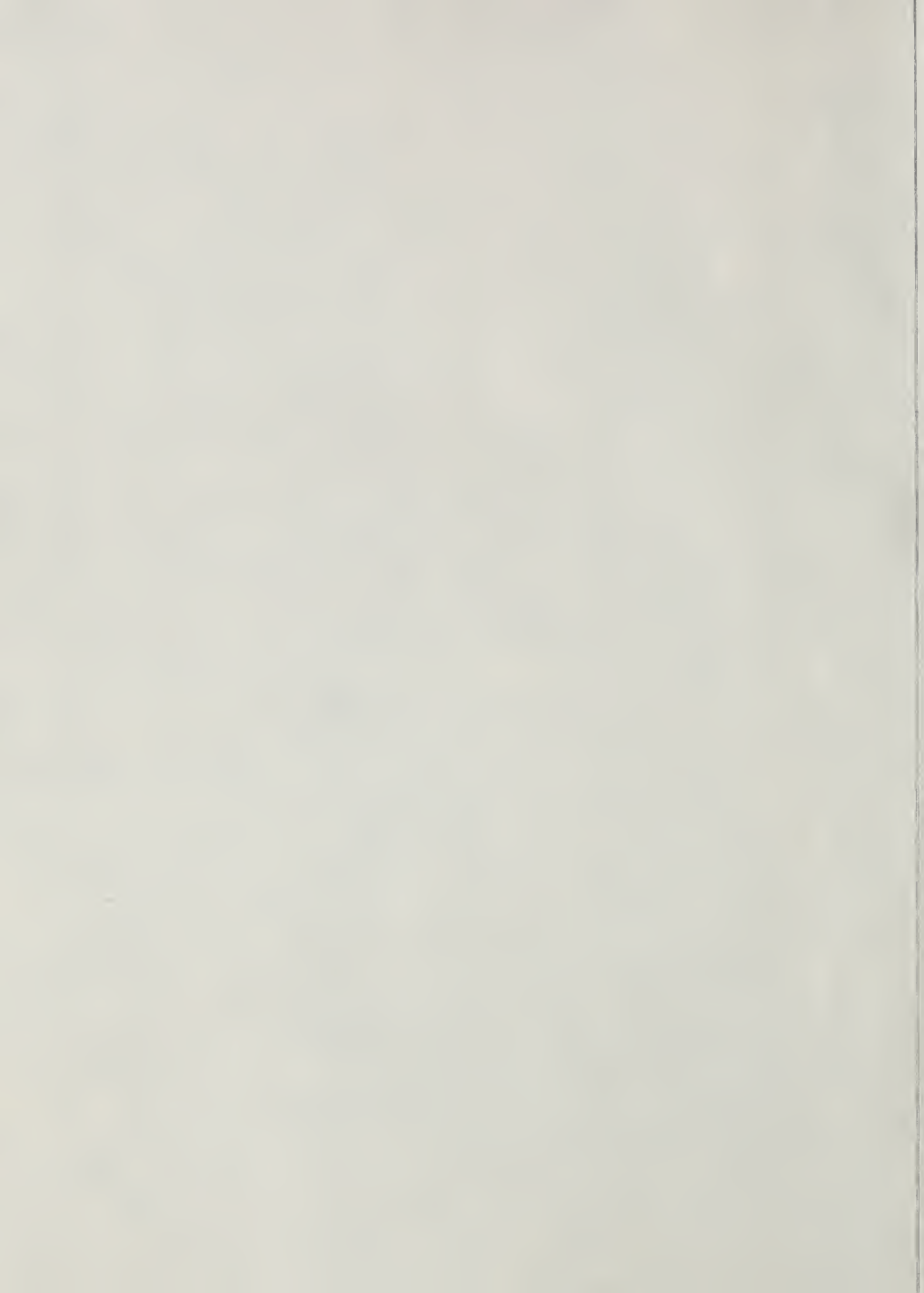


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**Nigerian
Ornithologists'
Society**

BULLETIN

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THE NIGERIAN ORNITHOLOGISTS' SOCIETY

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The Society was formed in 1964 to link bird observers in Nigeria in the furtherance of the country's ornithology through the publication of the BULLETIN. Applications for membership are welcomed. Annual membership subscription rates (1975) ₦ 2.00 or £ 1.00.

Members receive the BULLETIN free of charge

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EDITORIAL

The Society's tenth birthday last year passed unnoticed in this column because severe production difficulties resulted in only two numbers of the Bulletin appearing in 1973 with 1974, instead of the customary four per year. But neither membership nor enthusiasm has waned; to the contrary, the knowledge that ornithology in Nigeria has never before been more actively pursued has provided the impetus for re-organisation of the Society and its journal. A new Constitution is being prepared, which will be presented in the next issue.

With membership so far flung - 45% in this huge country, 35% in Europe and 20% in 11 other countries - there seems no immediate prospect of arranging Society meetings or functions. Even meetings of the Committee are so difficult to arrange that allowance for opinions-by-post are being written into the Constitution. However, from the outset the Society's primary *raison d'être* has been the production of the Bulletin to set down its far-flung observations, and with this 39th number we may allow ourselves a belated centennial congratulation.

Publication of the Bulletin has now returned to Ahmadu Bello University, Zaria, and will be in association with the A.B. University Press. With the gradual development of ornithological activities at the University, there is a stronger guarantee of uninterrupted production of this periodical than there has been for some years. Eventually it may prove feasible for the Bulletin to metamorphose into a letterpress-printed journal of West African ornithology. In the meantime, the changes evident in this number are intended to be a modest step in that direction.

