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v.8-9 (1961-1974): https://www.biodiversitylibrary.org/item/215769

Page(s): Page 25, Page 26, Page 27, Page 28, Page 29, Page 30, Page 31, Page 32, Page 33, Page 34, Page 35, Page 36, Page 37

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Variational Patterns and Races of the Clapper Lark *Mirafra apiata* (Vieillot)

by

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No complete revision of this highly variable and cryptic species has been attempted since J. D. Macdonald's excellent account compiled some fifteen years ago. By this author's own admission, his paper established only the first stepping-stone towards an accurate understanding of the full extent of the variational pattern displayed by this lark. Since that time more concerted collecting by various South African museums has led to a considerable augmentation of the available specimen material in our collections. In the light of this additional material it is now possible to present a much clearer picture of the individual and geographical variation in this species, and while it has become evident that well-marked races do exist, knowledge gleaned during the course of this work has contributed most towards a fuller understanding of the amazing extent of this lark's range of individual variation.

Former ignorance of the true magnitude of this variability has been directly responsible for the gross additions to the list of described sub-species over the years. We may trace the path of such over-splitting if the races *M.a. apiata* (Vieillot), *M.a. adendorffi* Roberts and *M.a. algoensis* (Roberts) are taken as examples. If all the available skins of these races are examined collectively, irrespective of racial affiliation, a certain spectrum of variation will be noted. That this is only individual and not geographical is easily demonstrated if a comprehensive series of skins collected from any point within the combined ranges of these three contiguous races is examined. It will be seen that any such series will show as wide a range of variation as that of the pooled body of material alluded to above, i.e., all three races combined. The danger then of describing sub-species from both limited material and number of localities, especially in highly variable species, becomes obvious. It could happen, for example, that the diagnostic characters of a race described from such an incomplete series may only be revealing one segment or a single facet of the total possible individual variation, thus creating the impression of the entity constituting a distinct taxon. The fuller series from individual localities subsequently reveals the complete variational pattern and the necessity for dropping any such superfluous races. Such a series as the one assembled by the Durban Museum of topotypical specimens of *M.a. apiata* from Malmesbury in the western Cape has thus helped considerably in revealing that the minor characters which formed the basis upon which the races *adendorffi* and *algoensis* were proposed, completely disappear as only part of a wider character complex or mosaic, inherent in all populations of the three races under discussion.

It is anticipated, therefore, that as our series of skins of various bird groups become fuller and more representative of their ranges it will be found necessary to dispense with many of the races burdening the literature. This is most likely to happen in groups with cryptic plumage coloration such as larks, which are usually highly variable and have thus been notorious for their accumulation of racial names. Recently, a start in this direction has been made by South African specialists, and Mr P. A. Clancey (1966), in a recent revision of the races of the Fawn-coloured Lark *Mirafra africanoides* Smith has reduced the number of races to half of those previously admitted by authors. In a similar revision of the South

African Sabota Lark *Mirafra sabota* Smith, Clancey (1965) likewise found that no less than six races out of some thirteen proposed by systematists could not be maintained, and required to be synonymized with other racial taxa. My findings in the Clapper Lark likewise show that the species has been over-split on inadequate evidence, and that the number of races requires to be reduced.

GEOGRAPHICAL VARIATION

From a study of over 200 specimens from most parts of the species' range it was clear at the outset that all the forms show intergradation with each other, making their recognition as geographical variants of only one polytypic species imperative. The only possible exception is the apparent lack of complete intergradation between *M.a. apiata* and *M.a. hewitti*. However, the rather close resemblance of some specimens of one form to variants of the other would militate against their being treated as specifically distinct.

The three extremes in variation found in the Clapper Lark are, however, so diverse in appearance that it is hardly suprising that pioneer taxonomists working without a full range of specimens came to regard these peculiar forms as discrete species. There is, on the one

