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MISCELLANEOUS TAXONOMIC NOTES ON AFRICAN BIRDS XLIII

by

P. A. CLANCEY
(Director, Durban Museum, Durban)

ON THE RELATIONSHIP OF *CHARADRIUS MARGINATUS* VIEILLOT OF ETHIOPIAN AFRICA TO *CHARADRIUS ALEXANDRINUS* LINNAEUS

The small sandplover *Charadrius marginatus* Vieillot of much of Ethiopian Africa and Madagascar is variably considered by authors as a full polytypic species or as a race of a greatly enlarged *Charadrius alexandrinus*, typically of the Palaearctic Region and Asia. Among more recent authors, Neumann, *Novit.Zool.*, vol. xxxv, 1929, pp. 212-216, treated *C.marginatus* and its races as conspecific with *C.alexandrinus*, which view was followed by Peters, *Check-List Birds of the World*, vol. ii, 1934, pp. 248-250, who further recognised *C.nivosus* (Cassin) and other similar sandplovers of the Americas, as well as *C.ruficapillus* Temminck, 1822, of Australasia, as conspecific with *alexandrinus*. On the other hand, Chapin, *Birds of the Belgian Congo*, part ii, 1939, pp. 65-67, and more recently Vaurie, *American Mus.Novit.*, No. 2177, 1964, pp. 1-15, and in *Birds of the Palearctic Fauna*, vol. ii, Non-Passeriformes, 1965, pp. 376-378, considered *C.marginatus* to be specifically discrete from *C. alexandrinus*, a view shared by Mackworth-Praed and Grant, *Birds of Eastern and North Eastern Africa*, vol. i, 1952, pp. 340-343, and all modern South African authors, including the present writer (Clancey, *Catalogue Birds South African Sub-Region*, 1965, pp. 288, 289). Among other authors dealing with this complex of small plovers, Meinertzhagen, *Birds of Arabia*, 1954, pp. 476-479 (map), and Dement'ev and Gladkov, *Birds of the Soviet Union*, English

trans., vol. iii, 1969, pp. 82-89 (map), both adopt the broad view of *C.alexandrinus* as enshrined in Peters, though the Russian authors make no mention of *C.a.javanicus* Chasen, 1938, described from Java, in their range map. In his 1964 and 1965 works Vaurie followed the advice of Stresemann in further divorcing the Australasian *C. ruficapillus* from *alexandrinus* as a monotypic species in its own right.

Resulting from difficulty in placing some specimens of small sandplovers in the collection of the Durban Museum, I have re-examined the question of the relationship of the Ethiopian African *C.marginatus* to the Palaearctic and Asian elements of *C.alexandrinus*. This study is a corollary of my earlier researches into the races of *C.marginatus* reported in *Durban Mus.Novit.*, vol. ix, 9, 1971, pp. 113-118. For the loan of material of *C.a.alexandrinus* for the present study from Europe, the Canary and Cape Verde Islands, Egypt, Iraq and the Red Sea area and of *C.a.seebohmi* from Sri Lanka (Ceylon) I am indebted to Dr. D. W. Snow of the Sub-Department of Ornithology, British Museum (Nat.Hist.), Tring, England.

In Africa, *C.a.alexandrinus* Linnaeus, 1758: Egypt, breeds south in the west to about just south of Dakar, Senegal, according to de Naurois (*vide Mem.Mus.Nat.Hist.Paris*, Ser.A, vol. lvi, 1969, p. 157), and to the Cape Verde Islands at *c.* 16° N., off West Africa. In the east of the continent it breeds south to about 10° 28′ N. in northern Somalia, and to Socotra at 54° E., off Cape Gardafui. While most of the African populations of *C.alexandrinus* are probably largely sedentary, birds from the Eurasian breeding grounds winter well south in Africa, though the precise southern limits of such migrants have still to be determined. Earlier statements to the effect that Kentish Plovers reach South Africa on migration are now known to be erroneous, the most southerly valid record for Ethiopian Africa being from Avakubi, Ituri, Zaïre, at 1° 24′ N., 27° 40′ E., judging by the comments of Backhurst *et al.*, *Journ.E.A.Nat.Hist.Soc. & Natn.Mus.*, No. 140, 1973. p. 13.