Our policy is to appeal alike to the academic ornithologist and to those people whose enjoyment of Nigeria's wonderful bird life is matched by their desire to extend knowledge about it. This we hope to achieve by an amalgam of scientific papers, short notes, reviews, letters, and illustrations. Two issues will be published per year, about March and September, and the word content of the annual volume in this photo-reduced production is comparable with that of early typed foolscap volumes. A Members' List will in future appear only in the second issue each year.

ROAD TRANSECTS FOR LARGE-SCALE SURVEYING

by Antony Pettet

Line transects are commonly used in ecology for sampling population changes over short distances and sometimes over much longer ones. The 1969 Hovercraft Expedition to the rivers of West and Central Africa provided a good example of a transect on a semi-continental scale which could not have been done as quickly by any other means (Fry 1970). However, in this example the birds surveyed were more or less restricted to the transect itself by virtue of their ecological requirements; with other, more widely ranging birds, distribution is not so readily surveyed. For the more conspicuous and readily identifiable birds, road transects are useful and rapid and can provide information on broad distribution on a national scale. Most ornithologists of my acquaintance already list birds on a somewhat casual basis when motoring on long-distance tours; by systematising their observations they could produce more interesting and valuable information, especially if the same journeys were repeated during different seasons of the year.

The technique I developed whilst working on the vegetation of the Sudan Republic (1962-67) proved an effective means of studying changes in the distribution of a wide range of birds and was particularly useful in sorting out certain migrants in that country. For example, by repeating certain road (and rail) transects over several years I found that, following a particularly good rains, the dry season distributions of a number of wintering Palaearctic species (e.g. Isabelline Wheatear *Oenanthe isabellina* and Short-toed Lark *Calandrella brachydactyla*) and some breeding African species (e.g. Long-tailed Dove *Oena capensis* and Chestnut-winged Finch-Lark *Eremopteryx leucotis*) were to be found 100-200 miles north of their 'normal' positions. With the better road system in West Africa it is much easier to make these transects and well-documented examples could add very considerably to the existing knowledge of a number of species.

Technique

A driver and a recorder are required. The ideal situation is for another person to drive, either a professional (and reliable) driver or one's spouse, while one observes and records. However, few ornithologists are likely to have a professional driver and, in my experience, some wives are reluctant to do all the driving especially when accompanied by children. In these circumstances I have called off the birds while driving and my wife has recorded. Perhaps I should add parenthetically that not everyone will spend long hours note-taking with equanimity while the driver bird-watches - records in my own notebook are interlaced with some tart comments by my wife !

Although one can stop and identify birds with glasses, most will be identified while the car is moving and for this good eyesight is a real advantage. A good field knowledge of birds from a wide ecological range also makes a great difference to what can be accomplished and cuts down the number of birds seen but not identified.

Most observers may find it easier to record identifications at 5 or 10 mile (or km) intervals, for these have the virtue of reducing the volume of recording. Alternately, for really coarse mapping, recording birds at intervals marked off by a predetermined set of towns and larger villages could be used. Since I sometimes want to do quantitative analyses on the counts I prefer to record all birds at one mile (or km) intervals and undertake the extra recording this involves, rather than risk losing useful information. To reduce the amount of writing I often use log-sheets prepared for the journey concerned.

As well as birds, it is useful to log the more prominent physical features of the transect. The position of towns and larger villages should always be noted, not only as a convenient means of breaking the journey up into comprehensible fragments, but also because a largish group of conspicuous urban or semi-urban birds will be recorded mostly at those places, and it is useful to know their position on the transect. Other physical features of some consequence to bird distribution include rivers, forest-reserves, cultivations, inselbergs, water-holes and telephone lines adjacent to the road. Ephemeral features might also be noted where appropriate, prominent amongst these being : rising termites, grass fires and localised rain. Without this type of information on local environmental features it is sometimes difficult to explain odd aspects of the data which were self-evident at the time of recording but all too easily forgotten later when the counts are being written up.

The data can be summarised by tabulating the numbers of each species against convenient segments of the transect, divided on a mileage basis, or by reference to the towns and larger villages, or into convenient ecological units. Alternately it can be shown graphically on a pictorialised line transect of a sort I refer to as a 'viagraph'. This shows the presence/absence, or better the frequency, on a pictorialised road system. In its simplest form the road system is represented by a straight line (or lines) marked off at intervals by towns and major villages whose positions on the line(s) are regulated by their respective distances from one another. However, a greater visual effect can be obtained if the viagraph has the basic geographical outline of the original road transect and the

observations are plotted on this. An example of one such transect I made in Nigeria is described below and examples of viagraphs for several species are included.

Limitations of the method

It hardly needs stating that there are difficulties and drawbacks to this method of surveying, some of which are obvious and others less obvious.

Some may feel its main limitation to be the restriction to birds that can be seen from a road and are conspicuous enough to be readily identifiable from a car, automatically excluding a large number of interesting species. Experience shows that the number which can be surveyed in this way is larger than might be expected. It includes many birds of prey, vultures, rollers, hornbills, kingfishers, doves, bee-eaters, shrikes, some starlings, some swallows and martins, some swifts, some wheatears and larks, some egrets and storks; many of these birds are migrants whose movements are known in broad outline only and which would repay closer study. To give an example of the number of species that might be identified on a transect of some length : a journey from Ibadan to Malamfatori in mid-December yielded 71 different species and several others allocated to species-groups. From experience elsewhere I would not have ranked this as a particularly high total.

Conspicuousness and ready identifiability apart, the extent to which birds are recorded will depend on their density and the nature of their immediate habitat.

Birds have a greater chance of being recorded where their density is high and less chance in the peripheral parts of their range where density is lower or they are becoming increasingly restricted to particular facies of the environment. This density effect is almost certainly more important with the smaller or less conspicuous birds. Thus, although the centre of a species distribution will usually be clear from road transect data, inferences about the whole range have to be made with care.

