



DURBAN MUSEUM NOVITATES

Issued by the Durban Museum, Durban, South Africa

Vol. VI

ISSUED 1ST MAY, 1962

Part 14

THE GENUS *PYCNONOTUS* IN SOUTHERN AFRICA

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The representatives of the Genus *Pycnonotus* Boie in Africa have been the subject of much detailed discussion in the literature. In southern Africa three groupings of populations are currently recognised, these being *P.capensis* (Linnaeus), *P.nigricans* (Vieillot) and *P.barbatus* (Desfontaine). Of the recent authors that have dealt with this group, Delacour (1943), Chapin (1953), White (1956) and Irwin (1958) retain all three as distinct species, whereas Meinertzhagen (1951, 1954) treats them as races of one species, *P.capensis*. Revisionary work carried out in the Durban Museum on these "species", their respective ranges and geographical variation, revealed the necessity for an overhaul of existing concepts, and arising from this research a rearrangement of the populations of the southern African pycnonotids is presented below.

For the loan of additional material I am indebted to the Directors of the following museums; National Museum of Southern Rhodesia (through Mr. M. P. Stuart Irwin); Transvaal Museum (through Mr. O. P. M. Prozesky); the East London Museum; and the Kaffrarian Museum (through Mr. D. Comins). I am also indebted to Mr. P. A. Clancey, Director of the Durban Museum, who has worked extensively on the bulbuls, for valuable assistance during the preparation of this paper, and also to Mr. C. J. Skead, Field Research Officer of the Percy FitzPatrick Institute of African Ornithology, Rondebosch, Mr. R. Liversidge, Ornithologist of the Port Elizabeth Museum, and Mr. Miles Markus, of Pretoria, for much valuable information so readily given on the status of the species in their areas. No less

than 750 specimens were examined collectively in detail during the course of this research.

The three forms in question, *P.capensis*, *P.nigricans* and *P.barbatus* are remarkably similar to one another in colouration and habits. The species were formally distinguished from one another on apparently reasonably well-marked differences. *P.capensis* has a white wattle surrounding the eye, the chest and abdomen brown, with very little or no white on the lower abdomen, and the top of the head is concolorous with the mantle. *P.nigricans* has the eye-wattle red or orange-red, the top of the head, face and throat black, with the chest sooty grey or brown and abdomen white, while in *P.barbatus* the eye-wattle is black, the top of the head and face black, with the throat and chest brown. *P.capensis*, *P.nigricans* and *P.barbatus* appear to be allopatric. They are subject to local movements, which appear to be seasonal and may be caused by their quest for food, so any overlap which takes place in their ranges could well be marginal and probably attributable to this factor. They also have somewhat different habitat preferences, so marginal overlaps may also be due to the interdigitating of the different vegetational types.

McLachlan and Liversidge (1957) regard *P.capensis* and *P.nigricans* as being monotypic, and *P.barbatus* as being divisible into four subspecies in the southern part of its range, namely *P.b.tricolor* (Hartlaub), *P.b.ngamii* O-Grant, *P.b.pallidus* Roberts and *P.b.layardi* Gurney, whereas Rand (1960) also regards *P.capensis* and *P.nigricans* as being monotypic, but divides *P.barbatus* into four rather different subspecies, these being *P.b.ngamii*, *P.b.layardi*, with which is synonymised *P.b.pallidus*, *P.b.tenebrior* Clancey and *P.b.tricolor*. Since the compilation of these works, however, Clancey (1959) has demonstrated variation in *P.nigricans*, admitting a new form, *P.n.superior* Clancey.

I propose to show hereunder that the complex of southern African *Pycnonotus* forms represent a single polytypic species, *P.capensis*, treating *P.barbatus* and *P.nigricans* as conspecific. This species may be divided into three groups of subspecies: (a) the *capensis* group with white eye-wattle, (b) the *nigricans* group, those with a red eye-wattle, and (c) the *barbatus* group with a black eye-wattle. In addition to the merging of *P.nigricans* and *P.barbatus* into *P.capensis*, I propose to admit seven subspecies within the *barbatus* group occurring in southern Africa south of the Congo and Tanganyika.

Specimens of *capensis* from the periphery of its range appear to be considerably whiter below than those from the centre, suggesting that there is a tendency on the periphery for birds to approach the condition displayed in the contiguous *nigricans* and *barbatus*, which have the abdomen white. Specimens of *barbatus* from the south of its range where it meets *capensis* in the vicinity of Grahamstown are very dusky on the abdomen and they lack the clear white underparts displayed by other specimens from the eastern Cape Province, and these specimens also have the head-top considerably browner, not black. These specimens seem to be actually intergrades between *barbatus* and *capensis*. When these *barbatus*-like intergrades are compared with the *capensis*-like intergrades mentioned above, the colour of the underparts seem to be very similar, being markedly dusky in both cases, but they differ from one another in the colour of the head-top and eye-wattle. The calls, behaviour and habits of all three, *capensis*, *barbatus* and *nigricans* are very similar.