In the case of the African Whitefronted Sandplover *C.marginatus*, the most northerly population in the western aspects of the continent is that present on the great bend of the Niger R. at *c.* 17° N., and on the east side along the south-western coast of Somalia. The disposition of *C.alexandrinus* and *C.marginatus* round the Horn of Africa is not clear from the literature, the situation having been confused by the writings of Mackworth-Praed and Grant, who imply, *loc.cit.*, that the two sandplovers are sympatric as breeders in this sector. As *alexandrinus* certainly breeds at Zeila and near Berbera on the

northern coast of Somalia and commonly on the island of Socotra, and most unequivocal specimen records of *C.marginatus* are from the south-western coast of the same territory from south of 2°N., the two sandplovers are almost certainly allopatric. Bock, *Bull.Mus. Comp.Zool.*, vol. cxviii, 2, 1958, pp. 74, 75, believed that the available evidence from this largely remote region confirmed belief in the strict allopatry of *C.alexandrinus* and *C.marginatus* round the Horn of Africa. Both plovers appear to be ecologically virtually alike. In northern Africa *C.alexandrinus* affects sand and shingle beaches, estuaries, saline mud-flats, the dry or semi-dry fringes of lagoons, etc., generally with limited vegetation present. In *C.marginatus* subspp., some races are entirely maritime and confined to sandy beaches and estuaries with an admixture of mud-flats and sand-bars — again with limited vegetation, which is entirely incidental to their occurrence — where they occur in pairs, or small parties in the non-breeding season. In the case of one subspecies complex, comprising *C.m.mechowi* (Cabanis), 1884: Cuango R., northern Angola, and *C.m.hesperius* Bates, 1932: Nana Kru, Liberia, the bulk of the populations are both riparian and lacustrine, with limited coastal records, its range extending diagonally across the African continent from the great bend of the Niger R., south-east to the Limpopo R. in the Transvaal. The subspecies *mechowi* and *hesperius* are, it would appear, more subject to seasonal movement than the essentially maritime representatives of southern Africa: *C.m.marginatus* Vieillot, 1818: Cape Peninsula, Cape, *C.m.arenaceus* Clancey, 1971: Umzamba R. mouth, Pondoland, eastern Cape, and, presumably, the eastern *C.m.tenellus* Hartlaub, 1861: Madagascar, and *C.m.pons* Neumann, 1929: Chisimoio, Somalia, judging by the occurrence of examples of *C.m.mechowi* well south-west or south of the established breeding range. Two specimens of *mechowi* from Durban Bay, Natal, dated 4 April, 1963, and 14 October, 1965, are in the collection of the Durban Museum, these from within the breeding range of the purely coastal *arenaceus*, while *mechowi* has also been obtained recently at Etosha in northern South West Africa, where not noted hitherto. The movement in *C.m.mechowi* in southern Africa is related to the inundation of its riparian habitat when the rivers come down in flood and the sand is covered. In this connection I would refer one to Tree, *Puku*, No. 5, 1969, pp. 182, 183, who considered this species to be a visitor to Zambia, mainly from June-December, occasionally March. While evidence is admittedly inconclusive, it may be that *C.m.mechowi* and *C.m.hesperius* are wholly or largely inland river and lake shore breeders, their occurrence in coastal regions dependent on the seasonal inundation of their inland sandy breeding sites.

THE MORPHOLOGICAL CHARACTERS OF *C.ALEXANDRINUS AND C.MARGINATUS*

When Sharpe, *Cat.Birds Brit.Mus.*, vol. xxiv, 1896, pp. 254-256, prepared his key to the Genus *Aegialitis* Boie, 1822, he gave as the distinguishing feature between *C.alexandrinus* and *C.marginatus* the criterion that the former possessed a white dorsal surface to the neck. Since Sharpe's time authors have used various other and combinations of "old" and "new" characters to differentiate *C.alexandrinus* and *C.marginatus* specifically in all their plumages. As recently as 1965 Vaurie, *loc. cit.*, stated that *marginatus* is distinctly smaller than *alexandrinus*, has a proportionately longer tail, weaker feet, legs that are yellowish rather than black or dark grey, and further lacks the conspicuous black or dark brown patches of *alexandrinus* at the sides of the upper breast. Vaurie also believed the breeding biology of the two plovers to differ at a specifically significant level, and as a corollary was prepared to accept their being sympatric as breeders in Somalia.

