASUREMENTS

*Bradornis infuscatus infuscatus* (the measurements of the specimen from Port Nolloth are given in parentheses): Wing: male, (118+), 123; female, 121; unsexed, 112. Tail: male, (84), 85; female, 93; unsexed, 83. Tarsus: male, 28, (29); female, 28; unsexed, 29. Bill: male, 23, (25); female, 25; unsexed, 25.

*Bradornis infuscatus seimundi* (the measurements of the specimen from Upington are given in parentheses): Wing: male, 112+, 116, (117), 117; female, 105; unsexed, 108, 117. Tail:

male, 80, 82, 83, (87); female, 79; unsexed, 78, 80. Tarsus: male, 24.5, (25), 25.5, 26; female, 25; unsexed, 24.5, 25. Bill: male, 20, 21, 22, (23); female, 21; unsexed, both broken.

*Bradornis infuscatus benguellensis*: Great Namaqualand (Kalkveldt): Male, respectively, 114, 78, 26, 22. Bechuanaland: Wing: male, 110, 112, 113, 116; female, 101, 105. Tail: male, 77, 78, 79, 79; female, 71, 73. Tarsus: male, 24, 25, 25, 26.5; female, 24, 24.5. Bill: male, 20, 21, 21, 21.5; female, 20, 20. Damaraland: Wing: male, 115; female, 103, 106, 107. Tail: male, 82; female, 70, 77, 79+. Tarsus: male, 27; female, 25, 25, 25.5. Bill: male, 22.5; female, 20, 21, 22. Hoesch and Niethammer (1940, p. 285): Wing: male, 107, 107, 110, 111, 112; female, 99, 102, 102, 103, 104, 106. Angola: Huila Province ("Mossamedes"): Wing: male, 106, 111. Tail: male, 76, 76+. Tarsus: male, 26.5, 28. Bill: male, 22, 22. Angola: Benguela Province (measurements in brackets indicate that the molt is not quite completed): Wing: male, 107, 108, 108, [108], [108], [109], [110], 110+; female, [99], [100], 102, [102]; unsexed, 100. Tail: male, 75, 76, [76], 77, 78+, [78], [80], 82; female, 73, [73], [75], 76; unsexed, 74. Tarsus: male, 25, 25.5, 25.5, 26, 26, 26.5, 27, 27; female, 24.5, 25, 26, 26; unsexed, 24. Bill: male, 18.5, 22, 22, 22, 22.5, 22.5, 23, 23; female, 21, 21.5, 21.5, 22; unsexed, 21.

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