

PROCEEDINGS
OF THE
NEW ENGLAND ZOÖLOGICAL CLUB

THE GEOGRAPHICAL VARIATIONS OF THE
CROWNED PLOVER, *STEPHANIBYX CORONATUS*

BY HERBERT FRIEDMANN

IN spite of the close scrutiny that has been paid to most of the wide-ranging birds of Africa, the crowned plover has hitherto been considered as a single form without any constant geographical variations. The first worker to assemble a large series of specimens was Erlanger, who noticed (*Journ. f. Ornith.*, 1905, pp. 65-66) that birds from Somaliland were more isabelline or sandy-yellowish in color on the upper parts than specimens from tropical East Africa, which were more grayish brown, while South and Southwest African birds were like eastern ones but lighter. However, he concluded that the differences were very slight and were noticeable only in large series, and therefore he did not propose to recognize local races. There the matter rested until Zedlitz (*ibid.*, 1914, pp. 628-629) assembled a

larger amount of material (79 specimens). He found that the difference between South and East African birds, as reported by Erlanger, was not constant, that birds from Northeast Africa (Abyssinia) were not different from either in color, but that specimens from Somaliland were very pale, like those of Southwest Africa but with a light reddish tone, while the latter were grayish. This difference he assumed to be of doubtful significance, a suspicion of earth staining being feebly suggested. However, the lightest example of all was one from Ugogo, in Tanganyika Territory, an indication of the extent to which color may vary non-geographically. As for size, Zedlitz noted that the largest birds came from the northeast (Abyssinia), but that the size difference between them and more southern birds was not constant. Consequently, he too decided that the species, while variable, was not an aggregate of local forms, but, rather, a single one, taxonomically indivisible.

While studying the specimens collected by the late Dr. Edgar A. Mearns on the Childs Frick Abyssinian Expedition, I investigated the variation of this plover, with ample material and with the results of the work of Erlanger and of Zedlitz as a starting point. The material examined comprises the combined series of the Museum of Comparative Zoölogy, the United States National Museum, the American Museum of Natural History and the Field Museum, to all of which institutions I am much indebted for the loan of the specimens. As a result of a critical study of some 70 skins I find that the species in reality contains three recognizable forms, the elucidation and description of which are the primary object of this paper.

The color of the upper parts is not a constant character in southern and eastern birds, but in fresh specimens from the lowlands of Somaliland the feathers of the back are edged with light sandy rufous, and give the upper parts the light sandy tone mentioned by both Erlanger and Zedlitz. It should be noted, however, that as these tips wear off, the birds become quite similar to those of East Africa. It therefore follows that only specimens in fresh plumage are of value in a subspecific study of this bird.

As remarked by Zedlitz, Abyssinian birds are larger than those from other regions, but the difference is not constant. Recently Gyldenstolpe (Kungl. Sv. Vetakad. Handling., 1924, pp. 200-201) stated that size is not a reliable character, and gave the following wing measurements: Kenya Colony and Tanganyika Territory, 187-214; southern Somaliland, 191-196; South Africa, 203-209 mm. Zedlitz gave the following: South Africa, 199-208; Southwest Africa, 197-207; Angola, 196-200; Sudan and Uganda, 193-200; Tanganyika Territory, 184-202; Kenya Colony, 194-196; southern Somaliland, 186-192; and Abyssinia and northern Somaliland, 194-212 mm. However, it should be noted at once that in these data the sexes are not kept apart. Likewise, no indication is given of the altitudes from which the extremes in any country come. I find that these two factors, sex and altitude, are important and provide a key to the rather puzzling variations of this species. The birds of Abyssinia are large, and form a perfectly recognizable race based on size, but the difference between them and more southern birds is best marked in the males and not at all well shown in the females. Also, the large northern birds occur farther south in very high localities, such as Mau (9000 feet). I feel quite sure that if the birds from high altitudes in Kenya Colony were removed from the data presented by Gyldenstolpe, his figures for that region would lose only their maxima. In other words, the large form is not entirely an Abyssinian one (although it is chiefly represented in museums by Abyssinian material), but an eastern highland race with its headquarters in the northern part of its range. If previous workers had tabulated their data more carefully with regard to sex and altitude, they would undoubtedly have come to the same conclusions. Thus, Gyldenstolpe records wing lengths of only 191-196 mm. for birds from southern Somaliland (all fairly low country), while for specimens from Kenya Colony and Tanganyika Territory (with an altitudinal range of about 9000 feet) he records 187-214 mm. Zedlitz gives 193-200 for Uganda and the Sudan (relatively low country), while for Kenya Colony his figures are only 184-202 mm., indicating that he probably had no birds from great altitudes in