The relationships between *nigricans* and *barbatus* in the Bechuanaland Protectorate have been dealt with by Irwin (*loc. cit.*), who found that *P.b.tricolor* and *nigricans* are capable of behaving as distinct species in this area, but that *nigricans* and *layardi* do not and should be regarded as being conspecific. This same problem of one race of a species behaving as a distinct species where it meets another race of the same species has been pointed out by Lawson (1961) in the case of the Karroo Larks, in which *Certhilauda albescens burra* seems to have almost reached specific rank where it meets the markedly different *C.a.karruensis* to the south of its range, though it fits into a perfect sequence of colour variation with the races to the west and north of its range. Markus (in press) records the collecting of two specimens 35 miles north-east of Potchefstroom, Transvaal, which is in the area where *nigricans* and *layardi* meet, which have the *layardi* type of plumage, but have the eye-wattles not black as in *layardi* but "rather a light brownish khaki, becoming yellowish towards the inside, thus intermediate in colouration between *P.b.layardi* and *P.nigricans*". White (1956) showed that there is some evidence of intergradation between *nigricans* and *tricolor* in western Angola.

The Capensis Group

Pycnonotus capensis capensis (Linnaeus), 1766: Cape of Good Hope, is characterized by its white eye-wattle, in having the top of the head concolorous with the mantle, and in the white of the abdomen being considerably reduced by the intrusion of the brown of the chest extending over the flanks and abdomen, scarcely any

white remaining on the abdomen at all. It occurs in the western, south-western and southern Cape Province, ranging eastwards as far as the Albany division and Bathurst, and inland in the Karroo regions to Bedford, Cradock and Graaff-Reinet. In the western Cape it extends from the south-west, through Little Namaqualand as far north as Alexander Bay, at the Orange River mouth. Specimens from Graaff-Reinet, which is on the north-western periphery of its range, north of which it is replaced by *P.c.superior*, incline to be somewhat whiter on the abdomen, tending towards the condition in *P.nigricans*, in which the abdomen is white. These specimens are believed to represent a stage towards *P.nigricans* as a result of marginal hybridization with that form. Likewise, specimens of *P.c.tenebrior* from Grahamstown seem to be darker on the lower breast, abdomen and flanks, and represent hybrids between *P.c.capensis* and that form (see photo).

Pycnonotus capensis (Linnaeus) is now enlarged to incorporate *P.nigricans* and *P.barbatus*, which are regarded as having merely subspecific status, and are not treated as species distinct from *P.capensis*. Cases of apparent hybridisation between the forms have been demonstrated above, and contrary to the statement by Rand (1960, p. 147) that "no intermediate populations are known in the comparatively well-worked South African area" this study has revealed that entire populations formally given subspecific rank in *P.barbatus*, namely the toptotypical population of *P.b.layardi*, can be regarded as linking populations with *P.nigricans*.

The Nigricans Group

This subdivision of *P.capensis* is characterized by the presence of a red eye-wattle. Two subspecies are to be admitted, these being *P.c.nigricans* (Vieillot), 1818: Banks of the Orange River in Namaqualand, restricted to Goodhouse, on the Orange River, and *P.c.superior* Clancey, 1959: Mamathes, near Teyateyaneng, Basutoland.

P.c.nigricans is characterized by having the head, face and throat black, with the chest a sooty grey, lightly streaked on the mid breast, which merges into the white of the abdomen. It differs from *superior* in its shorter bill and tail lengths, and in having the chest sooty grey. In *superior* the chest is brown. It differs from *P.c.layardi* as defined later in having the throat black, whereas in *layardi* it is sooty grey, not as dark as in *nigricans*. In *layardi* the eye-wattle is black. *P.c.nigricans* occurs in South-West Africa, the northern Cape Province north of the Orange River to southern Bechuanaland and the north-western Transvaal. It intergrades

with *superior* in the south of its range along the Orange River, with *layardi* in the north-east, and with *P.c.tricolor* in western Angola (*vide* White (1956)).

The type-locality of *nigricans* is unfortunately in an area where *nigricans* and *superior* intergrade.

P.c.superior has the head, face and throat black, the sooty black of the throat merging into the brown of the chest, in which respect it differs from *nigricans*. The brown of the chest grades into the white of the abdomen, and the streaking is bolder and more extended downwards onto the upper abdomen than in *nigricans*. The white of the abdomen is not as clear as in *nigricans* but has a somewhat smoky brown appearance. The tail and bill are longer than in *nigricans*. The eye-wattle is red. In having the upper abdomen streaked with brown extending downwards from the chest this taxon resembles *P.c.tenebrior*, but it differs in the colour of the eye-wattle and in having a sooty-black throat, whereas in *tenebrior* the throat is brown. *P.c.superior* ranges from Basutoland, the Orange Free State, and the interior regions of the eastern Cape Province, west of the range of *tenebrior*, and the Cape Province north of the range of *P.c.capensis* as far north as the Orange River, westwards to Alexander Bay (perhaps only seasonally). *P.c.superior* seems to be a population intermediate in colour characters between *tenebrior* and *nigricans*; it has the red eye-wattle and black throat of *nigricans*, but is otherwise like *tenebrior*.

