

DURBAN MUSEUM

# Novitates



ISSUED BY THE DURBAN MUSEUM, DURBAN 4001, SOUTH AFRICA

VOL. X, PART 14

ISSUED 1ST APRIL, 1975

## MISCELLANEOUS TAXONOMIC NOTES ON AFRICAN BIRDS

### XLI

by

P. A. CLANCEY

(Director, Durban Museum, Durban)

### ON THE PROBABLE POLYTYPIC STATUS OF *CREX CREX* (LINNAEUS)

The Eurasian Corncrake *Crex crex* (Linnaeus) is currently treated as monotypic, breeding from the west of the British Isles (? and the Faeroes), east to about 110° E. and wintering mainly in eastern and southern Africa, south to the Cape and Natal, although as long ago as 1918 Zarudny proposed an eastern subspecies as *Crex pratensis similis*, the type-locality Alma-Ata, Kazakhstan, U.S.S.R. (*vide Izvestia Zakaspiikago Mus.*, vol. i, 1918, p. 15). While not recognised in the standard Russian literature, Zarudny's *similis* has recently been given tentative recognition by Vaurie, *Birds Palearctic Fauna*, vol. ii (Non Passeriformes), 1965, pp. 353, 354, who writes as follows: "A cline of decreasing colour saturation probably runs eastwards, as breeding birds ("*similis*") that I have seen from Russian Turkestan are paler, more greyish, less brownish above, less buffy below than birds from western Europe, and birds from south-eastern Russia (Orenburg) are about intermediate in coloration; migrants from Iran match the birds from Russian Turkestan."

Recent examination of a series of 45 skins of *Crex crex* from the African wintering grounds from Zambia, Rhodesia, Botswana, the Transvaal and Natal shows that slightly over 30 per cent. of the specimens correspond to *similis* in being rather paler over the upper-parts due to the reduction in size of the dark sepia centres

Disallowing a fictitious date on a Transvaal specimen, it is established that this crane arrives on its wintering grounds in southern Africa from about the last quarter of November, with the great bulk of specimen records falling in the period December – end January. Of 40 accurately dated records 35 fall in December – February, with 1 record for late November, 2 for March, 1 for April, and 1 for May.

Witherby, *Handbook British Birds*, vol. v, 1941, p. 180, states that a moult affecting the body-feathers, rectrices and some wing-coverts takes place December – March, presumably in winter-quarters. Of the assembled series before me, the only birds clearly moulting the (ventral) body-feathering are dated February, which coupled with the paucity of records for March, April and early May (? when the birds are moulting, static and difficult to flush from rank grass) suggest that the moult referred to by Witherby is effected rather later than stated by that authority.

I am grateful to Mr M. P. Stuart Irwin, Keeper of Ornithology at the National Museum of Rhodesia, Bulawayo, for the loan of the series in his charge.

#### STERNA BERGII AND STERNA MAXIMA IN THE SOUTH AFRICAN SUB-REGION, WITH OBSERVATIONS ON THEIR RELATIONSHIP

The large “*Thalasseus*” terns *Sterna bergii* Lichtenstein and *Sterna maxima* Boddaert are closely allied allopatric species which jointly range round the world on the coasts and islands of temperate, sub-tropical and tropical seas. Populations of *S.bergii* breed locally from South-West Africa, the Cape, East Africa and the Red Sea, eastwards to the western and central Pacific, and those of *S.maxima* in the Americas and on the west coast of Africa from Morocco, south to about the Cunene R. At the present time four or five racial groupings of populations in *S.bergii* are recognised by workers, following Hartert, *Vög.pal.Fauna.*, vol. ii, 1921, pp. 1695 – 1697, although in an earlier review, Oberholser, *Proc.U.S.Natn.Mus.*, vol. xlix, 1916, pp. 515 – 526, admitted no less than eleven subspecies, many on very tenuous grounds. Other major pronouncements on the races of *S.bergii* are those of Mathews, *Birds of Australia*, vol. ii, part 3, 1912, pp. 346, 347, and Stresemann, *Novit.Zool.*, vol. xxi, 1914, pp. 57 – 59. In the case of *S.maxima*, only two subspecies are recognised, one confined to the Americas and the second to the west coast of Africa.

*S.bergii* and *S.maxima* are comparable in size. In nuptial dress the former differs from its congener in having the facial white meeting across the frons and the bill lemon or chrome rather than

cadmium yellow. Some workers have expressed the view that the bill of *bergii* is less massive and the tarsi shorter than in the case of *maxima*, though these are trends rather than fundamental characters as borne out by the careful measurements I have taken. In the case of birds in non-breeding dress, the criteria given in the standard literature are in contrast both conflicting and patently unreliable. *Bergii* is usually credited with having the proximal forehead and crown white densely speckled with black, as against an almost plain white forehead and crown in *maxima*, and the bill is described as yellow and not orange.