that country. This is quite natural, as the places where most collecting has been done in East Africa are below 6500 feet. Until more data are available it seems safe to let the altitudinal line of from 6500-7000 feet serve as the demarcation between the ranges of the large, highland, and the small, lowland, forms in equatorial East Africa. In South Africa there is a tendency for the species to increase in size even at low altitudes, a phenomenon not at all uncommon in birds. Many birds are known to be larger away from the equatorial regions, and, as altitude seems to have a similar influence to latitude, it is not surprising to find a large race of the crowned plover in Abyssinia and the scattered East African highlands, a smaller form in the tropical lowlands, and the latter increasing in size with latitude. It is important to note that breeding altitudes only are of much significance. There is nothing to prevent a large, highland form wandering down into a valley when not breeding, nor a small lowland bird finding its way to higher altitudes. Fortunately, the species is not migratory, and the possibility of such confusing cases is thereby reduced considerably.

To sum up, then, *Stephanibyx coronatus* has three forms: a large, northeastern highland race, and two smaller ones, one of which, occurring in Somaliland, has the upper parts sandy rufous in fresh plumage, the other, inhabiting the lower parts of East Africa and South Africa, has darker, more grayish brown, upper parts.

The type locality of *Stephanibyx coronatus* is the Cape of Good Hope. From this it follows that the small, lowland, grayish-backed form of South and East Africa is the typical race. Only two other names have been applied to this bird, and both are straight synonyms of *coronatus*. *Charadrius atricapillus* Gmelin was based on the black-crowned plover of Penant (said to have come from New York!) and is obviously not applicable. The other name *dingbami* Verreaux was based on a bird from Durban, Natal, and is therefore a pure synonym of *coronatus*. Incidentally, the original publication of *dingbami* is misquoted in every book and paper I have seen. It is stated by Reichenow, Finsch and Hartlaub, in the Catalogue

of Birds of the British Museum and other volumes, as *Chetusia dinghami*, and the reference is given as Revue Zoologique, 1855, p. 220. As a matter of fact it was originally published as *Cheltusia dinghami*, and the journal is the Revue et Magasin de Zoologie, 2d series, vol. vii, 1855, p. 220. The Revue Zoologique ceased in 1848, and was continued under the latter name.

It is clear that both the northeastern highland form and the Somaliland race are without names. The first I propose to call

***Stephanibyx coronatus suspicax* subsp. nov.**

Type, U. S. Nat. Mus., no. 243,104, adult male, collected at Sadi Malka, Abyssinia, 3 February, 1912, by Edgar A. Mearns.

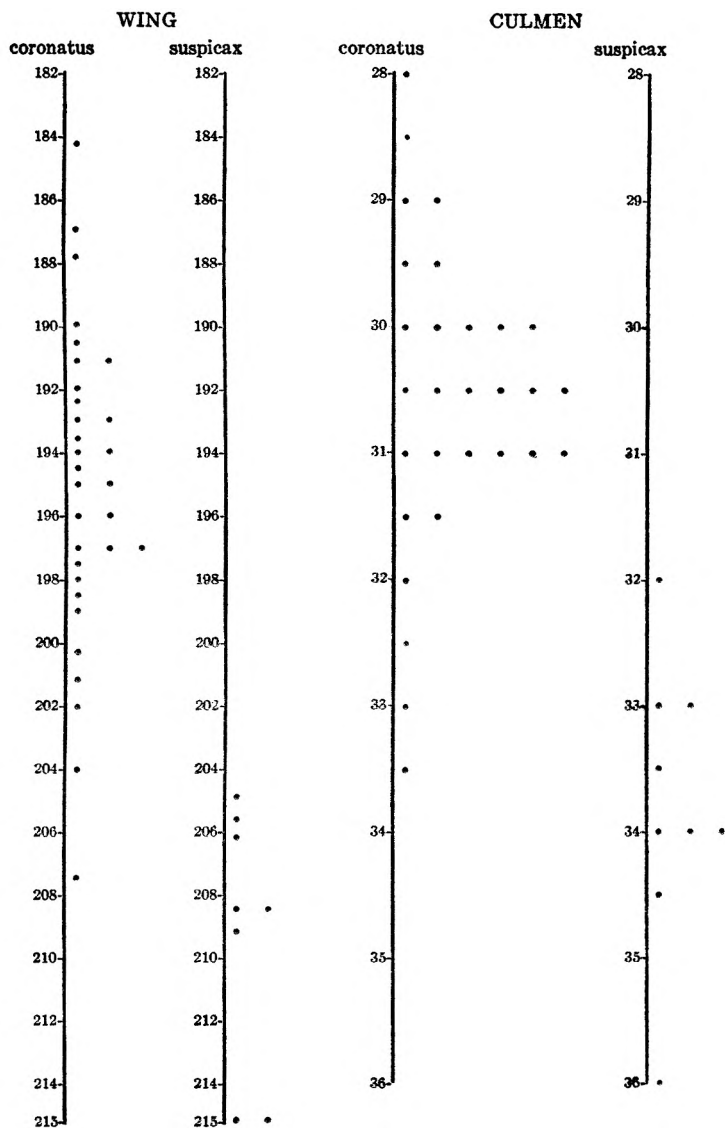
Subspecific characters.—Similar to *S. c. coronatus*, but the males larger; wings, 205-215, as against 184.5-207 mm.; culmen, 32-36, as against 28-33 mm.