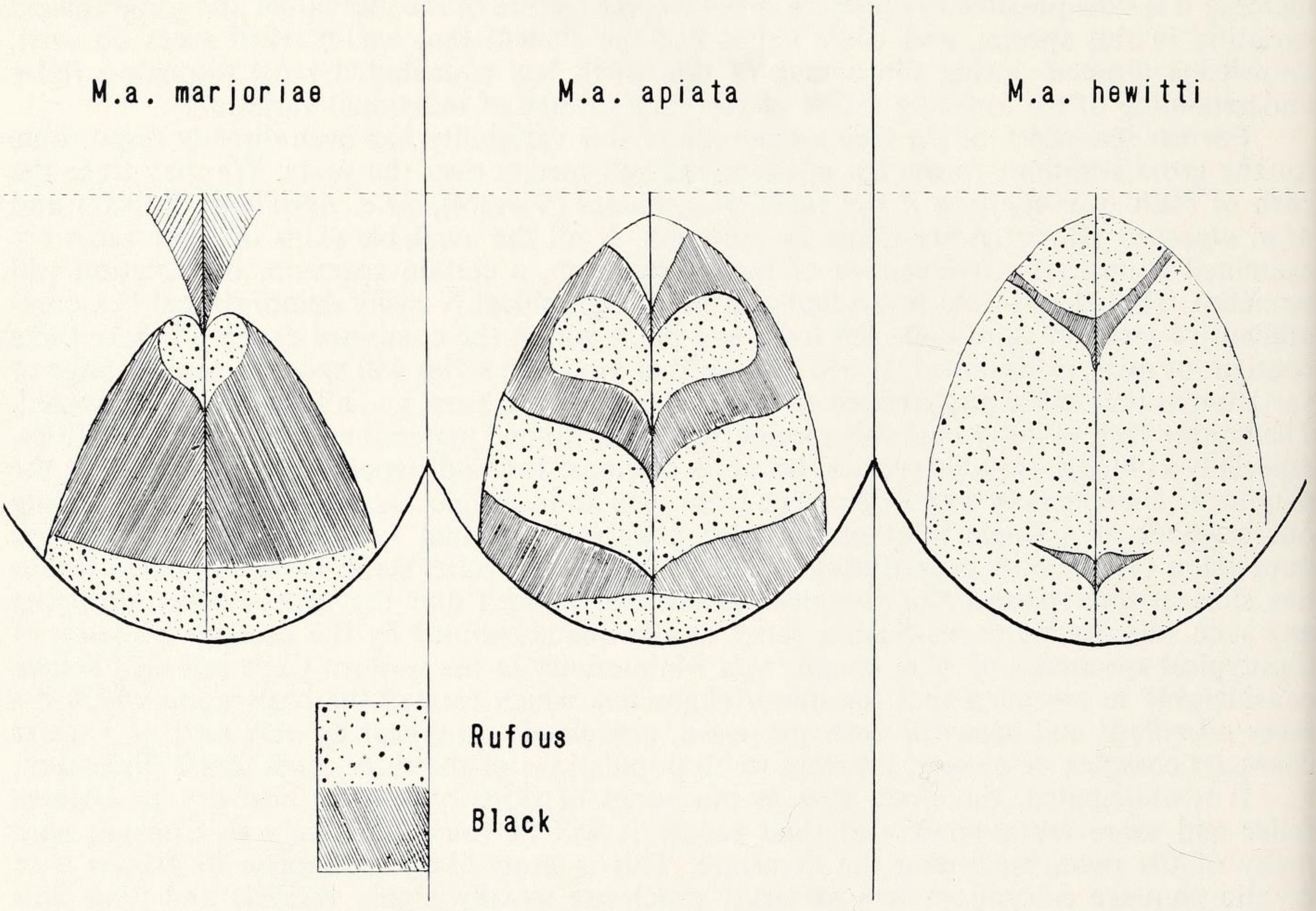

Illustration depicting stages in the increasing development of rufous dorsal pigments in three races of *Mirafra apiata*. Each example represents the pigmented terminal portion of a feather, each from the same region of the upper-parts. Such feather patterning varies quite considerably through wear and individual variation.

hand, the very dark, black-and-grey-backed south-western form with a minimum of dark russet mottling over the dorsal surface, exemplified by the race *Mirafra apiata marjoriae* Winterbottom. North-east of this, mainly over the highveld, we have the very russet *M.a. hewitti* (Roberts), in which the dark greyish dorsal colours have virtually disappeared, leaving the back plain reddish-brown in some specimens. The third extreme is perhaps the most divergent of all in that russet dorsal colours fade out completely in what is now a north and westerly direction until the race *M.a. nata* Smithers is encountered in Botswana, this last named presenting a remarkable ashy-grey dorsal appearance. One could concede that as in various *Cisticola* forms, there are greater colour differences between *M.a. apiata* races than those separating some closely allied species in the *Alaudidae*, e.g., *M. rufocinnamomea* (Salvadori) and *M. apiata*.

Of the dark, mottled, grey-backed southern populations only two sub-species are admissible, the one being the extreme form, i.e., *M.a. marjoriae*, which is found to have a wider range than formerly thought, stretching from the Cape Flats along the coastal strip to at least the Knysna area. The second is the nominate race which has a less southerly disposition than the last and occupies most of the inland areas of the south-west Cape, eastwards to about the Albany district, also stretching in a broad belt up the west coast to Little Namaqualand. Both *M.a. marjoriae* and *M.a. apiata* are closely linked in many ways and form an assemblage rather distinct from the others. In their range they mainly occupy the winter rainfall areas, and are never found to any great distance from the coast. In size males vary mainly between 80 and 89 mm. in wing length, seldom exceeding 90 mm. and the breast spotting is dark and bold, often extending well over the throat and almost invariably covering the under tail-coverts. A large distributional gap also separates the bulk of this group from their nearest neighbours situated to the north-east. This next group also has its components closely allied, and constitutes the very rufous-backed populations occupying an extensive area stretching from the eastern Cape through the Orange Free State to the Transvaal, northern Cape and Griqualand West, also penetrating the southern parts of Botswana and continuing up into the more northern parts of South-West Africa. The Botswana and South-West African populations are somewhat paler dorsally and must bear the name *M.a. deserti* (Roberts), while the darkest rufous populations occurring to the south and east are known as *M.a. hewitti*. Both *hewitti* and *deserti* differ from the winter rainfall populations of Clapper Larks in being considerably larger with but few males measuring less than 90 mm. in the wing. Ventrally the breast spotting has a different character, being lighter and more diffuse, not extending so far over the throat. The under tail-coverts are, almost without exception, unspotted. In range this group avoids the littoral and inhabits the more elevated, better grassed inland areas of southern Africa.