When a direct comparison between *C.a.alexandrinus* and vicinal populations of *C.marginatus* of the races *hesperius* and *pons* is effected a reasonably satisfactory size difference can be demonstrated, but with overlap. In *C.m.hesperius*, *C.m.mechowi*, *C.m.pons* and *C.m. tenellus* wings of adults of both sexes are 96–106, whereas in skins of *C.a.alexandrinus* measured by myself from the African mainland and the Canary and Cape Verde Islands wings in 16 ♂♀ range from 105+–112, $\bar{x}$ 108,1, SD 2,34. Witherby, *Handbook of British Birds*, vol. iv, 1940, p. 363, gives wings of ♂♀ as 106–118, though Vaurie, *loc.cit.*, supplies dimensions closely similar to my own for *alexandrinus*, namely, 106–113mm. While the vicinal forms of *marginatus* are indeed smaller in most critical measurements than African *C.a. alexandrinus*, the mensural difference between the two species disappears when one compares the measurements of *alexandrinus* with those of the two austral African maritime races of *marginatus*, namely, *marginatus* and *arenaceus*, which have wings in both instances 106,5–114,5mm (after Clancey (1971)). Such measurements agree precisely with those given above for nominate *alexandrinus*. In evaluating a size difference as being of importance in maintaining *alexandrinus* and *marginatus* as separate species, one should also not overlook the fact that while *C.a.dealbatus* (Swinhoe), 1870: south coast of China, including Taiwan and Hainan, is comparable with *C.a.alexandrinus* in size, *C.a. seebohmi* Hartert and Jackson, 1915: Aripo, northern Sri Lanka (Ceylon), is similar to the two largely freshwater races of *marginatus* (*hesperius* and *mechowi*) and

the maritime *pons* and *tenellus* in having short wings (97,5–103mm in 3 ♂♀ measured in Durban). Another southern insular race: *C.a. javanicus* of the island of Java, is similarly small, the wing-length 98–102mm, according to Meinertzhagen, *loc.cit.*

In connection with two other criteria referred to by Vaurie as (*a*) the proportionately longer tail-length and (*b*) the weaker feet of *marginatus* compared with *alexandrinus*, I can confirm that in African examples of nominate *C.alexandrinus* and the northern vicinal forms of *marginatus* (*hesperius*, *mechowi* and *pons*) a proportionately longer tail in relation to the wing can be demonstrated, the tails of the three northern, short-winged *marginatus* subspecies being about the same as in nominate *alexandrinus*. The tarsal-length character is, however, in line with the wing-length variable in being shorter than in *alexandrinus*. Compared with South African specimens of the maritime races *marginatus* and *arenaceus*, *alexandrinus* is found not to differ taxonomically in the lengths of the wing and tarsus, but is on the whole shorter tailed, or, more correctly, the tail is shorter in relation to the wing, but with a measure of overlap, thus:

	C.a. alexandrinus ♂♀	*C.m.marginatus* and *C.m.arenaceus* ♂♀
Wing	105–112	106,5–114,5
Tail	40–45	45–52
	(Vaurie: 40–48)	(43–52)
Tarsus	26–29	23,5–27+
	(Vaurie: 25–29)	

(*N.B.* Vaurie's measurements for South African birds are such as to suggest the inclusion of specimens of *mechowi* in the sample measured.)

To turn now to the next criterion, that of leg colour. *C.a.alexandrinus* and immediately associated taxa have the legs and toes leaden or olivaceous-grey, this turning to almost black in the dried skin. Sharpe, *loc.cit.*, p. 279, in considering the paler leg colour attributed to *C.a.dealbatus* when compared with the typical subspecies, states: "I do not see any advantage in upholding *Aegialitis dealbatus* of Swinhoe, which is supposed to differ by its paler legs. While admitting that most of the Chinese birds differ in this way, there are so many birds, also from China, which have dark legs like the ordinary typical form, while it is equally certain that birds from other localities have also pale legs. In one instance I have seen a bird that had one dark leg and one pale one, so that apparently the skin of the leg dries in various colours." While *dealbatus* is now recognised, *contra* Sharpe, as a valid eastern race of the Kentish Plover on the

basis of a longer and rather heavier bill, the paler leg colouration attributed to it in the first instance and discussed by Sharpe is no longer invoked in its support.

In *marginatus*, leg and toe colour in the largely fresh-water races *mechowi* and *hesperius* are given by Chapin, *loc.cit.*, p. 66, as light grey or greenish grey, slightly buffy on the metatarsus, and by Bannerman, *Birds of Tropical West Africa*, vol. ii, 1931, p. 90, as greenish. In the South African maritime subspecies *marginatus* and *arenaceus* leg and toe colour is pallid ochraceous-buff, often with a faint bluish cast in life. In the dried skin the feet of southern African birds retain this pallor. From these comments on leg and toe colour it will be appreciated that in contrast to the other variables considered so far, leg and toe colour in the *C.marginatus* populations lying closest to African elements of *C.alexandrinus* are intermediate towards *alexandrinus* in having darker, less yellowish, pedal extremities than the South African representatives.