Measurements of type: wing, 215; tail, 101; culmen, 36 mm.

The known range of this form is the interior of Abyssinia, south in high altitudes into Kenya Colony (Mau).

The accompanying figures illustrate the differences in size of wing and culmen between *suspicax* and *coronatus*, and, incidentally show how little overlapping there is between them. The figures are based entirely on male adult birds examined and measured by myself. The two largest specimens of *coronatus* are South African (wings, 205 and 207.5 mm.). In East Africa there seems to be no overlapping, or at most, very little, as my material does not show any. It is not particularly easy to dispose subspecifically of the East African birds, which are smaller as a rule than *coronatus* from South Africa. However, they intergrade to a large extent and the difference is rather small at best, so I do not separate them from the typical, southern birds. If the South African birds should eventually be found to be nearer to the large, northeastern birds, then the name *coronatus* will apply to the large birds and *suspicax* become a synonym, and the dark-backed lowland birds of East Africa will be without a name. However, it seems improbable that further material will upset the conclusions reached in this paper.

Tables showing variation of length of wing and of culmen in *Stephanibyx coronatus coronatus* and in *S. c. suspicax*. Numerals show the lengths in millimeters; the number of dots indicates the number of specimens of each length, each dot representing an individual.



For the rufous, sandy bird of the Somaliland region I propose the name

***Stephanibyx coronatus demissus* subsp. nov.**

Type, Mus. Comp. Zool., no. 234,891, adult male, collected at Suk-Soda, British Somaliland, 22 February, 1899, by Lort Phillips.

Subspecific characters.—Similar to *S. c. coronatus*, but with the feathers of the back, scapulars, interscapulars, and upper wing-coverts broadly edged with buffy avellaneous, giving the upper parts a light rufescent tone, as opposed to the darker grayish brown of *coronatus*.

Measurements of type: wing, 193; tail, 88.3; culmen, 30.5 mm.

The subspecies is known as yet only from British Somaliland, but probably occurs throughout Italian Somaliland as well. A specimen from Barsaloi, Kenya Colony, in the American Museum of Natural History, is intermediate between *coronatus* and *demissus*, a fact which suggests that this race, like so many Somaliland forms, may range across Jubaland into northern Kenya Colony.

Three birds from Hullier, Somaliland, in the Field Museum (Elliot coll.), are in worn plumage and are very much like the Barsaloi bird. Experience probably will show that it will not always be possible to identify other than freshly plumaged birds of this race, except by locality. However, worn specimens are slightly more avellaneous above than similarly abraded specimens of *coronatus*. Of course only similar plumages of the two races should be compared.

I have seen no material from Southwest Africa, and cannot form an opinion about the birds of that region. It would not be surprising if they should prove to be distinct.

Material examined: *Stephanibyx coronatus coronatus*, South Africa, 1 male, 1 female, 1 unsexed; Tanganyika Territory, 4 males, 1 female; Kenya Colony, 18 males, 19 females, 5 unsexed. *Stephanibyx coronatus suspicax*, Abyssinia, 9 males, 4 females, 1 unsexed. *Stephanibyx coronatus demissus*, British Somaliland, 4 males, 2 females.