The paler, grey-backed forms are divisible into three races with *M.a. nata* as the eastern extreme. The other two were described more recently, i.e., *M.a. reynoldsi* Benson & Irwin from southern Barotseland and *M.a. jappi* Traylor which was found to occur a little to the north in the Kalabo district. In South-West Africa these pallid forms inhabit only the more northerly reaches from the Etosha Pan northwards but extending in Botswana much farther south, especially in the central parts. They occupy various types of savannah and open grassland. About Lake Makarikari, *M.a. nata* constitutes a curious ecological race restricted to the white calcareous ground found in this area. Although there is in the National Museum at Bulawayo a large number of these grey-backed Clapper Larks from the Makarikari area in Botswana, there are relatively few specimens from the rest of their somewhat extensive range through South-West Africa and western Zambia. In addition they emanate from only a few widely scattered and often restricted localities with the result that any systematic arrangement of the constituent races at this stage cannot be regarded with any finality. There is the added difficulty that both *M.a. damarensis* Sharpe and *M.a. reynoldsi* have been described from

Map of the southern part of Africa, illustrating the distribution of specimens of the various subspecies of *Mirafra apiata*. Combination of symbols indicates intergradation or concurrence of specimens of two subspecies within the area covered.

specimens in worn plumage. In this state the vital clues to racial allocation are often missing or plumage colour has changed drastically. This is clearly evident in specimens of *M.a. nata* where birds in older dress are seen to be warmer or more sandy in appearance over the upper-parts, and with the neck regions tinged yellowish to a more marked extent. One worn specimen of *M.a. jappi* was found to be inseparable from those of the *reynoldsi* series and one naturally wonders to what further extent fresh specimens of *reynoldsi* will be found to resemble *jappi*, seeing the series of the latter race consist mostly of birds in fresh dress. Similarly, it would be interesting to examine specimens in good plumage from the type-locality of *damarensis* since specimens from the nearby Etosha Pan area and similar birds from the Gemsbok Pan vicinity in Botswana are a motley lot and evidently result from a degree of intergradation with the contiguous *M.a. deserti.* Hardly two are alike with every variation from a "*reynoldsi*-like" specimen to some strongly buff-tinged and with broad reddish sub-apical barring to the dorsal feathers, thus showing approaches to *M.a. deserti. M.a. damarensis* is, therefore, still largely an unknown quantity and if we are to judge from present material, rather unsatisfactory. Occupying only two limited areas, i.e. the vicinity of the Etosha Pan and a sixty-mile radius of the Gemsbok Pan, there is every appearance of having to deal with birds of hybrid origin. A typical specimen of *deserti* has in fact been collected within twenty-five miles of Gemsbok Pan. The diversity of these specimens could possibly indicate that the grey *nata* of this area (actually *reynoldsi*) and the reddish *deserti* have already achieved some measure of reproductive isolation, since hybrid populations showing greatly increased variability are said to be evidence of secondary intergradation, thus suggesting a breakdown of previous isolating mechanisms. A few of these odd-looking birds with pinky vinaceous upper-parts were given the racial name *kalaharicus* by Roberts and described from the Gemsbok Pan. The fact that *deserti* and outlying populations of *nata* (some better grouped with *reynoldsi*) occur in absolutely unchanged and typical form within 60—70 miles of each other in the country immediately south and south-west of the Makarikari pans, could mean that here reproductive isolation is virtually established. Certainly one would expect that to bridge the wide difference in appearance between the russet *deserti* and the ashy pale *nata* one should encounter a whole array of intermediate races, collectively forming a cline and occupying an extensive belt of territory.

It appears best to omit *damarensis* from our list of the known valid races. When the present collecting lacunae have been filled it might be found that birds from the Ondangua area and other extreme northern parts of South-West Africa and Botswana are inseparable from *reynoldsi*, in which case *damarensis* would have to be reinstated and *reynoldsi* fall away. Another possibility is that such specimens could prove to be distinct from *reynoldsi*. A single specimen from Namutoni, near Etosha Pan is unusual in having a distinct pale yellowish tinge to the entire upper-side grey and lacking reddish barring. From a similar latitude in the north-western corner of Botswana there is a single specimen from the Tsodilo Hill which has a somewhat similar appearance, and as suggested, could indicate the possible existence of a distinct race in these northern parts which could utilize the name *damarensis*. Unfortunately the Tsodilo Hill bird is juvenile so comparisons are mere conjecture at this stage.