In contrast to all the other rather unsatisfactory variables so far considered, plumage characters are on the whole more satisfactory in maintaining the specific discreteness of the two plovers here considered, though only in the adult or definitive male facies. Adults of both sexes of the two species are distinguishable as follows:

	C.alexandrinus	*C.marginatus*
♂	Forehead and supercilia white; fore-crown brownish black, pileum Sayal Brown (Ridgway, *Color Standards and Color Nomenclature*, 1912, pl. xxix); hind neck white; dorsum warmer than Drab (pl. xlvi). Venter white; over the upper lateral breast a black patch. Feet slate-grey.	Forehead and supercilia white: fore-crown brownish black; pileum as rest of dorsum; hind neck white; dorsum warm brown, the feathers edged Sayal Brown or sandy brown. Venter white, usually overlaid with vinaceous-buff from lower fore-throat to belly. Feet olivaceous-grey or buffish.
♀	As male, but fore-crown lacks black, and pileum as dorsum; over face, black surfaces replaced by rusty buff and fuscous, and posterior supercilia buff. Upper lateral neck patches brown or greyish brown, not black.	As male above, but usually with less black over fore-crown.

(*N.B.* Nominate *C.alexandrinus* and, presumably, *C.a.dealbatus* assume a nuptial dress, whereas *C.a.seebohmi* (? and *C.a.javanicus*)

does not. I can find no evidence that *C.marginatus* subspp., assume a nuptial dress, and the absence of a vinaceous-buff wash to the venter is both a developmental and individual characteristic.)

As shown above, males in nuptial dress are sharply differentiated on plumage characters, but in adult females determination is often arbitrary and requires recourse to an evaluation of the wing- and tail-lengths and the locus of collection. Specimens of adult females of *C.a.alexandrinus* from islands off West Africa are indistinguishable from white ventralled examples of *C.a.mechowi* over the dorsum, face and venter, and the latter can only be separated on the basis of a shorter wing from *C.a.alexandrinus* in the case of examples with the underside plain white.

In non-breeding adults and immatures it is all but impossible to isolate a single or group of characters which serve in the allocation of singletons with any measure of assurance to one or other of the plover species. This is particularly evident when one deals with skins of white ventralled individuals of the large sized coastal races of southern Africa, which can only be differentiated with extreme difficulty from immature and non-breeding *C.a.alexandrinus* on the basis of a paler, somewhat more scaled upper surface, average longer tail and buffish yellow as opposed to black feet in the dried skin. This probably explains why so many early authors have averred — quite erroneously — that non-breeding *C.a.alexandrinus* ranges to the Cape on migration. Even in the case of adult breeding males, the difference all but falls down in a comparison between *C.a.seebohmi* (and presumably *C.a.javanicus*) and some populations of *C.marginatus*, in all of which there is no assumption of a special nuptial dress, except that in the *C.alexandrinus* subspecies black is acquired over the upper lateral breast.

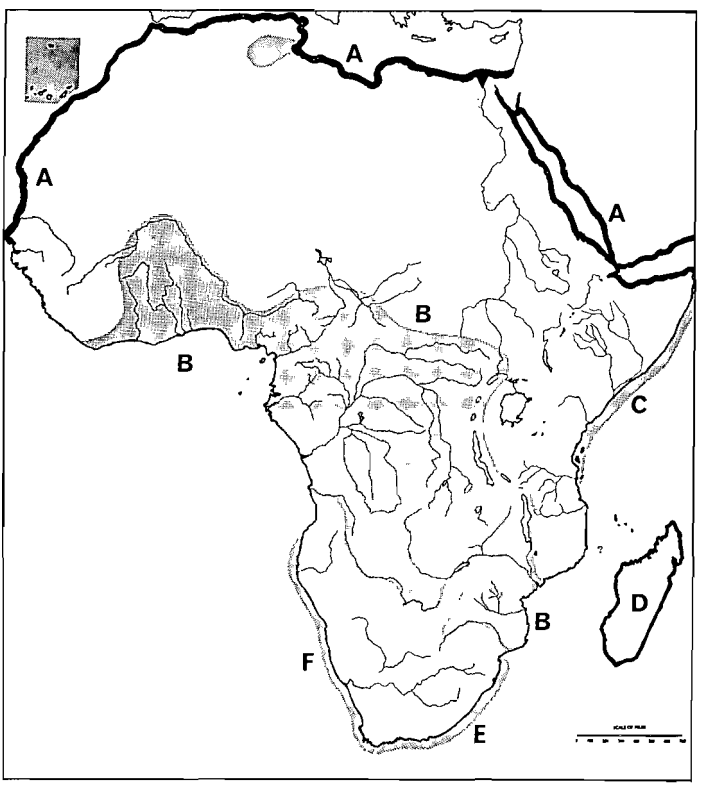
SUMMARY AND CONCLUSIONS

From the above discussion it will be appreciated that *C.alexandrinus, sens.strict.*, of the Palaearctic and Asia, and *C.marginatus* of Ethiopian African and Madagascar form two extremely closely allied parapatric groups of forms as defined by Mayr in Lowe-McConnell, *Speciation in Tropical Environments*, 1969, pp. 13, 14. The classificatory device employed to label them must in the final analysis rest on their absolute parapatry, even in the disputed Horn of Africa sector, and on the fact that where their ranges impinge or approach one another they are distinguishable at the species level on the grounds that —