In *Durban Mus. Novit.*, vol. viii, 20, 1970, pp. 375 – 377, I drew attention to two adult terns in the collection of the National Museum of Rhodesia, Bulawayo, obtained in September, 1962, on the coast of Moçambique some 32km to the north of Beira, which on being studied at the Durban Museum keyed out as examples of *S. maxima* and not *S. bergii*. As the second specimen was moulting over the head, determination was effected largely on the adult female taken on 7 September, which was found to have the head-top, crest and face exactly as in non-breeding adults of West African *S. maxima* in similar condition. As both Beira birds were slightly darker grey over the upper-parts and wings than examples of *S. m. albididorsalis* Hartert, 1921: Baie du Lévrier, Cape Blanco, northern Mauritania, they were allocated to nominate *S. maxima* Boddaert, 1783: French Guiana. Later, both in *Durban Mus. Novit.*, vol. ix, 12, 1972, p. 173, and in my *Handlist Birds of Southern Moçambique*, part i, 1970, pp. 243, 244, I made the suggestion that the specimens concerned probably represent an indigenous innominate western Indian Ocean race of *maxima*. Recently, Professor Dr. K. H. Voous of the Zoölogisch Museum, Amsterdam, has been in correspondence with me in connection with the Beira specimens, which he felt were not correctly identified as *S. maxima*, because the bill of the bird depicted in pl. 12 of the *Handlist* is yellow and not orange. Through the courtesy of Mr M. P. Stuart Irwin, Keeper of Ornithology at the National Museum of Rhodesia, I have again had the loan of the two controversial specimens, and have restudied them in conjunction with all material of *S. bergii* in the collections of South African museums. Additional material of *S. bergii* subsp. was kindly loaned by the American Museum of Natural History, New York (through Dr. Dean Amadon), and the British Museum (Nat. Hist), Tring, Herts (through Dr. D. W. Snow), this latter consignment including specimens of *S. m. albididorsalis* in both nuptial and non-breeding dresses. I am also indebted to the Directors of the South African Museum, Cape Town, the East London Museum, and the Transvaal Museum, Pretoria, for assistance in

organising the loans of further specimens. Mr R. K. Brooke of the Durban Museum staff commented constructively as the study developed. The conclusions arrived at as a result of this new study in depth are given hereunder.

*S.bergii* and *S.maxima*  
in the South African Sub-Region

*Sterna Bergii* Lichtenstein was described in the year 1823, the type-locality being the Cape of Good Hope, South Africa. This particular population, which constitutes the nominate race of the species, breeds on islets off the coast of South-West Africa from about Luderitz south to the Cape, and along the southern coast of the Cape to Bird Island, Algoa Bay. Ringing records and field observations show that many Cape breeders disperse after nesting north-east as far as the coast of Natal and Zululand and Sul do Save, Moçambique. *S.b.bergii* breeds during the southern winter from April – July.

Despite the fact that this tern is a locally common colonial breeder on off-shore islands of the Cape no attempt ever seems to have been made to assemble a worthwhile panel of breeding specimens, and the available material consists of singletons from a few scattered off-shore island colonies and of others taken at sea near breeding sites. Ten ♂♀ of *S.bergii* in nuptial dress have the grey of the dorsal surface and wings corresponding to the Pale Mouse Gray of Ridgway, *Color Standards and Color Nomenclature*, 1912, pl. li, or bluer, the white bridge across the frons c. 4—6+mm. deep, and the flattened wings 347 – 374,5 (358,9) mm. The bill colour, when recorded on data labels, is generally given as yellow or lemon yellow. In the dried skin there is much variation in colour, some breeding birds with bills drying to dull greenish leaden grey with the tip and cutting edges horny, while the bills of others have dried to a honey yellow, the culmen almost sayal brown or dull reddish.

Non-breeding adults from the Cape have the grey of the upper-parts and wings rather duller, browner, less bluish than in birds in nuptial dress, and the wing-length shorter, due to the breaking off of the tips of the longest primaries. The distal frons is white, the proximal frons, forehead and crown matt black, the feathers variably fringed all round with white, imparting a densely mottled black and white effect, and the elongated crest-feathers are shorter and black, variably narrowly edged laterally with white. Over the otherwise white face the proximal lores are blackish and the ear-coverts, cheek and adjacent lateral neck flecked with dark grey. The bill colour in dried skins is again variable, ranging from bright

straw yellow to dull yellowish horn, often with a reddish or brownish tinge to the culmen. While breeding adults of *S.b.bergii* form a remarkably uniform series, non-breeders in contrast display a measure of variation in the development of the black spotting over the vertex and the amount of lateral white fringing to the crest-feathers. A singleton from South-West Africa and two or three recently collected skins from the eastern Cape coast exhibit a marked reduction of the black centres to the frontal and coronal feathers with a corresponding increase in the amount of peripheral white, resulting in a whiter head than the norm of non-breeding nominate *bergii* and approaching the facies found in non-breeding *S.maxima* with its very whitish vertex.

Most authors who have given critical consideration to subspeciation in *S.bergii* have extended the range of the nominate race to include the Malagasy Sub-Region, although as far as I can determine the basis for this rests on very unsatisfactory evidence. Certainly in so far as breeding birds are concerned, *S.b.bergii* is a cold or cool surface water inshore element with its breeding distribution restricted to South-West Africa and the Cape.