The Barbatus Group

All the *barbatus* forms are characterized by having a black eye-wattle. These are also divisible into two main sub-groups, those with the top of the head black (*layardi*, *tenebrior*, *pallidus* and *nau-manni*), and those with the top of the head concolorous with the mantle or dark brown (*tricolor*, *ngamii* and *micrus*).

P.c.tenebrior Clancey, 1955: Mt. Currie, near Kokstad, eastern Cape Province is similar to the red-eyed *superior* in having the chest brown, though lacking the sooty-black throat, which in *tenebrior* is also brown. The brown of the chest is not sharply demarcated from the white abdomen, which is not dusky as in *superior*, but white, the brown tending to run into the white of the upper abdomen, giving a somewhat streaked appearance. This condition of the streaked upper abdomen could be regarded as an intermediate condition between the pure white-breasted forms further north and east, which have the brown chest clearly marked off from the white abdomen, and the dark-bellied *P.c.capensis* in the south. *P.c.tene-*

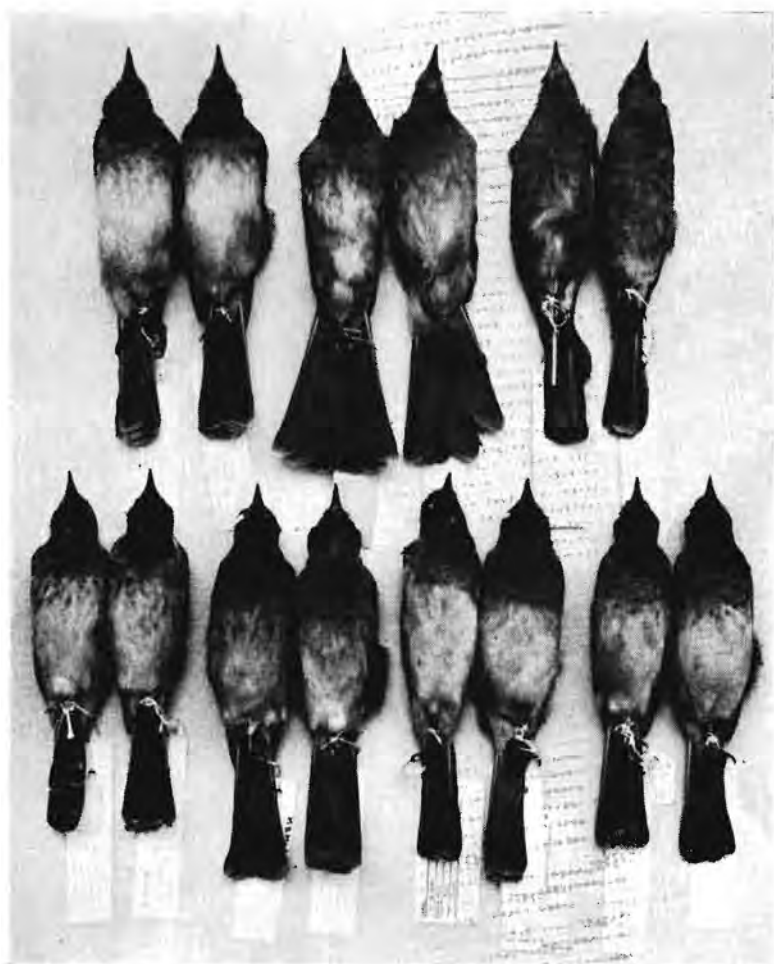


PLATE I

Photograph to show the colour differences in some of the races of *Pycnonotus capensis* (Linnaeus)

Top row: Left pair, *P.c.tenebrior* Clancey; middle *P.c.tenebrior* \supset *capensis*; right, *P.c.capensis* (Linnaeus).

Bottom row: Left pair, *P.c.nigricans* (Vieillot); left centre, *P.c.layardi* Gurney; right centre, *P.c.naumanni* Meise; right, *P.c.pallidus* Roberts.

Attention is drawn to the two centre specimens in the top row, both from Grahamstown, which seem to be hybrid in character between *P.c.capensis* and *P.c.tenebrior*. In the lower series, note the dark throat, chest and flanks and dusky abdomen of *P.c.layardi* compared with the clear, sharply demarcated white of the under-parts of *P.c.naumanni*, and the small sized *P.c.pallidus*.

[Photo: Dennis Cleaver]

brior occurs in the eastern Cape Province north-east of the range of *P.c.capensis*, from about the Albany division and to the south-east of *superior*, which inhabits the drier interior portions of the eastern Cape Province, extending north-eastwards through Pondoland to Natal, western Zululand and southern Swaziland. In Natal on the littoral it intergrades with *P.c.pallidus*, which replaces it from St. Lucia Lake northwards on the coast. Where *tenebrior* meets *superior* in the eastern Cape Province the two forms seem to hybridize, as some specimens from critical marginal areas in the Albany and adjacent districts closely resemble *superior* in colouration, but have the black eye-wattle of *tenebrior*. It would appear that the population of *tenebrior* in the extreme south of its range in the eastern Cape Province is somewhat unstable due to the influence of *P.c.capensis* and *P.c.superior*, which meet it there.