In contrast with density effects, the habitat effect is not always clear. In general one can expect an inverse relationship between the amount of cover and the number of birds seen; the less the cover, the more the birds recorded, and vice versa. For this reason the records for open savanna are likely to be more representative and unambiguous than those for the well-developed woodland in the Guinea Savanna and Forest zones, and this applies to the species collectively as well as on an individual basis. Even in one vegetation zone it can sometimes be difficult to decide from transect data whether a bird is common in an open habitat because this is the preferred habitat or because it is more readily seen there.

Here general field experience of the bird in question can sometimes help resolve the problem. It is also conceivable for some species that the inverse relationship between cover and records will not hold. Some birds may prefer to perch where they can scan an open space, such as an open road, in which case road transect counts in each type of vegetation zone could be moderately representative of the population present.

The effect of the road itself should be remembered. More representative counts are undoubtedly obtained on quiet, narrow roads with dirt surfaces than the newer, larger, well-surfaced roads, even though they are not so comfortable to drive on. Much of the difference between the two types of road is attributable to the width and the distance of the vegetation and peripheral features such as telephone lines, as well as the greater volume of traffic these now carry.

Some features which form an ephemeral or artificial part of the environment also have the effect of concentrating some birds. The presence of Kites Milvus migrans, Grasshopper Buzzards Butastur rufipennis, bee-eaters, rollers, swallows and swifts at grass fires is well known; as also is the predilection for urban life by Kites, Pied Crows Corvus albus and Hooded Vultures Neophron monachus; and the attendance of cattle by Cattle Egrets Ardeola ibis; but less well known seem to be the 'telephone-line birds' which can be a prominent feature of the roads in the Sudan and Sahel Savannas. These include a number of birds of prey which prefer to perch on the rigid telegraph poles, swallows and bee-eaters that perch on the lines, shrikes which use the poles as observation posts, and wheatears which use the shade of the poles at mid-day. There may be other, less favourable associations which generally fog the overall picture to be derived from road transects and the user should be aware of the possibility. Where migrant species are studied by road transects repeated at different times of year, these habitats effects lose some of their significance compared with the large shifts in distribution, and can be overlooked.

Diurnal changes in bird behaviour can also effect the extent of recording. During the dry season many birds tend to remain in shade during the middle of the day although this is less marked in overcast conditions or during a period of harmattan dust. This period of inactivity has the effect of reducing the number recorded during the middle of the day unless it is a species which seeks the shade of telephone poles on the side of the road, in which case the number may be increased. In the Sudan Republic where I was able to do long east-west census runs in moderately uniform vegetation, numbers recorded during the period 1100-1500 hours tended to be a half or a third of the early morning or late afternoon counts per interval. If only a qualitative record is required this reduction in the number of birds recorded is of negligible consequence unless birds are present in low densities or there is a very strong change in behaviour, in which case there

tends to be a conspicuous gap over the mid-day period. Where quantitative estimates of the species are required this diurnal fluctuation in numbers can be troublesome, especially where the run is through an area of some ecological heterogeneity, but there are ways of overcoming the effect. The simplest is to avoid travelling over the period 1100-1500 hours, but this may not always be practical. My own solution, not always possible, has been to arrange the return journey to cover the same route at different times - stretches travelled over mid-day on the outward journey being travelled at other times on the return. Where this is not possible and quantitative estimates are important, the data can be adjusted by certain statistical techniques developed for this type of data. The analyses can be rather complicated when time effects are confounded by habitat changes, and the average ornithologist is apt to feel that the labour involved does not warrant such a step.

An example of the use of road transects in Nigeria

In December 1967 I visited Malamfatori on Lake Chad from Ibadan, leaving on 13th December and arriving back on 28th. At the time this journey was made the Maiduguri-Baga road was incomplete, so the transect was terminated at the road camp known as 'Mile 90'. The transect, Ibadan to Mile 90, totalled 1094 miles and traversed the main ecological zones represented in Nigeria, although the sections in the Forest zone and the Sahel Savanna were rather short and atypical. During the outward journey I logged birds over certain sections and on the return logged the remainder, with the exception that the Kano-Zaria section was covered during a period of exceptionally thick harmattan dust and no recording was done. The journey, identified by the towns and major villages, is shown in Fig. 1, together with the positions of the main vegetation zones recognised by Keay (1953).

Species showing interesting points of distribution are illustrated by viagraphs in Figs. 2 and 3. Where records were particularly numerous they have been graphed at 5 mile intervals (i.e. Kite, Pied Crow and Hooded Vulture in Fig. 2(a); Wheatear Oenanthe oenanthe and Anteater Chat Myrmecocichla aethiops in Fig. 2(e); Abyssinian Roller Coracias abyssinicus in Fig. 3(a)), otherwise they are graphed at 1-mile intervals. Differences in frequencies for the intervals adopted are shown by different symbols. To save space, species have been plotted below the line of the viagraph as well as above, but this normally is not to be recommended.

KITE Milvus migrans (Fig. 2(a); above line)

A predominantly urban bird usually seen at villages and towns and recorded throughout the transect. At the time of the transect the bird would have been on the verge of breeding and the population more or less static; transects made during other seasons would have shown a very different distribution. Rather infrequently recorded in the Sahel and the more northerly part of the Sudan Savanna (Potiskum-

Maiduguri and northwards) where the density of the human population is relatively low; increasingly recorded from Potiskum to Kano, presumably because of the denser human population. The low incidence in the Northern Guinea Savanna and part of the Southern Guinea Savanna is presumably also related to the lower density of the human population rather than being the effect of the greater vegetation cover. The curiously low incidence between Zaria and Kaduna may, however, have been due to the newness of the road and the lack of roadside settlements. The bird was more obvious in the region of Mokwa and Jebba, and southwards became a more constant feature of the transect, although in well-spaced, small numbers, and several times was noted in ones and twos at grass fires.