Geographical variation within the grey-backed group of Clapper Larks affects the colouring of the sub-apical bar to the mantle and rump feathers, the basal portion of the crown feathers and the general tone of the upper-side plumage. Thus *reynoldsi* is usually ashy-grey over the upper-parts, with the feather sub-apices and crown feather bases light reddish brown. *M.a. nata* differs from *reynoldsi* in that the barring on the feathers is not reddish, but instead very pale yellowish-brown, sometimes hardly noticeable against the general ashy-grey ground colour. There is also a greater suppression of reddish-brown over the crown feathers. Finally *jappi* is similar to *reynoldsi* but the upper-side grey is richer and darker. There is among all the grey-backed races of *M. apiata*, variation in the colour of the sub-apical

portion of the back feathers. In *reynoldsi* and *jappi*, where these parts are usually reddish-brown, a few individuals will lack this feature so that such specimens of *reynoldsi* become indistinguishable from *nata*.

Thus it is that *nata* in its relatively pure form exists only in limited areas about the north-east corners of the Makarikari Pan complex. From this point there is a gradual shift towards the incorporation of reddish colours in the feathering of the upper-parts in successive populations found to the south-west, west and north-west. Birds from Lake Dow and other western fringes of Makarikari clearly begin to show this. The nearest known north-western population to *nata* is in southern Barotseland where *reynoldsi* shows similar changes from typical *nata* as those displayed by Lake Dow birds. There is thus no alternative but to unite these two populations under the name *reynoldsi*. To dismiss western Makarikari birds as *nata* showing the influence of *deserti* would be no better than dismissing *reynoldsi* as *nata* showing the influence of *jappi*. Proceeding still farther westwards takes one closer to the Gemsbok Pan area, which as mentioned, is an area of intergradation with *deserti*. Unfortunately there are no specimens available from the 150—200 miles separating the Gemsbok area from Lake Dow, nor are there any specimens forthcoming from the large land mass separating topotypical *reynoldsi* from the range of *nata*. Only when these gaps have been filled will the true extent of the ranges of *reynoldsi* and/or *damarensis* be known, and whether the latter is a valid race.

The range pattern of the Clapper Lark is interesting. Although occurring densely and evenly enough in the areas it does inhabit, it is strikingly apparent that large tracts of country are completely avoided, as is clearly shown in the distribution map. The Clapper appears to avoid both the very dry and wet parts of southern Africa, thus restricting itself largely to the central regions, though avoiding the bulk of the Great Karoo. It is also absent from Bushmanland and Great Namaqualand in the west. Those parts which are inhabited fall mainly within the 16- to 32-inch isohyets. It is only the winter rainfall group of populations that would appear to tolerate greater extremes, but even here it is clear that it becomes very sparse towards the northern reaches of Little Namaqualand; in fact it seems that the species has disappeared from these parts, as much recent collecting has failed to reveal its presence there. In the north-eastern sectors of South-West Africa, the Caprivi Strip, and the northern and eastern lowlands of the Transvaal, the Clapper Lark is largely replaced by the Flappet Lark *Mirafra rufocinnamomea;* in fact there would not appear to be any areas where the two occur sympatrically. More recently, with M. A. Traylor's description of *M.a. jappi* (1962), it would appear that on the Luiwa Plain in Barotseland this race of the Clapper does occur with the Flappet Lark, although segregated ecologically to a certain extent. These two larks are also very closely related, virtually sibling species, and appear to vary geographically in exactly the same way where their ranges approach one another. Thus the race of the Flappet Lark entering the north-eastern parts of South-West Africa resembles *M.a. reynoldsi*, while in the Transvaal *M. rufocinnamomea* is as richly rufous as *M.a. hewitti*. Were it not for the differences in the flight and tail-feather patterns, little would remain to separate them as good species on morphological grounds.

NOTE

The hind neck and upper mantle shows up as a collar in the Clapper Lark because of the extreme reduction of the black and russet dorsal patterning, revealing a ground colour of clear light grey or buff. Frequently these neck feathers stand out in contrast to the more russet and black-flecked crown and mantle. For these reasons the crown and nape coloration may or may not show up as a distinct cap depending on the extent of contrast provided by the neck-band. Thus the "capped" effect often referred to in the literature is of no value as a character in racial determination.