In the introduction I dealt succinctly with my earlier conclusion on the specimens of "*Thalasseus*" terns taken 32km to the north of Beira in September, 1962, and which were attributed by me to *S.maxima* in 1970 (Clancey, *loc.cit.*). Compared with the assembled material of *S.b.bergii*, the male in transitional nuptial-non-breeding plumage taken on 24 September differs in showing much less white over the distal frons (3 as against 5 or 6mm in most Cape breeders), and in being paler grey above and over the wings. The wing measurement is unreliable because the apices of the longest primaries in both wings are badly eroded, while the bill-colour in the dried skin is a light yellowish horn-colour (Naples Yellow (pl. xvi)). In the case of the female in non-breeding dress taken on 7 September, the head-top differs from all examples of *S.b.bergii* in comparable condition in being largely white, marked over the centre of the vertex and hind crown with fine black hair-streaks and a few drop-shaped spots of black, the whiteness extending to crest, the elongated feathers of which are black broadly edged with white (see Fig. II). The proximal lores form a bold blackish spot, but there are no greyish flecks over the ear-coverts, cheek and adjacent lateral neck as in *S.b.bergii* (even in the male in transition there is no indication of an assumption of grey flecking to the white surfaces of the lateral head). The Beira female is also appreciably paler grey above and over the wings than in most *bergii* (see Fig. 1). The bill is Naples Yellow.



FIG. I *Sterna bergii* ? subsp. nov. ♀, adult. 32 km N. of Beira, Manica e Sofala, Moçambique 7 September, 1962

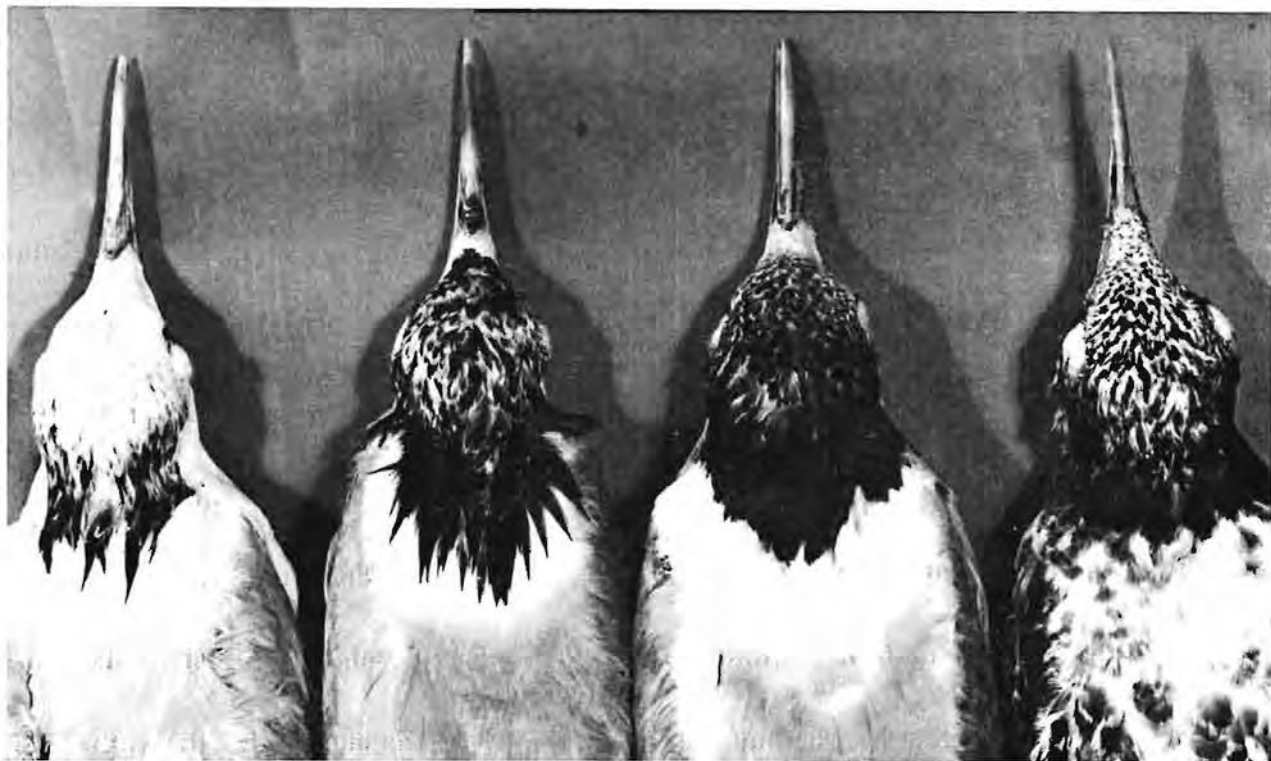


FIG. 11

Dorsal surfaces of heads of two southern African *Sterna bergii* forms

- Extreme left:* ♀ ad., non-br., 32 km N of Beira, Manica e Sofala, Moçambique, 7 September (*S.b* ? subsp.nov.)  
*Centre, left:* ♂ ad., non-br., Durban Bay, Natal, 17 August (*S.b.bergii*)  
*Centre, right:* ♂ imm., sec. year. Durban Bay, Natal, 15 December (*S.b.bergii*)  
*Extreme right:* ♀ juv., Durban Bay, Natal, 24 August (*S.b.bergii*)

(Photo. W. S. Yerbury)

On comparison with specimens of *S.m.albididorsalis* the moulting male from Beira is rather darker grey over the upper-parts and wings, exhibits a narrow white bridge across the distal frons and has the dried bill Naples Yellow rather than Chamois (pl. xxxx). On the other hand, the female in newly assumed non-breeding plumage resembles *S.m.albididorsalis* exactly over the head and in the extent of the white over the hind neck and upper mantle, but is rather darker, less chalky, grey over the dorsum and wings. As in *albididorsalis* there is no greyish flecking over the ear-coverts, cheeks and adjacent lateral neck, but the dried bill is paler than in the norm of *maxima*.