PIED CROW Corvus albus (Fig. 2(a); above line)

An urban bird but less often recorded on the transect than Kite or Hooded Vulture (below), whether because its habits make it less conspicuous from the point of view of a road transect, or whether there was a real difference in numbers, it is difficult to tell, although other observations incline me towards the latter explanation. Interestingly, it was more frequently recorded in the much cultivated areas of the southern Sudan Savanna (Potiskum-Kano) than elsewhere. From Zaria southwards it was barely recorded apart from the large roosting flock at Bida.

HOODED VULTURE Neophron monachus (Fig. 2(a); below line)

Although breeding at the time, many of the birds recorded were presumably non-breeding individuals. Distribution similar to that of the Kite, particularly in the north, but with some differences in the more southerly areas. There was a tendency for numbers seen at villages and towns to be higher than the Kite and it was more frequently observed in the Northern Guinea Savanna than the Kite. As with the Kite, numbers at Mokwa and Jebba were high, but south of the Niger records were fewer and the bird was practically unrecorded in the Derived Savanna. It was not seen at Fiditi; its absence from the Forest south of Fiditi is well known.

RED-BILLED HORNBILL Tockus erythrorhynchus (Fig. 2(b); above line)

Rarely seen compared with the Grey Hornbill (below) and records restricted to the Sahel and Sudan Savannas.

GREY HORNBILL Tockus nasutus (Fig. 2(b); below line)

Recorded from Sudan Savanna to Derived Savanna, usually in ones and twos. At the time the bird was either on the verge of breeding or had started, in contrast with the Red-billed Hornbill which would recently have finished. Interestingly the Grey Hornbill would seem to outnumber the Red-billed Hornbill in the Sudan Savanna, where it was more often seen in forest reserves than outside. The apparently lower density of the Grey Hornbill in the Northern and Southern Guinea Savanna zones was no doubt related to the obscuring effect of the vegetation.