The proximal portion of this cap, or nuchal collar, has also been used as a diagnostic character, distinguishing the nominate race from other contiguous races. This nuchal collar is said to be rufous, flecked with black (*vide: Ostrich* 27: 156—7). However, it was found that in all specimens of the nominate race, including *M.a. adendorffi*, there was every variation not only of this nuchal collar (when visible as a collar), but also of the entire cap and mantle etc. Such variation invariably affects the entire dorsal surface, so that the more black flecking and barring there is over the mantle the more will also normally occur over the crown, nape, etc. Examples of such variation in the cap in specimens of the nominate race (as previously understood) include those in which only the crown centre is black-flecked surrounded by russet, and others where the cap is evidently russet and black-flecked except the nuchal region which is clear russet. Others again have the entire region of the cap russet and black-flecked.

It actually emerges that most of the specimens which have been attributed to the nominate race are without a clear-cut rufous black-flecked collar, whereas more than half the specimens attributable to *M.a. adendorffi* do have such a nuchal collar. From this it can be seen that the russet half-cap which has been said to distinguish *M.a. adendorffi* must also fall away as a taxonomic character. Certainly specimens of *M.a. marjoriae* from Riviersonderend through Swellendam, Riversdale, Mossel Bay and up to Knysna (formerly classified as *M.a. algoensis*) could be separated from the nominate race by a less rufous nuchal collar, but the rest of the dorsal surface is also less rufous (see description).

Furthermore, no substantial differences exist in the extent of russet over the cap between topotypes of *M. apiata apiata* and birds from Little Namaqualand, i.e., within the range of *M.a. adendorffi*. In fact a comparison between topotypes of the nominate race and virtual topotypes of *M.a. adendorffi* (i.e., from Van Rhynsdorp and vicinity) actually reveal that the latter are mostly more heavily black-flecked over the crown and nape than most topotypical specimens of the nominate race. Then, too, it is significant that the reddest bird with the least amount of black dorsal markings over crown, nape, mantle etc., is actually a topotype of the nominate race. It is seen, therefore, that individual variation is so rampant that any attempts to reflect the meagre, incipient geographical variational trends that possibly exist, within the concept of the sub-species would lead to more confusion than clearer understanding. This, at any rate, is seen to be the position of our present state of knowledge dependent as it is on the current bird skin series at our disposal.

Another character which has been used by workers but which will not be taken into account here is the amount of russet colouring in the flight-feathers. This was found to be just another highly variable character, but can be said to vary roughly in direct relation to the general dorsal colour facies in that the greater the extent of rufous development over the upper-parts, including also scapulars, coverts and secondaries, the more extensively will this colour invade the vanes of the primaries. It is thus sufficient only to take note of the degree of rufous development over the dorsal surface. This trend is only fairly general and exceptions occur. For example it is interesting to note that in some specimens from Malmesbury and even Van Rhynsdorp and Namaqualand, which show decidedly more rufous above than do specimens of *M.a. marjoriae*, the flight-feathers are as sparingly or even less tinged with russet than those from the Cape Flats and nearer the Peninsula.

As will be apparent from these deliberations, *M.a. adendorffi* and *M.a. algoensis* cannot be maintained. Most of the specimens identified by authors as *M.a. algoensis* have been here reclassified as *M.a. marjoriae*, i.e., those from Riviersonderend to Knysna. This leaves only a very few unaccounted for, namely the specimens from Port Elizabeth and Grahamstown. As these cannot be separated satisfactorily from the nominate race the two forms must be united under the latter taxon. This arrangement gives the appearance of *M.a. marjoriae* being interposed between west and east Cape populations of *M.a. apiata*. This, however, is not strictly true as *M.a. marjoriae* is really confined to the extreme southern limits of the

southern and south-west Cape with the nominate race occurring to many points north and east of this race's range. It is, in fact, only between the 21 and 23 degree lines of longitude that the nominate race has, as yet, not been found to occur north of the range of *M.a. marjoriae* and which gives the appearance of this race falling between the mentioned east and west populations of *M.a. apiata*. However, it seems likely that specimens connecting up these apparently sundered populations will be found to occur locally along points in the Little Karoo. There would appear to be no other route by which *M.a. apiata* could have spread to Port Elizabeth and Grahamstown or *vice versa*, considering that the coastal forests east of Knysna would appear to be ecologically unsuitable to the Clapper Lark and because the Great Karoo likewise appears to be largely avoided.

For reasons stated, it is unlikely that these east Cape birds could be treated as intergrades between *M.a. marjoriae* and *M.a. hewitti*, but this possibility cannot be ruled out entirely until more specimens are available. Another somewhat remoter possibility is that more specimens from the Port Elizabeth and Grahamstown areas will show these as being only the eastern terminal populations of *M.a. marjoriae*.

In the light of the foregoing discussion, geographical variation in *Mirafra apiata* may be interpreted by the recognition of the following racial taxa:

(*a*) **Mirafra apiata marjoriae** Winterbottom

Mirafra apiata marjoriae Winterbottom, 1956. *Ostrich*, **27**(4):156. Zoetendalsvlei, Bredasdorp district, south-western Cape.