P.c.layardi Gurney, 1879: Rustenburg, western Transvaal, as now carefully determined, differs from the *P.barbatus layardi* of authors, as generally understood in recent standard works. Originally *layardi* was considered to extend from the eastern Cape Province, Natal, Zululand, north through the Transvaal, Southern Rhodesia and Nyasaland to Moçambique and Tanganyika Territory, where it is replaced by *P.c.micrus*. In 1955 Clancey separated the southern components of the former taxon "*layardi*" as *tenebrior*, the range of which is given above, the rest still being kept as *layardi* by Rand (1960), whereas McLachlan & Liversidge (1957), following Roberts, separate the populations of Moçambique as *P.c.pallidus*, mainly on the basis of smaller size.

As a result of an examination of an adequate series of recently collected specimens of *layardi* from the type-locality and surrounding districts kindly sent by Mr. Miles Markus, it became patently obvious that the populations currently called *layardi* are in fact a complex of quite distinct forms, having readily definable racial differences and geographical ranges. *P.c.layardi* was named from specimens on the periphery of the range of the black-eyed forms of *P.barbatus*, in an area where it might be expected to hybridize with the red-eyed *nigricans*. *P.c.layardi* as now interpreted is in fact a hybrid population between the brown-chested, black-eyed forms and the grey-chested, red-eyed forms. Clancey (1960) pointed out that birds from Pretoria seemed to be hybrid in character, and suggested that should toptotypical specimens of *layardi* be similar to those from Pretoria, then the name *layardi* would have to be kept for this population, and the other populations from further north would require another name. He also advocated that *P.nigricans* be regarded as conspecific with *P.barbatus*. Topotypical

specimens of *layardi* cannot easily be separated on plumage characters from the red-eyed *nigricans*, as they resemble them very closely in colour, the cardinal difference being the black eye-wattle in *layardi*. *P.c.layardi* resembles to some extent the black-eyed hybrids found in the eastern Cape Province mentioned earlier, the hybrids between *superior* and *tenebrior*. *P.c.layardi* appears to be confined to the Transvaal highveld and adjacent areas, and is characterized by having a black eye-wattle, a grey chest with the throat a distinctly darker sooty grey, almost as black as in *nigricans*. This form wanders seasonally into the adjoining lowveld of the eastern Transvaal, and also ranges north to the Limpopo River and southern Southern Rhodesia. It also occurs as a winter visitor to Natal. The populations now placed as *layardi* are quite different to *tenebrior* and to the populations of the eastern Transvaal, Southern Rhodesia, Nyasaland, eastern Northern Rhodesia and Moçambique, which now require to be considered.

P.c.pallidus Roberts, 1912: Boror, Moçambique, is a very small race, on which character it can easily be separated from the other black-capped races of the *barbatus* group, differing in the black crown from the small-sized *micrus* of Tanganyika, which has the head-top dark brown. It occurs from the north-eastern littoral of Natal, where it intergrades with *tenebrior*, to Zululand and Moçambique and the lowlands of south-eastern Tanganyika Territory. *P.c.pallidus* differs from *tenebrior* in its smaller size and in having the brown of the chest clearly marked off from the white of the abdomen and not streaked as in *tenebrior*. It differs from the populations of the north-eastern Transvaal, Southern Rhodesia, Nyasaland and eastern Northern Rhodesia on account of its smaller size, in being more richly coloured on the mantle, and in not having the greyish suffusion to the mantle present in those populations.

P.c.naumanni Meise, 1934: Lipumba, Matengo Highlands, southern Tanganyika, is here proposed as the name for those populations formally placed as *layardi* which are resident in the north-eastern and eastern Transvaal, Southern Rhodesia, Northern Rhodesia east of the Muchinga Range, Nyasaland, and adjacent highland areas of Moçambique and southern Tanganyika, east of Lake Nyasa and south of the Southern Highlands, where *P.c.micrus* occurs. This form differs from topotypical *layardi* in having the throat and chest brown, not grey or sooty black, from *pallidus* in its larger size and greyer mantle, and from *tenebrior*, which is warmer rusty brown on the upper-parts, not cold greyish as in *naumanni*. It differs from *P.c.ngamii*, *P.c.tricolor* and *P.c.micrus* in having the head-top black. In the last-named three forms the head-top is either dark

brown or concolorous with the mantle. *P.c.naumanni* is considered by Rand (1960) as being synonymous with *P.c.micrus*, but I have examined a near topotypical specimen of *naumanni* from the Ruanda district of southern Tanganyika, and it is quite clearly black and not brown headed and is too large to be placed with *micrus*. Indeed it can hardly be regarded as being other than identical with the populations I have now placed as *naumanni*.

P.c.ngamii O-Grant, 1912: Lake Ngami, is a very large race of *P.capensis*, which has the head-top a dark brown, not black. It is readily separable from *naumanni*, which has the head-top black, and from *P.c.tricolor*, which has the head-top concolorous with the mantle and which is smaller than *ngamii*. It resembles *P.c.micrus* somewhat in colouration but is considerably larger than that form. It is distributed from northern Bechuanaland Protectorate, the Caprivi strip and south-western Northern Rhodesia to extreme south-eastern Angola.