(*a*) *C.alexandrinus* assumes a special nuptial dress, marked in males, when it acquires black upper lateral breast patches, while *C.marginatus* does not;

(*b*) adults of *C.alexandrinus* range longer in the wing and have a proportionately shorter tail than *C.marginatus*.

The facts of the case as reviewed above and evolutionary theory are best served by following Chapin, Vaurie, *et al.*, in treating the Whitefronted Sandplover *C.marginatus* of Ethiopian Africa as a polytypic allospecies of a superspecies *C.alexandrinus*. The merging of *marginatus* subspecies into *alexandrinus* serves little from the purely taxonomic standpoint, and, moreover, tends to obscure the



MAP I

Sketch-map showing the disposition of the taxa forming the *C.alexandrinus* superspecies in Africa.

A. *Charadrius alexandrinus alexandrinus* Linnaeus
B. *Charadrius marginatus mechowi* (Cabanis) and *Charadrius marginatus hesperius* Bates
C. *Charadrius marginatus pons* Neumann
D. *Charadrius marginatus tenellus* Hartlaub
E. *Charadrius marginatus arenaceus* Clancey
F. *Charadrius marginatus marginatus* Vieillot

extremely instructive parallel geographical variation present in the two allospecies.

SUBSPECIATION IN THE SHARPBILLED OR WAHLBERG'S HONEYGUIDE *PRODOTISCUS REGULUS* SUNDEVALL

This small dun-coloured honeyguide was described originally from the western Transvaal by Sundevall on the basis of material collected by J. A. Wahlberg in 1843. It is now known to range from Nigeria in West Africa, and the Sudan and Ethiopia in the east, south, east of the Lower Guinea Forest to southern Angola and north-eastern South West Africa in the west and the eastern Cape and Natal in the east. The possible polytypy of the species was first demonstrated by Ogilvie-Grant, *Bull.Brit.Orn.Club*, vol. xi, 1901, p. 67, when he described *Prodotiscus peasei* from southern Ethiopia. Grant, *Ibis*, 1915, pp. 436, 437, overlooking the fact that the tail-patterns of juveniles and adults differ markedly, questioned *peasei* and rejected it as being described on a variant. In 1921 Reichenow *Journ.f.Ornith.*, vol. lxix, 1921, p. 46, proposed *P.r.camerunensis* from the Central African Republic, more, I suspect, on the basis of the far north-western locality than on any difference he detected in the singleton — a juvenile — before him. Sclater, *Syst.Av.Aethiop.*, part i, 1924, p. 291, accepted that *P.regulus* was a polytypic species, admitting the three named races: nominate *P.regulus*, *P.r.peasei* and *P.r.camerunensis*. Friedmann, *U.S.Natn.Mus.Bull.*, No. 153, 1930, pp. 472, 473, again considered the question of the validity of *peasei*, which he tentatively accepted, while *camerunensis* was not considered. Grant and Mackworth-Praed, *Bull.Brit.Orn.Club*, vol. lviii, 1938, p. 146, again considered *peasei*, which they synonymised with the nominate subspecies. In 1952 the present writer (Clancey, *Durban Mus.Novit.*, vol. iv, 1, 1952, pp. 8–11) studied the populations occurring in the South African Sub-Region, recognising two races in the region, one of which was described as new under the name *P.r.adustoides*. Friedmann, *Ann.Mus.CongoBelge*, in-4°, Zool., 1, 1954, pp. 21–27, declined to recognise *adustoides*, stating that it was probably based on foxed material, even though most of the material used in the research carried out by Clancey was under twenty years old at the time (1951). This matter was again considered by the present writer in *Bull.Brit.Orn.Club*, vol. lxxv, 9, 1955, pp. 123–126, the validity of *adustoides* being reaffirmed. Later, Friedmann, *U.S.Natn.Mus.Bull.*, No. 208, 1955, pp. 256-264, commented further that *adustoides* required confirmation, admitting no races in the species (p. 257). Chapin, *Birds of the Belgian Congo*, part ii, 1939, p. 537, hesitatingly admitted that the species was polytypic, while