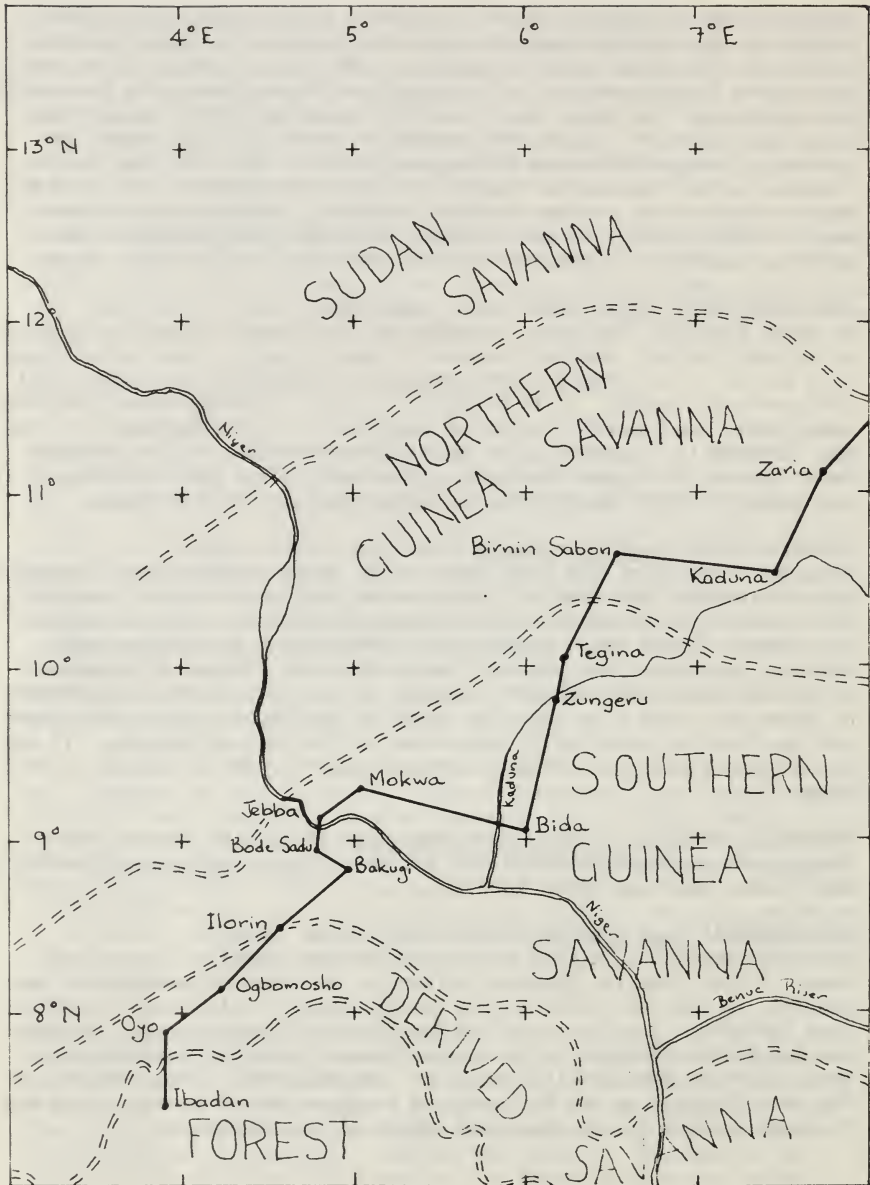
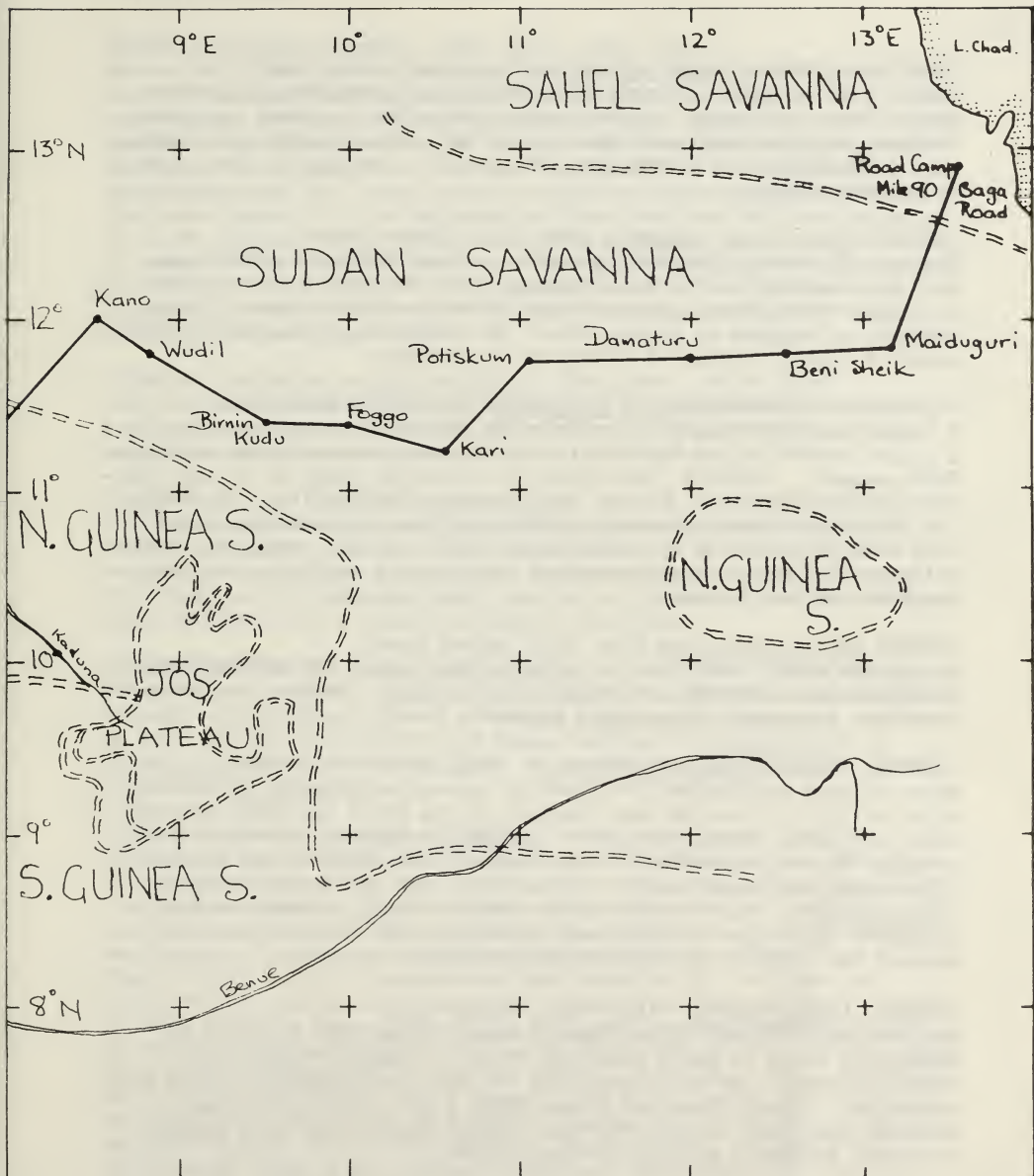


Figure 1 Map showing road transect of December 1967 and ecological zones of Key (1953). Continued opposite.



CHANTING GOSHWAK Melierax metabates (Fig. 2(c); above line)

Apart from one unusual record in the Northern Guinea Savanna between Birnin Sabon and Tegna, records were confined to the Sahel and Sudan Savannas with the bird more numerous in the northern parts, i.e. Damaturu to Maiduguri and northwards. This bird is frequently seen perched on telephone poles.

BATELEUR Terathopius ecaudatus (Fig. 2(c); above line)

The records show an interesting picture. Most fall in the Potiskum-Maiduguri segment in the Sudan Savanna while two others were recorded in the Northern Guinea Savanna about Kaduna and Birnin Sabon. These two sets of records no doubt reflect the bird's requirement for large areas of lightly populated country with woodland.

GRASSHOPPER BUZZARD Butastur rufipennis (Fig. 2(c); above line)

A conspicuous bunching of records in the Southern Guinea Savanna with a single record in the Northern Guinea Savanna between Kaduna and Birnin Sabon suggest, perhaps, the centre of its winter range is in the Southern Guinea Savanna (cf. Elgood, Fry & Dowsett 1973, p.19). In view of its oft-quoted long-distance attraction to fire, it should be noted that none of the birds recorded was at fires; in fact, there was little evidence of grass burning throughout the transect until the Derived Savanna zone was reached.

KESTREL Falco tinnunculus (Fig. 2(c); below line)

Birds were widely scattered in the more open places in the Sahel and Sudan Savannas and were not logged south of Kano. Most of the birds seen were presumably Palaearctic migrants.

PARADISE WHYDAH Steganura orientalis (Fig. 2(d); above line)

Males of this species were in breeding plumage and readily identifiable in flight. Records were confined to the Sahel and Sudan Savannas where the birds tended to be more frequent in the better wooded areas towards the east, petering out westwards towards Kano in the more intensively cultivated areas. In contrast, the Pin-tailed Whydah Vidua macroura, which breeds earlier and is usually in non-breeding plumage at this time of year, was recorded twice, once in the Sudan Savanna and once in the Southern Guinea Savanna.