P.c.tricolor (Hartlaub), 1862: northern Angola, has the head-top concolorous with the mantle, consequently it lacks a 'cap'. It is smaller in size than *ngamii* but larger than *micrus*, which it meets in north-eastern Northern Rhodesia. It occurs from Angola and the southern Congo, north-western Northern Rhodesia, west of the Muchinga Range, and hence northwards west of Lake Tanganyika.

P.c.micrus Oberholser, 1905: Taveta, south-eastern Kenya, is a small race of *P.capensis* with a dark brown head-top, which, like *ngamii*, is contrasted with the colour of the mantle. Specimens of *P.capensis* from north-eastern Northern Rhodesia, north of the Muchinga Range, average smaller in size than the populations to the south-east (*naumanni*) and the south-west (*tricolor*) and certainly seem applicable to this taxon. In this area, however, three races meet, *naumanni*, *tricolor* and *micrus*, so the populations are somewhat unstable, but nevertheless many specimens approximate in size and colouration to *micrus* and should be placed with it. *P.c.micrus* therefore ranges from south-eastern Kenya at Taveta (but not the coastal area) and Mt. Kilimanjaro, south through eastern Tanganyika to the Matengo Highlands and south-west into Northern Rhodesia, north-east of the Muchinga Range. Specimens I have examined from Mt. Kilimanjaro agree with those from Northern Rhodesia which I place as *micrus*. Specimens from Shem's village, on the Isoka-Tanganyika border, attributed to *P.c.fayi* Mearns by White and Winterbottom (1949, p. 81), probably belong to *P.c.micrus*.

The pycnonotids of southern Africa are almost certainly all derivatives of a single basic parental form, which has had two major phases of expansion and subspeciation. During the first phase most of the ecologically suitable habitats in southern Africa were colonized. The optimum climatic conditions favouring this initial expansion and, apparently, basic subspeciation, clearly existed for some considerable time, later to give way to, presumably, pluvial conditions, which were inimical to the species, resulting in the fragmentation of the former range into so many isolates, and an intensification of subspeciation. Arising from this disruption of the former continuous range of the species, four discrete groups of populations evolved, being characterized presumably by the colouration of the eye-wattles, which were white in one, red in another, and black in the remaining ones, these latter two being segregable from one another by the colour of the head, which was black in one and brown in the other. A return to mesic or xeric conditions in many parts of southern Africa is believed to have favoured a secondary expansive phase in the species as a whole, though perhaps not in the white eye-wattled isolate (*capensis*) of the extreme south, at a critical stage in its evolution, in which some of the isolated forms had all but attained specific viability. The secondary expansion of the cardinal forms into the territory voided by the species during the period of inimical climatic conditions, and the breakdown of the main geographical isolating mechanism, resulted in the present complex situation, where well-marked, almost specific, forms of a single polytypic species are themselves groups or coteries of less sharply defined subspecies.

The Races of *Pycnonotus capensis* (Linnaeus)

The forms of the genus *Pycnonotus* in southern Africa are as follows:

PYCNONOTUS CAPENSIS (LINNAEUS)

The *CAPENSIS* Group

(eye-wattle white)

(1) *Pycnonotus capensis capensis* (Linnaeus)

Turdus capensis Linnaeus, 1766, *Syst. Nat.*, 12th ed., vol. 1, p. 295: Cape of Good Hope.

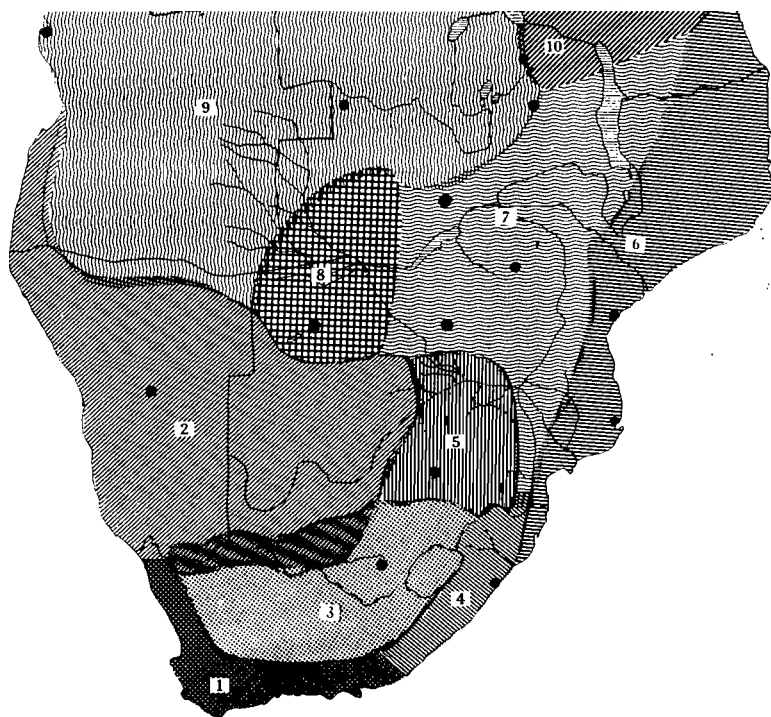
Diagnosis: Eye-wattle white, top of head concolorous with mantle, no black on head at all. Undersurface brown, white of abdomen very reduced or lacking.

