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ON TWO SPECIES OF CENTROPUS FROM THE KANGEAN ISLANDS (AVES, CUCULIDAE)

by

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When collecting on the Kangean Islands in 1954 I obtained representatives of two species of *Centropus: C. sinensis,* and *C. bengalensis.* The first of these species was known to occur on the islands, but the second had not previously been recorded from the Kangean Archipelago, and is an interesting addition to its avifauna.

The subspecific identity of these birds seemed worth investigating, as the Kangean Islands occupy an interesting position between Celebes and Java, and are known to have a certain degree of endemism. A discussion of both species will here be given.

Centropus sinensis (Stephens)

Of the six specimens obtained on the three islands Kangean, Saebus and Paliath, four are in the normal plumage, while two are in the plumage of birds described by Vorderman (1893) as *C. kangeangensis.*

Until recently *C. kangeangensis* Vorderman has been regarded as a race of *C. celebensis* Quoy & Gaimard. Hartert (1902) even called it "the most interesting species of the birds inhabiting the Kangean Islands" and it was only Stresemann (1939) who discovered its true affinities.

The *kangeangensis*-plumage has been well described by Vorderman (1893) and Hartert (1902). Only the wings have the normal reddish brown colour of *Centropus sinensis*; all parts which are normally black, are greyish, beige, or creamy buff, varying much in tinge, especially on the under parts (pl. 1).

From collected material it seems that birds in normal plumage are slightly more common than birds in *kangeangensis*-plumage. Out of five skins in the collections of the Buitenzorg Museum and the Leiden Museum, three are normal; Hartert (1902) had five specimens in normal plumage and four

in *kangeangensis*-plumage. Of both plumage varieties, males and females have been recorded, so that the *kangeangensis*-plumage is not a sex-linked character.

My experience in the field fully confirms Stresemann's conclusions: besides being identical in size, the two phases occur together in the same habitat and do not differ in voice or behaviour.

Stresemann (1939) expressed the opinion that the normal phase might be in the process of being replaced by the aberrant phase and he suggested that the name *kangeangensis* might continue to be applied to the latter. However, dimorphism in a population is usually not regarded as sufficient for subspecific separation. In related species, individuals in a similar plumage occur as aberrations (pl. 2). Now that *C. kangeangensis* has been recognized as based on a plumage aberration, a re-evaluation of its validity becomes necessary. Stresemann (1939), on the basis of information supplied to him by Mayr, states that Kangean birds in normal plumage agree in size with *C. sinensis bubutus* Horsfield, and in Stresemann's paper no characters are given that would justify subspecific separation of the Kangean population.

Comparison of normally feathered specimens from the Kangean Islands with material of *C.s. bubutus* (with which *C. eurycercus* Hay should be synonymised as I have shown in a previous publication, cf. Hoogerwerf, 1946), shows, however, that contrary to Stresemann's conclusion, birds from Kangean are considerably smaller. In his earlier paper, Stresemann (1913) noted this difference in size but as his material was very scanty, he did not stress the point. The additional material now available confirms this difference, which exists in measurements of wing, tail, and bill, and also in body weight (table 1).

TABLE 1

Measurements of material of *Centropus sinensis* (in millimetres)

C.s. bubutus, males: wing 202, 206, 208, 213, 215, 217, 218, 220, 220, 230 (average 214.9), tail 270, 274, 275, 275, 280, 285, 290, 292, 300, 302 (av. 284.3), culmen 36, 36.2, 37, 38.7, 39, 39, 39, 39.5, 41.1, 42 (av. 38.75), depth of bill 16.8, 17, 18, 18, 18.3, 18.9, 19, 19.5, 19.9, 20.5 (av. 18.59).

C.s. bubutus, females: wing 215, 218, 227, 229, 231, 235, 237, 240, 243 (av. 230.56), tail 270, 285, 290, 300, 301, 305, 305, 305, 320 (av. 297.89), culmen 37, 37, 39.9, 41.7, 42, 42.2, 43.5, 44 (av. 40.91), depth of bill 17.8, 18, 18, 18.5, 19, 19.5, 19.6, 20, 21 (av. 19.04).