WOODCHAT Lanius senator (Fig. 2(d); below line)

Records were confined to the Sudan Savanna, from about Damaturu to Maiduguri, where it was a prominent bird of telephone lines where these occurred. The wintering range of this bird in Nigeria seems to be extensive (Elgood, Sharland & Ward 1966, p.111) and there seems no obvious reason why records for this species should have been bunched into such a limited stretch of the transect.

WHEATEAR Oenanthe oenanthe (Fig. 2(e); above line)

Records were confined to the Sudan Savanna and Sahel Savanna, from Kari to Maiduguri and northwards. One assumes that the lack of records between Kari and Kano reflects a generally lower density in these areas compared with further east. In the stretch, Potiskum-Maiduguri, where birds were most numerous, there was clear evidence of large-scale aggregation such as I have found in wintering Isabelline Wheatears in the Sudan Republic. This aggregation takes the form of loose groups of birds holding territories separated by distances up to several miles in extent where birds are scarce or absent, and seems to occur irrespective of obvious environmental heterogeneity. Four Spanish Wheatears O. hispanica were also recorded between Potiskum and Maiduguri but are not shown on the viagraph.

ANTEATER CHAT Mymecocichla aethiops (Fig. 2(e); below line)

This had a similar distribution of records to the Wheatear but the bird showed a greater degree of aggregation, a feature that is fairly well known for this species.

CHESTNUT-BELLIED STARLING Spreo pulcher (Fig. 2(f); above line)

A not inconspicuous bird and one readily identified but, for a bird said to be characteristic of the Sudan Savanna (e.g. Fry 1973), the records show a curious distribution in the Sahel and Sudan Savannas: two flocks on the Maiduguri-Baga road and a cluster of records between Wudil and Kano with a complete absence in between.

LONG-TAILED STARLING Lamprotornis caudatus (Fig. 2(f); below line)

Fewer records than expected and these thinly spread in the Sudan Savanna. In contrast, glossy starlings Lamprotornis spp. were recorded in small flocks in the Sahel and Sudan Savanna (? L. chalybaeus, L. chloropterus) and in ones and twos in the Northern and Southern Guinea Savanna (? L. purpureus).

ABYSSINIAN ROLLER Coracias abyssinica (Fig. 3(a); above line)

Although by December the dry season is well advanced and, in consequence, it might be assumed that this roller was at its breeding grounds at the time of the transect, it is at least three months before the bird starts breeding (April-May) and there are indications that the southward movement continues as late as December-January (Elgood, Fry & Dowsett 1973, p.35). Records were most numerous in the Sudan and Sahel Savanna with some thinning out between Potiskum and Kano. South of Zaria the bird was recorded less often and in small numbers in the Northern and Southern Guinea Savanna as far south as Bida. Beyond this the bird was presumably at very low density or absent. It is interesting to note that Elgood, Fry & Dowsett (loc. cit.) state that "in the dry season this roller is widespread in savanna, nowhere very common, and most records fall in the Southern Guinea zone". It may be that the records shown on the viagraph represent some stage prior to the final dry season distribution.

- (a)
 above line - Kite: \perp = 1-2 \perp = 3-5 \perp = 6-10 \perp = 11+
 Pied Crow: \times = 1-2 \times = 3-5 \times = 100+
 below line - Hooded Vulture: \top = 1-2 \top = 3-5 \top = 6-10 \square = 11-20 \square = 20+
- (b)
 above line - Red-billed Hornbill: \perp = 1-2 \perp = 3-5
 below line - Grey Hornbill: \top = 1-2 \top = 3-5
- (c)
 above line - Chanting Goshawk: \times \perp
 Bateleur: \perp \circ
 Grasshopper Buzzard: \perp
 below line - Kestrel: \top

(ALL CONTINUED OPPOSITE)