Description: Sexes alike in plumage pattern and coloration. Over the upper-parts the feathers are blackish fringed with grey, coloured apically with rather narrow, dark reddish-brown bars or blotches imparting to the whole upper-surface a dark mottled appearance with the minimum of russet intrusion. What there is of this russet component of the dorsal colours may even be further reduced by plumage abrasion, so that birds collected towards mid and late summer are almost completely without any such reddish-brown markings.

Ventrally this race is as variable as the other races, especially as regards the degree of vinaceous-brown or buff generally colouring these parts. This may vary from a dark brown or chestnut to a rather pale fawn, although most tend to the darker extreme. The throat is considerably paler. The dark brown breast spotting is conspicuous and bold, often covering most, if not all, of the throat and also not infrequently extending along the flanks. With but few exceptions similar spots or streaks also adorn the under-tail coverts.

Measurements

Males:	wing	77·5—88·5 (83·4)	mm.	14 specimens
	tail	54·0—60·0 (57·4)	,,	5 ,,
	bill	16·4—18·5 (17·4)	,,	13 ,,
Females:	wing	79·0—84·0 (81·5)	,,	2 ,,
	tail	54·0	,,	1 specimen
	bill	16·6—17·0 (16·8)	,,	2 specimens

Material: Twenty specimens, comprising 7 from near the Peninsula and adjacent areas, 5 from Zoetendalsvlei, 6 from Riviersonderend to Mossel Bay and 2 from Knysna.
Range: Occupies only the extreme southern limits of the African continent, not being found much farther north of the 34th parallel and up to about Knysna, southern Cape.
Remarks: Although most of the material of this sub-species is in a rather worn condition, it seems reasonably clear that this entity constitutes a valid race. Further material in fresh plumage is needed, however, to define its range and characters more accurately. Northwards, *M.a. marjoriae* grades rather gradually into *M.a. apiata*.

(*b*) **Mirafra apiata apiata** (Vieillot)

Alauda apiata Vieillot, 1816. *Nouv. Dict. d'Hist. Nat.*, **1**:342. Swartland—Malmesbury distr. south-western Cape Province (ex Levaillant).
Mirafra apiata adendorffi Roberts, 1919. *Ann. Transv. Mus.*, **6**(3):117. Olifants R., at Klaver, western Cape Province.
Megalophonus apiatus algoensis Roberts, 1926. *Ann. Trans. Mus.*, **11**(4):222. Port Elizabeth, east Cape Province.

Description: Similar in most respects to *M.a. marjoriae*, differing mainly in the extent of the dorsal rufous, which in *M.a. apiata* has increased in area, making it almost the dominant dorsal colour. It also displays a brighter or clearer reddish hue, less drab and brownish tinged, as in the preceding race. The crown and nape are also largely russet, often invaded medially, laterally or completely by black streaks and bars. Averaging larger in size.

Measurements

Males:	wing	75·5—93·0 (86·6)	mm.	30	specimens
	tail	52·7—64·3 (59·2)	,,	14	,,
	bill	16·7—19·5 (18·1)	,,	27	,,
Females:	wing	78·5—82·0 (79·9)	,,	6	,,
	tail	55·0	,,		
	bill	16·2—18·0 (17·4)	,,	6	,,

Material: Thirty-eight specimens: 2 from the eastern Cape, 1 from Swellendam, 20 from the western Cape, 9 from the borders of southern Little Namaqualand and the Karoo and 6 from Little Namaqualand.

Range: Occurs mainly north of the 24th parallel in the western Cape, extending up the western seaboard in a fairly broad belt, but apparently not penetrating the Great Karoo or southern South-West Africa. Reaches the eastern Cape at Port Elizabeth and Grahamstown.

Remarks: Although as yet no specimens of this race have been found in the intervening territory between the western and eastern Cape, the kinship of the eastern birds with specimens of *M.a. apiata* is quite clear. There is for example no indication that the birds from Port Elizabeth and Grahamstown are more russet above when compared with Malmesbury specimens; indeed a Port Elizabeth bird is actually darker above than certain such specimens from within the district of the type-locality of *M.a. apiata*. Nor can the birds from Riversonderend to Knysna be grouped with the Port Elizabeth and Grahamstown birds. These birds from Knysna, etc., definitely show less russet above and are inseparable from topotypes of *M.a. marjoriae*. As yet there does not appear to be any sign of the usual racial intergradation between the most easterly members of *M.a. apiata* and the most southerly representations of *M.a. hewitti*, in spite of their ranges approaching each other rather closely just at this point.

(*c*) **Mirafra apiata hewitti** (Roberts)

Megalophonus hewitti Roberts, 1926. *Ann. Transv. Mus.*, **11**(4):223. Rooiberg, Transvaal.