Comparing the two Beira specimens with skins of *S.b.thalassina* Stresemann, 1914: Goulon, Rodriguez, from the Comores Islands, Pemba, the Seychelles, and elsewhere in the western Indian Ocean reveals that *thalassina* in nuptial dress has almost the entire frons white (frontal white 8+—11mm deep), is almost as pale as *S.m.albididorsalis* over the upper-parts, wings and tail, ranges smaller in size (wings in *thalassina* 322 – 350mm) and has a shorter, blunter bill on average. In contrast, the male in transitional dress shows much less frontal white and is darker grey over the back and wings and has a duller tail than *thalassina*.

While McLachlan and Liversidge, *Roberts' Birds of South Africa*, 1970, p. 206, list *S.b.velox* Cretzschmar, 1827: coast of the Red Sea; from the east coast of southern Africa from Inhambane northwards, there is no evidence in the form of material that this dark race of the Red Sea area and the coasts of the northern Indian Ocean reaches the South African Sub-Region at all. In point of fact, breeding populations of *thalassina* are interposed between those of *velox* round the Horn of Africa and the disputed Madagascar Channel population as exemplified by the two Beira specimens under discussion (and other less satisfactory material from Madagascar itself) and the South-West African and Cape populations of *S.b.bergii*. The two series of measurements given by these workers are erroneous, their wing-measurements of "*velox*" corresponding to my series of measurements of Cape breeding *bergii*, and their "*bergii*" dimensions agreeing with my series of *thalassina* measurements. Quite apart from *velox*, I further find no unequivocal evidence that *thalassina* wanders after breeding to the south-west of its established range centred on oceanic archipelagoes to reach the Moçambique coast to the south of the Zambesi.

In conclusion, in so far as *S.bergii* forms are concerned only two appear to occur in the South African Sub-Region: *S.b.bergii* and *S.b. ? subsp.*, showing some characters of *S.maxima* subsp. *S.m.*



*albididorsalis* does reach the Sub-Region at the mouth of the Cunene R., on the South-West Africa/Angola border, where recorded by Rosa Pinto, *Livr.Homen.Prof.F.F.Viegas da Costa . . . Abril de 1968, 1973*, pp. 389, 390, presumably ranging occasionally still further south to the coast of South-West Africa to the north of Swakopmund, the northern limit of range given for *S.bergii* in the territory by Winterbottom in his *Preliminary Check List* of 1971.

#### The relationship of *S.bergii* and *S.maxima*

Comparing specimens of breeding adults of the *S.m.albididorsalis* – *S.b.bergii* – *S.b. ? subsp.* – *S.b.thalassina* sequence of forms arranged allopatrically round Africa south of the Equator, enables useful conclusions to be drawn regarding the relationship of these two large species of terns.

The two northern taxa in this concatenation of geographically replacing forms are about equally pallid (*albididorsalis* and *thalassina*), differing mainly in that in *albididorsalis* the black of the vertex reaches the base of the bill, whereas in *thalassina* it is separated from the bill base by a white band 8+—11mm deep across the frons. *Albididorsalis* is rather larger than *thalassina* and has a richer, more orange, yellow and longer but not heavier bill.

In contrast with these two pallid northern taxa are the more southerly populations constituting *S.b.bergii* and the eastern *S.b. ? subsp.*, both of which show markedly less white over the frons, this tending to reduce the trenchancy of this key character segregating the *bergii* subspecies *thalassina*, *velox*, *S.b.cristata* Stephens, 1826: China, and *S.b.gwendolenae* Mathews, 1912: Rockingham, Western Australia (if valid), from the Atlantic *S.m.albididorsalis* and American *S.m.maxima*. As mentioned above, the depth of the white bridge across the frons in *S.b.thalassina* measures 8+—11, whereas in the single male from north of Beira the frontal white measures 3+mm and in a series of 10♂♀ breeding *S.b.bergii* some 4–6mm deep. In the shade of grey over the dorsum and wings the eastern *S.b. ? subsp.*, is intermediate between topotypical *S.b.bergii* and *S.b.thalassina* and *S.m.albididorsalis*. In so far as bill colour is concerned, the marked variation in museum specimens suggests a measure of temporary seasonal variation, an ephemeral brightening of bill colour perhaps associated with courtship, to disappear shortly after egg-laying and the commencement of incubation, as occurs in the case of some heron species.