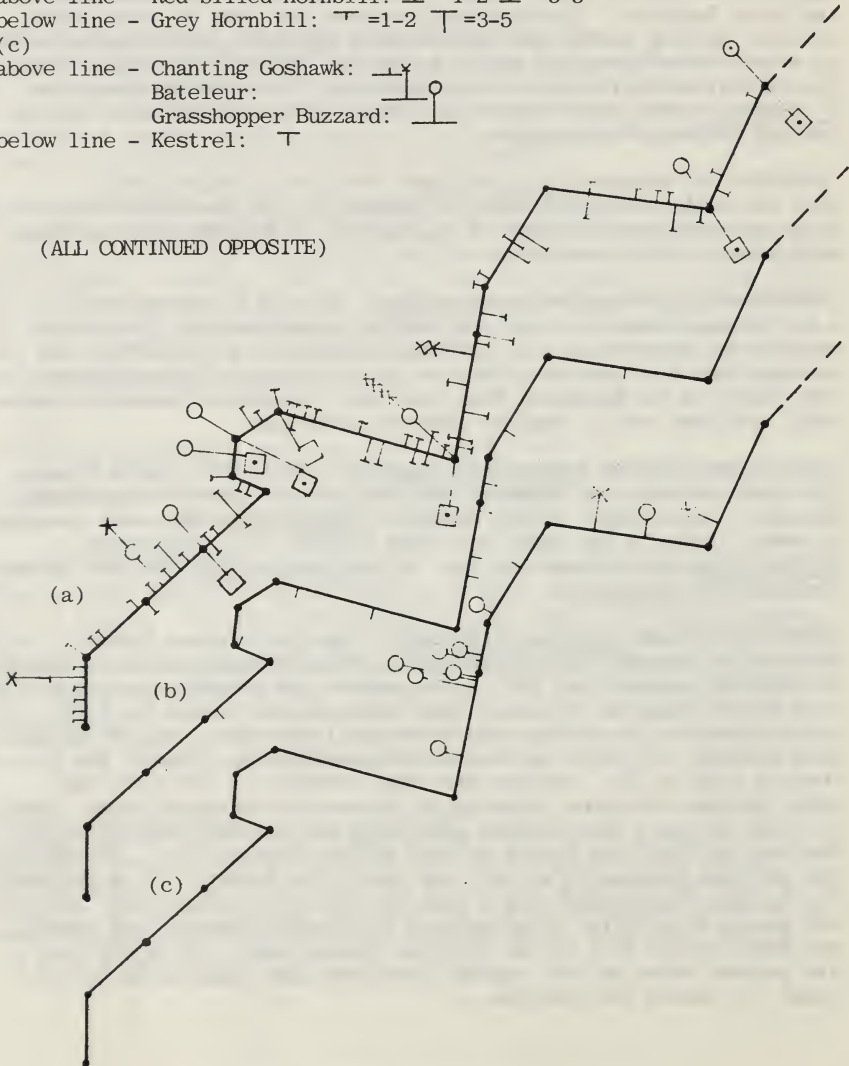
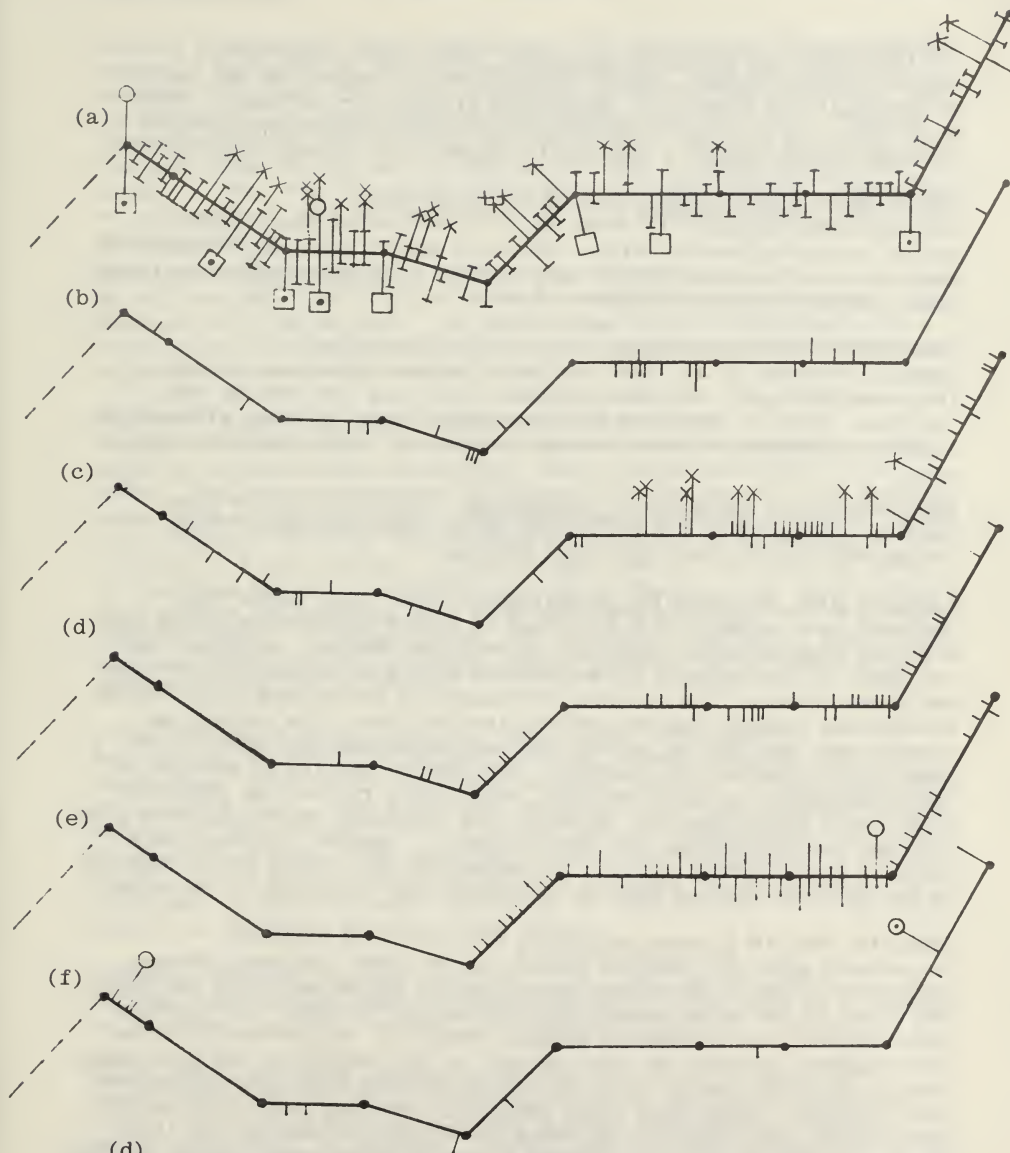


Figure 2 Viagraphs. Continued opposite.



(d)
 above line - Paradise Whydah: \perp = 1-2 \perp = 3-5
 below line - Woodchat Shrike: \top

(e)
 above line - Wheatear: \perp = 1-2 \perp = 3-5 \perp = 6-10 \perp = 10+
 below line - Anteater Chat: \top = 1-2 \top = 3-5 \top = 6-10

(f)
 above line - Chestnut-bellied Starling: \perp = 1-2 \perp = 6-10 \circ = 11-20
 below line - Long-tailed Starling: \top = 1-2 \top = 3-5

RUFUS-CROWNED ROLLER *Coracias naevius* (Fig. 3(a); below line)

Another African migrant, whose distribution and migrations are said to be similar to those of *C. abyssinica* (Elgood, Fry & Dowsett 1973, pp. 35-36). A few isolated records in the Sudan, Northern Guinea and Southern Guinea Savanna - too few to add much to the migration picture.