Description: Compared to the previous race there is a marked increase in the overall size in specimens of *M.a. hewitti*. Although spotting of the under tail-coverts is a conspicuous feature of the preceding races, it is only very rarely encountered in the present race. Also the breast spotting is less extensive, covering no more than the lower throat. These spots are also clouded and paler than in races (*a*) and (*b*). Dorsal rufous reaches peak development, and although there is as a rule still a variable, albeit reduced, amount of black barring over the upper parts, some specimens would be immaculate reddish-brown were it not for the whitish

terminal fringes to dorsal feathers in fresh moulted condition which is, incidentally, typical of all the races. On the other hand, a few individuals of *hewitti* are quite extensively black-barred, and although they show an approach to the nominate race in this respect, the conspicuous lateral grey fringing to the dorsal feathers of the latter race at once distinguishes it from *hewitti* which is by comparison warmer and more buffy about these parts.

Specimens of *M.a. hewitti* showing a comparatively well-developed black-barred back emanate from the eastern Cape, the Kuruman-Vryburg area and Pretoria and in the series from these parts constitute very roughly about 50 per cent of individuals. From such in-between areas as the Griquatown district, Kimberley and the western Orange Free State there appears to be a greater incidence of clearer rufous-backed birds.

Measurements

Males:	wing	88·0—97·5 (92·3)	mm.	50	specimens
	tail	58·8—68·6 (63·4)	,,	29	,,
	bill	16·5—20·5 (18·6)	,,	45	,,
Females:	wing	79·5—87·5 (83·7)	,,	5	,,
	tail	54·6—60·8 (57·7)	,,	2	,,
	bill	15·7—18·6 (17·1)	,,	6	,,

Material: Sixty-three specimens: 5 from the eastern Cape, 9 from the Orange Free State, 30 from the northern Cape, 16 from the Transvaal, 2 from Lesotho, and 1 from Botswana.

Range: Central and north-eastern Cape Province through most of the Orange Free State and adjacent edges of Lesotho to the southern, western and central parts of the Transvaal; also over parts of the northern Cape and just penetrating the south-western sector of Botswana.

Remarks: Apart from some dorsal variation this is a well-marked and compact sub-species, typical of the highveld but penetrating other various bush-types of vegetation about the edges of its range. It appears to merge with only one other race, i.e., *M.a. deserti* along the north-western limits of its distribution.

(*d*) **Mirafra apiata deserti** (Roberts)

Megalophonus hewitti deserti Roberts, 1926. *Ann. Transv. Mus.*, **11**(4):223. Omutako Flats, north of Okahandja, Damaraland, South-West Africa.

Description: Similar to *M.a. hewitti* differing only in being generally paler above and below. There is some variation in the shade of the dorsal rufous in that certain specimens are a clearer brick-red, while others are more vinaceous-tinged but *hewitti* also varies in the tone of these parts.

Measurements

Males:	wing	88·5—95·0 (92·4)	mm.	12	specimens
	tail	62·3—65·5 (63·5)	,,	3	,,
	bill	17·3—20·4 (18·86)	,,	12	,,
Females:	wing	77·0—86·5 (81·5)	,,	7	,,
	tail	51·6—58·6 (55·0)	,,	5	,,
	bill	17·9—18·2 (18·05)	,,	4	,,

Material: Thirty specimens: 7 from the more northern parts of South-West Africa (Quickborn, Gobabis, Omatako Flats etc.) and the rest are from various parts of Botswana south of parallel 21° S.

Range: M.a. deserti has a rather attenuated range, stretching from Botswana to South-West Africa in a north-westerly direction, with another thin arm extending northwards towards the eastern parts of Botswana, approaching hereabouts the range of the very much paler *M.a. nata.*

Remarks: There is a rather gradual paling and thus merging of *deserti* with *M.a. reynoldsi* in Botswana along a line from the Murumusa Pan to the Gemsbok Pan in a north-easterly direction. However, *M.a. deserti* from the Lothlekane/Tsepe area, although not occurring far from the very ashy-grey birds of Lake Dow and Makarikari, shows no signs of becoming paler. It is possible that in these parts *M.a. nata* and *M.a. deserti* restrict themselves severely to the colour of the sub-stratum which matches their dorsal colour. On *a priori* grounds these soil colours must apparently also be rather sharply defined within this area. It is also possible that an already advanced state of reproductive isolation between the red and grey-backed forms of this region could be the main reason for this apparent lack of intergradation.

There is confusion in the names applicable to races in Botswana, and the bird figured in Smithers' check list (1964) as *M.a. kalaharica* is much too rufous for this race if compared with topotypes and Roberts' original description. The specimen figured does, however, match perfectly specimens from South-West Africa applicable to *M.a. deserti.*

(*e*) **Mirafra apiata reynoldsi** Benson & Irwin

Mirafra apiata reynoldsi Benson & Irwin, 1965. Arnoldia, **1**(37):1—3. Near Nasionga, southern Barotseland.
Mirafra damarensis Sharpe, 1874. *Proc. Zool. Soc. London*, **1874:**650, pl. 75, fig. 2. Ondongua, Ovamboland, northern South-West Africa. (Possibly *M.a. deserti* intergrading with *M.a. reynoldsi*).
Corytpha [*sic*!] *hewitti kalaharica* Roberts, 1932. *Ann. Transv. Mus.*, **15**(1):27. Gemsbok Pan, Ghanzi District, Botswana. (*M.a. deserti* intergrading with *M.a. reynoldsi*).