C.s. kangeangensis, males: wing 199, 202, 205 (av. 202), tail 248, 251, 258 (av. 252.33), culmen 35.5, 36, 38 (av. 36.5), depth of bill 16.3, 16.8, 17.6 (av. 16.9).

C.s. kangeangensis, females: wing 209, 210, 216, 216 (av 212.75), tail 251, 263, 275, 282 (av. 267.75), culmen 37, 37, 37.6, 40.9 (av. 38.13), depth of bill 17.4, 17.8, 18.1, 18.5 (av. 17.95).

C.s. kangeangensis, measurements from literature. Stresemann (1913; Vorderman birds), four males: wing 192-205 (av. 200.75), one female: wing 211. Hartert (1902), three males: wing 196-203 (av. 200), tail 252-260 (av. 255.67), one female: wing 210, tail 271.

Weights of material of *Centropus sinensis* (in grammes)

C.s. bubutus, males: 287, 305; female: 500.

C.s. kangeangensis, males: 254, 270; females: 273, 275, 295, 380.

There may also exist a difference in plumage; birds from the Kangean Islands seem to be duller black on the under surface, without any gloss, and with one exception the brown colour of the wings is duller.

Judging from literature, Palawan birds which are at present included in *C.s. bubutus,* are also of small size, but on geographical grounds it seems unlikely that they are identical with birds from the Kangean Islands. The race *C.s. intermedius* (Hume) from continental Asia is also small, but differs in plumage characters, and *C.s. anonymus* Stresemann differs both in size and in colour.

The Kangean Islands are therefore inhabited by a well-marked endemic race which must bear the name *Centropus sinensis kangeangensis* Vorderman.

Centropus bengalensis (J. F. Gmelin)

Three specimens of this species were obtained in the Kangean Archipelago, and as it had not previously been recorded from these islands, the problem of their subspecific identity arose.

The general area is inhabited by two races, *C.b. javanensis* (Dumont) on Java and Bali, and *C.b. sarasinorum* Stresemann, hitherto known from Celebes and the chain of Lesser Sunda Islands from Lombok eastwards. The difference between these two races is exclusively one of size, as was pointed out by Stresemann (1912) and fully confirmed by me on the basis of different material, *C.b. sarasinorum* being definitely larger than *C.b. javanensis.*

The wing-measurements given by Stresemann (1912) for females of *C.b. sarasinorum* (169-190 mm) exceed those found by me, but the measurements published by that author for males of the same race (144-168 mm) and for individuals of both sexes of *C.b. javanensis* (♀: 150-166, ♂: 125-147 mm) correspond with those found by me (table 2).

TABLE 2

Measurements of material of *Centropus bengalensis* (in millimetres)

C.b. javanensis, males: wing 135, 136, 138, 139, 140, 142, 142, 148, 149 (a bird from Borneo) (average 141), tail 154, 164, 165, 169, 169, 170, 173, 174, 192 (a bird from Borneo) (av. 170), culmen 21, 21.3, 21.6, 22, 22, 22.5, 22.6, 23.5, 24.2 (av. 22.30).

C.b. javanensis, females: wing 152, 158, 160, 160, 163, 164, 164, 165, 165, 170 (av. 162.10), tail 173, 188, 192, 194, 196, 197, 197, 198, 200, 210 (av. 194.50), culmen 24, 24.2, 24.8, 25, 25.2, 25.2, 25.2, 25.6, 26.8 (av. 25.11).
C.b. sarasinorum, males: wing 148, 150, 151, 152, 154, 157, 161, 162, 173, 173 (av. 158.10), tail 184, 191, 191, 195, 197, 200, 202, 212, 215 (av. 198.56), culmen 22.1, 24, 24, 24, 24.5, 25, 25.2, 25.3, 26.7, 27 (av. 24.78).
C.b. sarasinorum, females: wing 152, 168, 169, 169, 174, 174, 177, 181 (av. 170.5) tail 182, 212, 212, 213, 222, 228, 240, 243 (av. 219), culmen 23.5, 26, 26.5, 27.5, 27.5, 28, 28, 28.3 (av. 26.91).
Kangean, immature males: wing 147, 149, tail 168, 189, culmen 23.9, 24.
Kangean, immature female: wing 182, tail 227, culmen 26.5.