Measurements: ♂♂ (7) wing 94.0-98.5 (95.8), tail 84.0-89.0 (86.9), culmen 20.5-22.0 (21.0) mm.; ♀♀ (6) wing 90.0-92.0 (90.8), tail 80.5-83.0 (82.1), culmen 21.0-22.5 (21.4) mm.

Material: 19, all from southern and south-western Cape Province.

Range: Western, south-western and southern Cape Province, eastwards to the Albany division and Bathurst, in the Karroo regions as far north as Bedford, Cradock and Graaff-Reinet, and in the western Cape through Little Namaqualand to Alexander Bay, near the Orange River mouth.

Remarks: Intergrades with *P.c.tenebrior* and *P.c.superior* where it meets these races.



Sketch-map showing the approximate ranges of the geographical races of *Pycnonotus capensis* (Linnaeus) occurring in southern Africa.

- | | |
|-------------------------|--------------------------|
| 1. <i>P.c. capensis</i> | 2. <i>P.c. nigricans</i> |
| 3. <i>P.c. superior</i> | 4. <i>P.c. tenebrior</i> |
| 5. <i>P.c. layardi</i> | 6. <i>P.c. pallidus</i> |
| 7. <i>P.c. naumanni</i> | 8. <i>P.c. ngamii</i> |
| 9. <i>P.c. tricolor</i> | 10. <i>P.c. micrus</i> |

The *NIGRICANS* Group
(eye-wattle coral red)

(2) *Pycnonotus capensis nigricans* (Vieillot)

Turdus nigricans Vieillot, 1818, *Nouv. Dict. d'Hist. Nat.*, vol. 20, p. 253: Banks of Orange River in Namaqualand, restricted to Goodhouse, Orange River (*vide* Macdonald, *Contr. Orn. West. South Africa*, 1957, p. 116).

Diagnosis: Top of head, face and throat black, chest grey, breast streaked with dark grey, and abdomen white.

Measurements: ♂♂ (16) wing 94.0-101.5 (97.7), tail 80.0-85.5 (82.9), culmen 19.0-20.5 (19.6) mm.; ♀♀ (16) wing 91.0-95.5 (93.1), tail 76.5-82.5 (79.5), culmen 18.0-20.0 (19.3) mm.

Material: 148 (South-West Africa 50, Bechuanaland Protectorate 77, western Transvaal 7, northern Cape Province 24).

Range: South-West Africa, northern Cape Province north of the Orange River, to southern Bechuanaland Protectorate and the north-western Transvaal. Also south-western Angola.

Remarks: Intergrades with *P.c.superior* in the south along the Orange River, with *P.c.layardi* in the north-east, and with *P.c.tricolor* in western Angola.

(3) *Pycnonotus capensis superior* Clancey

Pycnonotus nigricans superior Clancey, 1959, *Bull. Brit. Orn. Club*, vol. 79 (9), p. 170: Mamathe's, near Teyateyaneng, Basutoland.

Diagnosis: Similar to *P.c.nigricans* in having the top of head, face and throat black, but chest brown, not grey, and abdomen white with a smoky brown appearance. Brown of chest merging into white of the abdomen, giving upper abdomen a strongly streaked appearance, that is more marked than in *nigricans*. Larger bill and tail size than in *P.c.nigricans*.

Measurements: ♂♂ (16) wing 97.0-108.0 (99.8), tail 84.0-95.0 (87.7), culmen 19.5-22.0 (20.7) mm.; ♀♀ (16) wing 92.5-101.5 (96.3), tail 80.0-88.0 (83.4), culmen 19.0-21.5 (20.6) mm.

Material: 79 (north-eastern Cape Province 19, Cape Province south of the Orange River 41, eastern Cape Province 3, Orange Free State 10, Basutoland 6).

Range: Basutoland, the Orange Free State, and the arid interior regions of the eastern and central Cape Province as far north as the

Orange River, and westwards, perhaps only seasonally, to Alexander Bay. Also to Griqualand East, and as a winter visitor to Natal and the eastern Transvaal.

Remarks: Intergrades with *P.c.nigricans* along the Orange River in the west, with *P.c.tenebrior* in the eastern Cape Province, and possibly with *P.c.capensis* in the south.

The *BARBATUS* Group

(eye-wattle black)

(4) *Pycnonotus capensis tenebrior* Clancey

Pycnonotus barbatus tenebrior Clancey, 1955, *Durban Mus. Novit.*, vol. 4, p. 204: Mt. Currie, near Kokstad, eastern Cape Province.

Diagnosis: Top of head and face black, lower throat and chest olive-brown, abdomen white with brown of the chest merging into the white, giving a somewhat streaked appearance. Upper-parts warm rusty brown, especially marked over the rump.