Turning now to birds in non-breeding dress, one again finds that *S.b.bergii* and *S.b. ? subsp.*, occupy an intermediate character state between Indian Ocean *bergii* and Atlantic *maxima*. A small pro-

portion of newly moulted Cape *S.b.bergii* reveal a shift towards a *maxima*-type facies in the reduction in size of the black spotting over the vertex and a corresponding increase in the amount of white, though none examined had attained the full whiteness of the norm of *maxima*. A single non-breeder, a ♀ dated 16 October, 1896, from the Cape Division, in the series of the South African Museum is almost pale enough over the upper-parts and wings to be associated with *S.m.albididorsalis*. Bill-colouration varies widely as mentioned earlier, and separation of *bergii* and *maxima* on this character in the museum is unsatisfactory at best.

In *S.b. ? subsp.*, a more positive shift towards a *maxima* style of plumage is discernible. In the single female dated 7 September, 1962, from north of Beira on the southern Moçambique coast the head-top is in complete agreement with *S.maxima* subsp., in comparable dress. An adult ♂ from Antinoy Co., south-western Madagascar, in transitional moult examined during the present study is in the process of assuming a *maxima*-style of vertex, while an immature bird from Bitahitra, Diégo-Suarez, northern Madagascar, has the crown feathering greyish with fine whitish lateral edging, imparting a grizzled effect, this specimen apparently part of the same complex, being unlike Cape *bergii*. The Antinoy Co., specimen has a wing of 353mm (broken), which is in excess of the upper limit in size in the small *S.b.thalassina*, breeding populations of which extend west to the north of Madagascar. The two Beira birds are paler than Cape specimens and about intermediate between *S.bergii* and *S.b.thalassina* and *S.m.albididorsalis*, but bill colour is typical of *S.b.bergii*.

Very careful examination of the assembled series convinces me that the only unequivocal laboratory character which can be used to separate *S.bergii* subsp., and *S.maxima* subsp., is that in the former the black of the vertex in nuptial dress is sundered from the base of the bill by a band of white across the frons, but even in this character both nominate *S.bergii* and the *S.b. ? subsp.*, populations are intermediate towards *maxima* in showing a marked reduction in the depth of the distal white frons. The average larger bill in southern African Swift Terns also tends to link Indian Ocean *bergii* with Atlantic Ocean *maxima*. The other characters employed by authors are unstable and not specifically diagnostic, certainly in the museum.

The problem posed by *S.bergii* in southern Africa is not unique, being paralleled by at least two other cases among South African marine birds brought to light in recent years. It is now an established fact that in the Cape Gannet *Sula capensis* (Lichtenstein), a pro-

portion of individuals show a shift towards the North Atlantic *Sula bassana* (Linnaeus) in the assumption of odd white feathers among the otherwise black secondaries and retrices, suggesting the conspecificity of the three gannet forms *S. serrator* (Gray), *S. capensis* and *S. bassana* (vide S.A.O.S. List Committee, *Ostrich*, vol. xxix, 1, 1958, p. 24), a view which has not found favour among field workers in recent times (see Jarvis, *Ostrich*, vol. xliii, 4, 1972, pp. 211 – 216), but which is quite acceptable to systematists. An analogous case is presented by the Jackass Penguin *Spheniscus demersus* (Linnaeus), the norm characterised by a single pectoral band in adults. In this species, individual variants showing a second breast-band, either well-developed or incipient, occur, indicating that *S. demersus* of south-western Africa is a derivate of *S. magellanicus* (Forster) of southern South America and the Falkland Islands with dual pectoral bands in adults, or else that both are of immediate common origin. I have made the suggestion that *S. demersus* and *S. magellanicus* be treated as conspecific in the *Ostrich*, vol. xxxvii, 4, 1966, p. 237, a view as yet uncontested.

From the evidence presented above it is clear that the allopatric terns *S. bergii* and *S. maxima* are much more closely related than previously believed, and jointly form but a single species. However, until more evidence is assembled I believe that they should be considered as allospecies in a superspecies *S. maxima*, which arrangement is laid down below. A final decision on conspecificity will require further evidence, especially from eastern South Africa and the Malagasy Sub-Region, than is presently available.

In the light of these findings and conclusions, nominate *S. maxima* requires to be deleted from the South African list, while *S. m. albididorsalis* should be added in square brackets. The population from which the two specimens taken to the north of Beira were drawn belongs to the *bergii* assemblage, and in the *maxima*-type of non-breeding dress forges a still closer link between *bergii* and *maxima* than does *S. b. bergii*. Further specimens will assuredly confirm that *S. b. ?* subsp., should be named. *S. b. bergii* and the nominate eastern population are intermediate forms intercalated between the main *bergii* population assemblage and *S. maxima*.

The *Sterna maxima* superspecies on the African coasts south of the Equator

The following are the characters and ranges of the forms occurring in southern Africa:

Superspecies *Sterna maxima*

- (a) In nuptial dress black of vertex sundered from base of bill by a white band and bill lemon or chrome yellow:

**Sterna bergii** Lichtenstein(i) **Sterna bergii bergii** (Lichtenstein)

*Sterna Bergii* Lichtenstein, *Verz. Doubl. Zool. Mus. Berlin*, 1823, p. 80: Cape of Good Hope, Cape.