Stresemann (1912) noted in his revision of the species: "Von grossem Interesse ist, dass die Lombokstrasse diese und die vorhergehende Form (*javanensis*) scharf zu trennen scheint, und wir weder auf den westlichen kleinen Sundainseln, noch auf den Inseln der Sangir-Gruppe Verbindungsglieder antreffen". In line with this, one would expect the Kangean birds, from islands west of Wallace's Line, to belong to *C.b. javanensis* rather than to *C.b. sarasinorum*. However, of the three birds secured, the female has a wing of 182 mm, which is much too large for *C.b. javanensis* and seems long even for *C.b. sarasinorum*. The other two specimens, both males, are smaller; their wing and tail-length falls within the range of variation of *C.b. javanensis*, but they have heavier bills.

Though all these birds had well-developed gonads (♂♂ testes 10 and 13 mm respectively, ♀ ovarium granular, oocytes 1 to 3 mm) none of them is in adult plumage. One male is entirely in juvenile plumage, while the two other specimens show only traces of a change to the adult plumage. The same pertains to a female of *C.b. sarasinorum* from the island of Padar (between Sumbawa and Flores, Lesser Sunda Islands), and a female from Flores. Nevertheless the last-mentioned bird is nearly as large as the female from Kangean, with a wing of 181 mm and an exposed culmen of 28 mm.

In view of the large measurements of these birds, and the development of their gonads, the question arose if my interpretation of their plumage as juvenile was correct. For the existence of an eclipse-plumage in *C. bengalensis* has been mentioned by Delacour (1947), Deignan (1955) and, on the authority of Whistler, by Grant & Mackworth-Pread (1939). The presumed similarity in plumage induced the last-mentioned authors to regard *C. grillii* Hartlaub (from Africa), *C. toulou* (Statius Müller) (from Madagascar) and *C. bengalensis* as conspecific. This opinion was shared by Parkes (1957) who stated that *C. grillii* resembles *C. bengalensis* in all stages of plumage. As according to Bowen (1931) adults in non-breeding plumage are like young, except that in the latter the wings are barred, this would suggest the existence of a similar plumage in *C. bengalensis*. On the other hand

Stresemann (in litt., April 1956) does not regard it as likely that on the Kangean Islands an eclipse-plumage exists. There is also a possibility that the juvenile plumage is retained for several years, as was suggested by Stuart Baker (1927) and others.

On the whole, I consider that the existence of an eclipse plumage in *C. bengalensis* has not been proved, but if Parkes (1957) is right that the species resembles *C. grillii* in all stages of plumage, none of the Kangean birds can be in that plumage, as all three specimens have barred wings. Only more fieldwork and selective collecting can show if the suggestions made by Stresemann and Stuart Baker, quoted above, are correct.

Whatever the position as regards the plumages may eventually be found to be, on the basis of the evidence at present available I feel justified in referring the population from the Kangean Islands to the subspecies *sarasinorum*.