Description: Ashy-grey over the upper-parts, sullied to a variable extent with pale sandy-yellowish, especially about the regions of the neck and upper mantle. Sub-apices to mantle feathers tinged variably with reddish-brown, some only faintly while others resemble *nata* in this respect. Specimens in fresher plumage would, no doubt, be purer grey dorsally. Basal portion of crown feathers rufous, the amount varying individually. With regard to underside coloration, there is a wide range of individual variation, most specimens being light creamy-white, unevenly tinged with buff-brown, some darker and more extensively brown-tinged than others. The dusky breast spotting tends to be reduced by wear.

Measurements

Males:	wing	84·0—88·5 (85·8)	mm.	8 specimens
	bill	17·0—19·1 (18·1)	,,	6 ,,
Females:	wing	77·5—83·5 (80·5)	,,	2 ,,
	bill	16·4—16·8 (16·6)	,,	2 ,,

Material: Sixteen specimens: 9 from southern Barotseland (including 3 juveniles), and the rest from Botswana, i.e., from the Gemsbok Pan in the west to Lake Dow and Makarikari towards the east.

Range: Described from a small area and limited localities about the south-eastern corners of Zambia between the Zambezi and Kwando rivers. The similar specimens from Botswana, i.e., the Gemsbok Pan, Lake Dow and Makarikari probably indicate a linking-up with the Zambian population in the intervening country where ecologically suitable to this lark.

(*f*) **Mirafra apiata nata** Smithers

Mirafra damarensis nata Smithers, 1955. *Bull. Brit. Orn. Club*, **75**(3):29. 10 miles west of Nata, north-eastern Botswana.

Description: Similar to *reynoldsi* but with the sub-apices of the mantle feathering much paler, having lost the reddish tones and being instead greyish to very pale yellowish-brown, a colour not easy to describe and not contrasting much with the grey ground colour. Oddly, the reddish colouring to the crown feathers is retained to a variable extent in many specimens with only a few having lost it entirely. It is, however, more suppressed than in *reynoldsi*. *M.a. nata* in fresh dress is of course much purer ash-grey dorsally than those in worn dress, and the neck and upper mantle more delicately suffused with pinkish instead of yellowish. Underside similar to *reynoldsi*.

Measurements

Males:	wing	81·0—90·5 (87·2)	mm.	9 specimens
	tail	57·2—62·3 (59·1)	,,	11 ,,
	bill	17·6—19·1 (18·2)	,,	11 ,,
Females:	wing	77·0—82·5 (79·7)	,,	2 ,,
	tail	49·5—55·5 (52·5)	,,	2 ,,
	bill	17·4—17·9 (17·6)	,,	2 ,,

Material: Some sixty specimens, the majority of which being in worn plumage render racial allocation uncertain.

Range: The vicinity of the Makarikari Pan complex in north-eastern Botswana, presumably concentrated mainly about its north-eastern edges.

Remarks: This form's limited range and extremely pallid dorsal appearance gives the impression of this being an example of a substrate race.

(*g*) **Mirafra apiata jappi** Traylor

Mirafra apiata jappi Traylor, 1962. *Fieldiana Zoology*, **44:**113—115. Luiwa Plain, Kalabo district, Zambia.

Description: Similar to *M.a. reynoldsi* but darker over upper-parts with the reddish barring to feather sub-apices a trifle darker, more brownish. Underside more brownish suffused in one or two specimens.

Measurements

Males:	wing	88·0—89·0 (88·5)	mm.	3 specimens
	tail	55·7	,,	1 specimen
	bill	17·0—19·0 (18·2)	,,	5 specimens
Females:	wing	76·5—78·0 (77·2)	,,	2 ,,
	tail	52·7	,,	1 specimen
	bill	16·3—16·9 (16·6)	,,	2 specimens

Material: Seven specimens from a small area north-west of Kalabo and from the vicinity of the Luanginga River, Zambia.

Range: As under *Material.*

Remarks: This interesting race appears quite distinctive but its discreteness from *reynoldsi* can only be properly assessed when specimens of the latter in fresh plumage are available.

ACKNOWLEDGMENTS

I am grateful to the Directors of the following institutions for the loan of specimens: Transvaal Museum (through Mr O. P. M. Prozesky), Durban Museum, South African Museum (through Prof. J. M. Winterbottom), National Museum of Rhodesia, Bulawayo (through Mr M. P. Stuart Irwin) and the National Museums of Zambia, Livingstone (through Mr C. Cross). For criticism of the manuscript, I wish to thank Mr P. A. Clancey, Director of the Durban Museum.

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