*Nuptial dress*: Frons to c. 4–6mm from base of culmen, lores, face from below the eye, and entire venter pearly white; cap from distal forehead, swept down to lower periphery of orbits and including spiky erectile nuchal crest matt coal black; hind and sides of neck pearly white; rest of dorsum Pale Mouse Gray (pl. li) or bluer. Wings as dorsum, the tertials tipped and edged over the inner vane with white; all primaries frosted with grey in fresh condition. Tail deeply furcate, the outer tail-feathers elongated into a short filament, these feathers white, the inner vane wedged apically with pale grey.

Irides dark brown; bill in early stages of breeding deep chrome yellow with paler tip; feet dull black, the soles yellowish. This plumage is acquired by a complete moult February–early April.

*Adult: Non-breeding*: Frons white; forehead and crown matt black, the feathers fringed with white, imparting a grizzled effect; hind crown and crest generally plain matt black, but sometimes with some fine whitish streaking or scaling; crest feathers shorter and rounder than in nuptial dress; ear-coverts, cheeks and sides of neck variably flecked with deep grey or slate; grey of upper-parts and wings rather paler than in breeding condition. Tail with attenuated outermost rectrices grey, tipped with white. Bill colour paler yellow than in early nuptial stage. Acquired by complete moult from July/August.

*Second immature dress*: Very similar to the adult in non-breeding dress but showing variable development of a dark grey horizontal bar across the upper lesser-coverts, and with the grey tertial surfaces darker and more contrasted against the lateral white. A complete moult into nuptial dress takes place February–early April. The dress concerned is acquired by a complete moult, including remiges, from about August.

*First immature dress*: Differs from the bird in second immature dress in having all the lesser-coverts dark neutral grey, forming a broad, conspicuous dusky wing-bar, and with the outer vanes and tips of the secondaries equally dark, forming a second dark wing surface; primary-coverts, primaries and sometimes some secondaries of juvenal dress retained. Tail deeply furcate, but outermost tail-feathers not apically filamentous, the rectrices deep neutral grey, broadly tipped off-white.

This plumage is acquired by an extended moult, which does not include the primaries and primary-coverts, from about August. Some specimens examined clearly a year or more old are still in transition. This plumage corresponds to the "*portlandica*" dress of British authors.

*Juvenal*: Entire head-top, including frons, brownish black, the frons to crown feathers edged with white; crest short, dark brownish; hind and sides of neck white, blotched with dark brown; rest of upper-parts and wings greyish brown, the feathers edged all round with white, giving a scaled appearance; primaries not frosted with grey. Face white, densely mottled with brownish black round and below the orbit, merging to almost solid brown over the ear-coverts and adjacent neck. Below white, flecked over the sides of the throat and neck with brown. Tail deeply furcate, rectrices greyish brown, darkening apically, tipped and edged sharply over the inner vane with white.

Feet occasionally yellowish.

*Measurements*: Wings (flattened) of 10 ♂♀ in nuptial dress 347 – 374,5, m 358,9, SD 9,30; culmens from feathers 56,5 – 65,5, m 60,7, SD 2,67; tarsi 28 – 31, m 29,6, SD 1,22; tail 163,5 – 184, m 175,2, SD 5,42mm. Bill height at apex of angle of gonys 12 – 13,5+, frontal white 4 – 6mm deep.

*Range*: Breeds on islands off the coast of South-West Africa from about Luderitz southwards, and off the western Cape coast to the Peninsula, and along the southern Cape coast to Algoa Bay (Bird Island). Ranges after breeding to the Natal and southern Moçambique coasts, north to about Inhambane, where non-breeders are present throughout the year in varying numbers.

(ii) *Sterna bergii* ? subsp. nov.

In nuptial dress similar to *S.b.bergii* but with still less white over the frons, whiter over the upper mantle, grey of upper-parts and wings paler, and tertials with more lateral white. Non-breeding adult with head-top as in *S.m.albididorsalis*, not densely mottled with black as in *bergii*; whiter over upper mantle, and grey of upper-parts and wings paler, and tertials more broadly edged laterally with white. Face and side of neck unmarked with grey. Bill colour and dimensions apparently as in *S.b.bergii*.

*Range*: Breeding range uncertain, but probably nests on Moçambique off-shore islands and on islets off the coast of Madagascar and in the Madagascar Channel. Known from two specimens collected to north of Beira, and on specimens from south-western and

northern Madagascar. An old record by Sir John Kirk of Swift Terns breeding on an island in the delta of the Zambesi probably refers to this population (see Sclater, *Birds of South Africa*, vol. iv, 1906, p. 437).

*Remarks:* Mr R. K. Brooke, of the Durban Museum, and some of his field associates record having observed examples with the white *maxima*-type vertex among roosting or loafing birds on sand-banks in Durban Bay, Natal. While the small panel of specimens available in the Durban Museum from this locality is of the nominate race, it is clear from the dates of seasonal increases in numbers and of the incidence of juveniles in Durban Bay in particular that not all the Swift Terns occurring in Natal are from South-West African and Cape breeding grounds.