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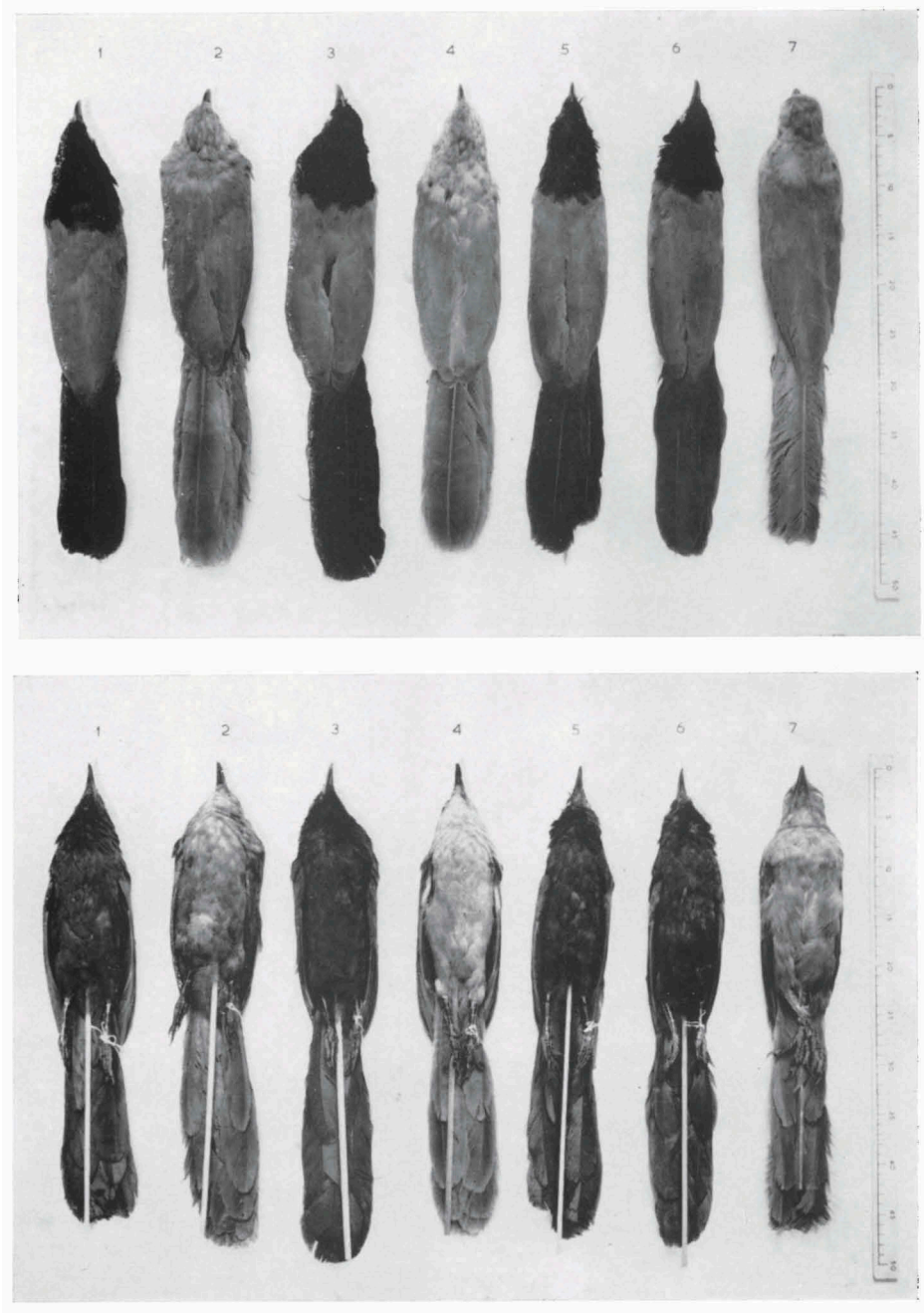
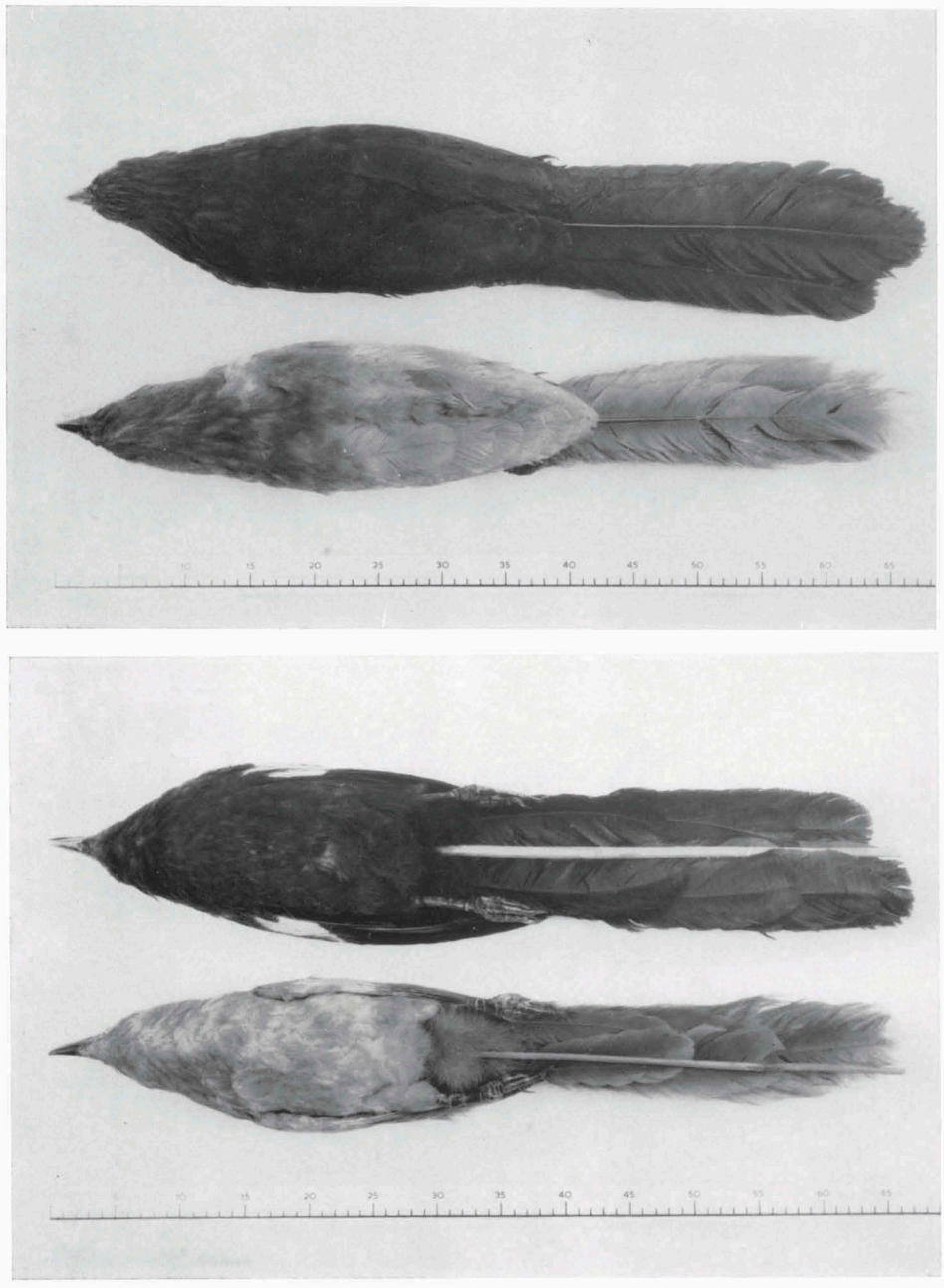


Centropus sinensis kangeangensis Vorderman. No. 1, 3, 5 and 6 in normal plumage; no. 2, 4 and 7 in aberrant plumage.



Centropus goliath Bonaparte. Bird on the right in normal plumage, bird on the left in aberrant plumage resembling the "*kangeangensis*" plumage of *Centropus sinensis kangeangensis*.