Measurements: ♂♂ (15) wing 95.5-105.0 (100.9), tail 85.0-96.5 (91.3) culmen 20.0-23.0 (21.6) mm.; ♀♀ (5) wing 95.0-96.5 (95.9), tail 84.0-90.5 (86.5), culmen 20.5-22.0 (21.0) mm.

Material: 87 (eastern Cape Province 44, Natal 38, Swaziland 5).

Range: Eastern Cape Province from the Albany division, northwards through East Griqualand and Pondoland to Natal and the high western and northern districts of Zululand and Swaziland.

Remarks: Intergrades with *P.c.capensis* in the south, with *P.c.superior* in the eastern Cape Province and with *P.c.pallidus* in the north-eastern littoral of Natal and southern Zululand.

(5) *Pycnonotus capensis layardi* Gurney

Pycnonotus layardi Gurney, 1897, *Ibis*, p. 390: Rustenburg, western Transvaal.

Diagnosis: Differs from *P.c.tenebrior* by having paler and greyer upper-parts, the rump without a rusty tinge. Lower throat sooty grey, almost black, not olive-brown as in *P.c.tenebrior*, and the chest grey, not brown. The white of the abdomen duller, distinctly suffused with grey.

Measurements: ♂♂ (14) wing 96.0-96.5 (99.6), tail 85.0-99.0 (88.8), culmen, 19.0-22.0 (20.4) mm.; ♀♀ (15) wing 92.0-96.5 (94.3), tail 80.0-97.5 (84.5), culmen 19.0-21.0 (20.1) mm.

Material: 98 (Transvaal 83, south-western Southern Rhodesia 15).

Range: Transvaal highveld, wandering seasonally into the lowveld of the eastern Transvaal, and extending to south-western Southern Rhodesia. In winter occasionally in Natal.

Remarks: Intergrades with *P.c.nigricans* in the west of its range and with *P.c.naumanni* in the north-east and east.

(6) ***Pycnonotus capensis pallidus*** Roberts

Pycnonotus layardi pallidus Roberts, 1912, *Journ. S. Afr. Orn. Union*, vol. 8, p. 49: Boror, Moçambique.

Diagnosis: Similar to *P.c.tenebrior* but paler above, brown of chest sharply demarcated from the white of the abdomen, no streaking of brown into the white. Smaller than other black-headed races.

Measurements: ♂♂ (13) wing 89.5-94.0 (92.3), tail 78.0-85.0 (81.7), culmen 17.5-21.0 (19.8) ♀♀ (9) wing 86.0-89.5 (87.7), tail 74.5-80.0 (76.7), culmen 18.5-20.5 (19.5) mm.

Material: 36 (Zululand 2, Moçambique 31, southern Nyasaland 2, lowlands of eastern Southern Rhodesia, in Limpopo River Valley 1).

Range: Zululand, north through Moçambique to the lowlands of south-eastern Tanganyika Territory. Intrudes slightly into Southern Rhodesia up the Limpopo River Valley.

Remarks: Intergrades with *P.c.tenebrior* in the north-eastern littoral of Natal and southern Zululand.

(7) ***Pycnonotus capensis naumanni*** Meise

Pycnonotus tricolor naumanni Meise, 1934, *Orn. Monatsb.*, vol. 42, p. 116: Lipumba, Matengo Highlands, southern Tanganyika.

Diagnosis: Similar to *P.c.pallidus*, but much larger in size (see measurements).

Measurements: ♂♂ (11) wing 93.5-105.0 (97.9), tail 84.5-93.0 (88.4), culmen 18.5-21.5 (19.5) mm.; ♀♀ (15) wing 88.5-98.0 (93.6), tail 81.0-91.0 (85.1), culmen 17.5-21.0 (19.2) mm.

Material: 120 (Tanganyika Territory 1, Northern Rhodesia 28, Southern Rhodesia 76, Bechuanaland Protectorate 5, eastern Transvaal lowveld 10).

Range: Eastern and north-eastern Transvaal lowveld and the north-eastern Bechuanaland Protectorate to Southern Rhodesia, Northern Rhodesia east of the Muchinga Range, Nyasaland, and adjacent highland areas of Moçambique and southern Tanganyika Territory east of Lake Nyasa and south of the Southern Highlands.

Remarks: The type-locality is on the periphery of its range. Intergrades with *P.c.tricolor* and *P.c.micrus* in north-eastern North.

ern Rhodesia, north of the Muchinga Range, and with *P.c.layardi* in the lowlands of the Limpopo River Valley in south-western Southern Rhodesia, and with *P.c.nigricans* in the Bechuanaland Protectorate.

(8) ***Pycnonotus capensis ngamii*** O-Grant

Pycnonotus tricolor ngamii Ogilvie-Grant, 1912, *Ibis*, p. 391: Lake Ngami.

Diagnosis: Top of head dark brown, not black, throat and chest brown, abdomen white. A very large race.

Measurements: ♂♂ (7) wing 100.5-107.0 (103.6), tail 90.5-99.0 (94.1), culmen 19.0-22.0 (20.4) mm.; ♀♀ (7) wing 96.0-103.5 (99.6), tail 88.5-93.0 (90.7), culmen 19.0-20.5 (19.7) mm.