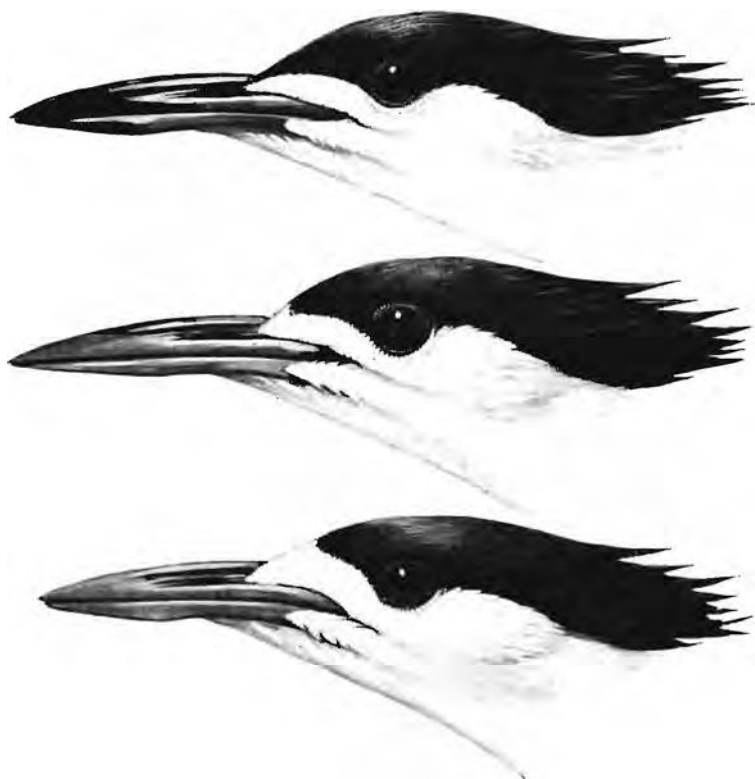


FIG. III

Lateral views of heads of three *Sterna maxima* and *Sterna bergii* taxa to show marked variation in the distribution of white over fore-part of the vertex.

- A. *Sterna maxima albididorsalis*
- B. *Sterna bergii bergii*
- C. *Sterna bergii thalassina*

(iii) ***Sterna bergii thalassina*** Stresemann

*Sterna bergii thalassina* Stresemann, *Novit.Zool.*, vol. xxi, 1914, p. 57: Goilon, Rodriguez, Mascarene Islands.

Compared with *S.b.bergii* differs in having the entire frons white and in being much paler and more chalky grey over the upper-parts and wings (Pallid Neutral Gray (pl. liii)), and dusky wedges to the tertials vestigial or absent, the tertials appearing whiter. Tail paler grey, with outermost rectrices whiter in nuptial dress. In non-breeding dress with a rather broader white frons and lacking the grey mottling to the face and lateral neck. Size ranging distinctly smaller, and with a shorter, stubbier bill. Bill in dried skin greyish olivaceous, with whitish horn tip and cutting edges.

*Measurements:* Wings 8 ♂♀ 322 – 350, m 331,6, SD 9,61; culmens (of 10) 54,5 – 59, m 56,0, SD 1,77; tarsi (of 10) 26+ – 30, m 28,1, SD 1,15; tails (of 7) 165 – 183, m 171,7, SD 7,16. Bill height 12 – 13,5+, frontal white 8 – 11mm.

*Range:* Breeds on islands off the coast of East Africa (Latham Island; ? Pemba), the Comores (Comoros) and Aldabra, north-east to the Seychelles, and to Rodriguez in the Mascarenes. Probably further east to other island groups in the Indian Ocean.

*Remarks:* Recent topotypical breeding material of *S.b.gwendolenae*, described from Western Australia, should be compared with that of *thalassina* in order to resolve the suspicion that *gwendolenae* is an earlier name for *thalassina*, and is neither a valid subspecies in its own right nor a synonym of *S.b.cristata* as treated by Vaurie, *Birds Palearctic Fauna*, vol. ii (Non Passeriformes), 1965, pp. 490, 491. Oberholser, *loc.cit.*, describes *gwendolenae* as being paler dorsally than *cristata* populations.

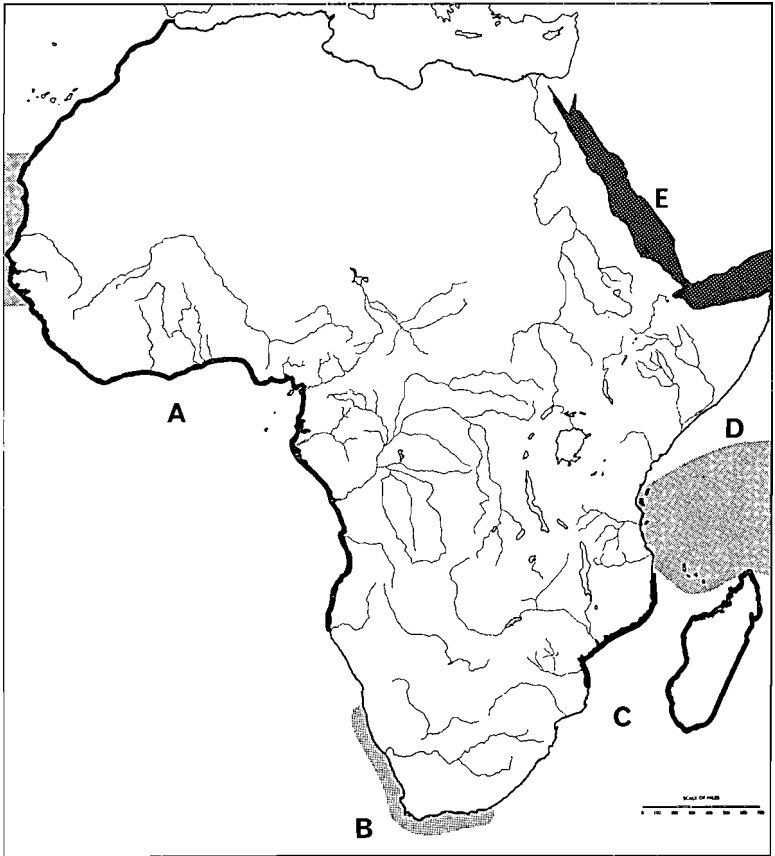
- (b) In nuptial dress with black of vertex reaching to the base of the bill, and bill cadmium yellow:

***Sterna maxima*** Boddaert(iv) ***Sterna maxima albididorsalis*** Hartert

*Sterna maxima albididorsalis* Hartert, *Vög.pal.Fauna.*, vol. ii, 1921, p. 1 698: Baie du Lévrier, Cape Blanco, northern Mauritania.

Compared with *S.b.thalassina* breeding adult has black of vertex extended forward to cover the entire frons and dorsal lores, and the grey of upper-parts and wings is a trifle lighter. Tail even whiter. Non-breeding dress with head-top to occiput white with fine dusky hair-streaks and a few drop-shaped spots of same over crown; crest black, the feathers broadly edged white, imparting a hoary

aspect; white of hind neck more extended caudad, and grey of upper-parts and wings still paler. Bill rather longer than in *thalassina*, but about the same size as in larger examples of nominate *bergii*. Bill described as orange-yellow (Cadmium Yellow) in life; in dried skin generally about Chamois (pl. xxx).



MAP I

Sketch-map showing the disposition of the forms of the *Sterna maxima* superspecies round the continent of Africa

- A. *Sterna maxima albididorsalis* Hartert. Shaded area: known breeding range; blacked in coastline: non-breeding range.
- B. *Sterna bergii bergii* Lichtenstein. Shaded area: breeding range. In non-breeding season to Natal and southern Moçambique coast.
- C. *Sterna bergii* ? subsp. nov. Blacked in coastlines: known range of occurrence.
- D. *Sterna bergii thalassina* Stresemann. Shaded area: western portion of breeding range.
- E. *Sterna bergii velox* Cretzschmar. Shaded area: western aspects of breeding range.



*Measurements:* Wings of 4 ♂♀ 347 – 365, m 355,5, SD 8,43; culmens 62 – 68, m 65,0, SD 3,46; tarsi 30 – 32,5, m 31,0, SD 1,22; tail 150 – 172, m 165,25, SD 10,24mm. Bill height 13+ – 14mm.

*Range:* Breeding range centred on Mauritania and Senegal; also The Gambia, but entire distribution comprises the west coast of Africa from Tangier, south to the Cunene R mouth on the South-West Africa/Angola border. Recorded from Gibraltar, and as a vagrant from Ireland. Probably still further south on occasion on migration to the coast of the Kaokoveld, northern South-West Africa.

*Remarks:* The trinomial of this taxon is frequently wrongly given as *albidorsalis*.

#### THE AUSTRAL AFRICAN RACES OF *SALPORNIS SPILONOTUS* (FRANKLIN)

The populations of the Spotted Creeper *Salpornis spilonotus* occurring to the south of the Equator in Africa are currently grouped in a single subspecies: *S.s.salvadori* (Bocage), 1878: Caconda, Huila, Angola. Over fifty years ago Reichenow and Grote, *Ornith.Monatsber.*, vol. xxxi, 1923, p. 86, proposed an additional subspecies in *Salpornis salvadori rovumae* from south-eastern Tanzania, the type-locality being Songea. Sclater, *Syst.Av.Aethiop.*, part ii, 1930, p. 714, treated *rovumae* as a synonym of *salvadori*, which view has been generally followed, with the sole exception of Meise, *Mitteil. Zool.Mus.Berlin*, vol. xxii, 1, 1937, p. 146, who recognised *rovumae* on the basis of smaller size and rather different streaking to the vertex.

Recent examination in the Durban Museum of a series of seventy specimens of *Salpornis* from Angola, Zambia, Malawi, south-eastern Tanzania and Rhodesia supports the view of Sclater that *rovumae* is a straight synonym of *salvadori*. I find no colour difference whatever between eastern Zambia (Zambia east of the Luangwa Valley), Malawi and Tanzania specimens from those from Zambia west of the Luangwa and Angola, while, as will be appreciated from a critical perusal of the measurements given in Table I below, the alleged smaller size of *rovumae* vis-à-vis Angolan (and western Zambian) *salvadori* is equally impalpable.

While the topotypical population of *rovumae* is not separable from the various populations of *salvadori*, the isolated southern birds occurring in the drier and more open miombo of the Rhodesian plateau are distinguishable in series from those of the heavier miombo to the north of the Zambesi in having the ground to the dorsal surface and wings blacker, less brownish, the spotting and