Material: 15 (Bechuanaland Protectorate 10, Caprivi 3, south-western Northern Rhodesia 2).

Range: Northern Bechuanaland Protectorate, the Caprivi Strip, south-western Northern Rhodesia, and probably also south-eastern Angola.

Remarks: Intergrades with *P.c.tricolor* in the north of its range.

(9) ***Pycnonotus capensis tricolor*** (Hartlaub)

Ixos tricolor Hartlaub, 1862, *Ibis*, p. 341: Angola, restricted to northern Angola.

Diagnosis: Similar to *P.c.ngamii* but differs in having the top of the head concolorous with the upper-parts, no distinct 'cap'. Abdomen white. Smaller in size than *ngamii*.

Measurements: ♂♂ (11) wing 96.0-102.0 (99.1), tail 86.5-92.0 (89.7), culmen 18.5-20.5 (19.1) mm.; ♀♀ (13) wing 91.0-98.0 (94.0), tail 81.5-95.0 (87.1), culmen 17.0-19.5 (17.7) mm.

Material: 24, all from Northern Rhodesia.

Range: Angola, the southern Congo, north-western Northern Rhodesia west of the Muchinga Range, and north-west of Lake Tanganyika northwards.

Remarks: Intergrades with *P.c.nigricans* in western Angola, *P.c.ngamii* in north-western Northern Rhodesia, and with *P.c.micrus* in north-eastern Northern Rhodesia, north of the Muchinga Range.

(10) ***Pycnonotus capensis micrus*** Oberholser

Pycnonotus layardi micrus Oberholser, 1905, *Proc. U.S. Nat. Mus.*, vol. 28, p. 891: Taveta, south-eastern Kenya.

Diagnosis: Similar to *P.c.ngamii* in having the top of the head dark brown, neither black nor concolorous with the mantle. A small race (see measurements).

Measurements: ♂♂ (3) wing 89.5-91.0 (90.5), tail 82.0-88.5 (84.6), culmen 18.5-19.0 (18.8) mm.; ♀♀ (6) wing 90.5-93.0 (91.2), tail 79.0-91.0 (85.1), culmen 17.5-19.0 (18.5) mm.

Material: 9 (Mt. Kilimanjaro 2, north-eastern Northern Rhodesia 7).

Range: South-eastern Kenya at Taveta (but not the coastal area) and Mt. Kilimanjaro, south through eastern Tanganyika to the Matengo Highlands, and south-west into Northern Rhodesia north-east of the Muchinga Range.

Remarks: Intergrades with *P.c.tricolor* in the north-eastern Northern Rhodesia.

Bibliography

- Benson, C. W. (1956). "A Contribution to the Ornithology of Northern Rhodesia", *Occ. Papers Nat. Mus. S. Rhod.*, 21B, pp. 1-51.
- Chapin, J. P. (1953). "The Birds of the Belgian Congo", *Bull. Amer. Mus. Nat. Hist.*, 75A, p. 149.
- Clancey, P. A. (1959). "Geographical Variation in the South African Populations of the Red-eyed Bulbul *Pycnonotus nigricans* (Vieillot)", *Bull. Brit. Orn. Club*, vol. 79 (9), pp. 166-170.
- Clancey, P. A. (1960). "On some interesting Bulbuls *Pycnonotus* sp. from the Transvaal", *Bull. Brit. Orn. Club*, vol. 80 (6), pp. 100-101.
- Delacour, J. (1943). "A Review of the genera and species of the family *Pycnonotidae* (Bulbuls)", *Zoologica*, vol. 28, pp. 17-27.
- Irwin, M. P. S. (1958). "The Relationships of the Bulbuls *Pycnonotus barbatus* and *P.nigricans*", *Occ. Papers Nat. Mus. S. Rhod.*, vol. 3, 22B, pp. 198-201.
- Lawson, W. J. (1961). "The Races of the Karroo Lark *Certhilauda albescens* (Lafresnaye)", *Ostrich*, vol. 32, (2), pp. 64-74.
- Markus, M. (in press). "Bulbuls from the Zone of Contact between *Pycnonotus barbatus layardi* Gurney, 1879 and *Pycnonotus nigricans* (Vieillot) in the Transvaal".
- McLachlan, G. R. & Liversidge, R. (1957). *Roberts' Birds of South Africa*. Cape Town.
- Meinertzhagen, R. (1951). "Relationships between Regions," *Ibis*, vol. 93, p. 450.
- Meinertzhagen, R. (1954). *The Birds of Arabia*, p. 177. London.
- Rand, A. (1960). Family Pycnonotidae in the continuation of Peters' *Check-List of Birds of the World*, vol. 9, pp. 221-300.
- White, C. M. N. (1956). "Notes on the Systematics of African Bulbuls", *Bull. Brit. Orn. Club*, vol. 76 (9), pp. 155-158.
- White, C. M. N. & Winterbottom, J. M. (1949). *A Check List of the Birds of Northern Rhodesia*. Lusaka.