CATTLE EGRET *Ardeola ibis* (Fig. 3(a); below line)

Recorded from Maiduguri to Jebba and at this time of year indicative of concentrations of cattle, either at watering places (Maiduguri), grazing on cultivation (Birnin Kudu to Wudil), or where migration tracks cross natural obstacles (Zungeru, Jebba).

LONG-TAILED DOVE *Oena capensis* (Fig. 3(b); above line)

Commonly recorded in the more northerly parts of the Sudan Savanna (Potiskum-Maiduguri) and Sahel Savanna, with very few records west of Potiskum. Most of the birds were presumably about to breed although the southwards movement to the breeding grounds may still have been continuing.

PINK-HEADED DOVE *Streptopelia roseogrisea* (Fig. 3(b); below line)

Readily identified by its pallor and white underwings when flying. A few records in the Sudan and Sahel Savannas.

LAUGHING DOVE *Streptopelia senegalensis* (Fig. 3(b); below line)

Included as an example of a bird that is common and widespread and has a strong urban-suburban component in its distribution. Recorded from the Sahel to the Southern Guinea Savanna with more records in the Sahel and Sudan Savanna. The thinning of records in the intensely cultivated countryside towards Kano may reflect the fact that this stretch was covered over the mid-day period when many birds may have been in the shade rather than on the roadside. The general paucity of records in the middle-belt, on the other hand, must surely reflect the generally lower human population and, possibly, the increased cover available since this was covered morning and late afternoon. However, transect data apart, I have a general subjective impression that this bird is commoner in the northern regions than in the middle-belt and south of the Niger.

ETHIOPIAN SWALLOW *Hirundo aethiopica* (Fig. 3(c); above line)

In contrast with the isolated records of the Sahel and Sudan Savanna, there were clusters of records about Zungeru and between Bida and Mokwa. The birds in the Sudan Savanna were present at villages; the clusters about Zungeru were presumably present because of the proximity of the River Kaduna, as might be true for part of the records on the Bida-Mokwa stretch although, as in the north, the birds here were also associated with villages. There were large numbers of swallows over the Niger at Jebba bridge which probably included the Ethiopian Swallow, but these have been omitted from the viagraph as we were discouraged by the soldiery on the bridge from stopping and sorting the birds out. The sole record for the Forest Zone is of a flock of birds at Fiditi. Elgood, Fry & Dowsett (1973, p. 379) state that available data suggest that this

species is sedentary and non-migratory. My own data at Zaria (1969-73) suggest a depletion of the resident population during the dry season, presumably because of a shift southwards to more permanent waters, and the transect data are consistent with this. The only other swallows identified on the transect were nine Red-rumped Swallows H. daurica in the Bida-Mokwa section and two Mosque Swallows H. senegalensis near Zungeru. Away from the rivers there were very few swallows, identified or unidentified, and the impression was of a general absence away from permanent water.

SAND MARTIN Riparia riparia (Fig. 3(c); below line)

My only records were of a few birds near the northern end of the Maiduguri-Mile 90 section. The species was thinly distributed over a wide area of dry country around Lake Chad and these records presumably represent the southerly edge of this.

PALM SWIFT Cypsiurus parvus (Fig. 3(c); below line)

Inserted to demonstrate the paucity of records on the transect. As might be expected small groups were usually associated with settlements. The bird was sparsely distributed from the Sudan to the Southern Guinea Savanna and was less conspicuous than in the wet season. Elgood, Fry & Dowsett (1973, pp. 34-35) infer the species to be sedentary, but the bird is a part migrant in the northern part of its range at least in the Sudan Republic, and might be such in Nigeria. The Little Swift Apus affinis was recorded once only, at a small village half way between Bida and Mokwa. Although Elgood, Fry & Dowsett (loc. cit.) treat this as a sedentary species, the bird, though present, is decidedly inconspicuous during the dry season.

LITTLE BEE-EATER Merops pusillus (Fig. 3(d); above line)

Records were confined to the Sudan Savanna between Potiskum and Maiduguri where, with the Little Green Bee-eater (below), it was conspicuous on telephone lines. Why both species should have been recorded in such numbers on this stretch of the transect and not elsewhere is not obvious. The species is more often associated with rivers and marshes in the dry season, but it moves to drier sites when breeding at the beginning of the rains. I have, however, seen it in the Sudan Republic in situations similar to the above during the dry season.

STRIPED KINGFISHER Halcyon chelicuti (Fig. 3(d); above line)

Recorded only between Damaturu and Maiduguri although said to be common in the Sudan and Sahel Savanna; on telephone lines.

LITTLE GREEN BEE-EATER Merops orientalis Fig. 3(d); below line)

Records were confined to the Damaturu-Maiduguri section as mentioned above. The Carmine Bee-eater M. nubicus was infrequently recorded, mostly singletons, at Damaturu, between Kari and Birnin Kudu, and in the Tegina-Bida-Mokwa section. These have not been graphed on the viagraph.

- (a)
 above line - Abyssinian Roller: \perp =1-2 \perp =3-5 \perp =6-10
 below line - Rufous-crowned Roller: $\overline{\circ}$
 Cattle Egret: $\overline{\times}$ =1-2 $\overline{\times}$ =3-5 $\overline{\times}$ =6-10 $\overline{\times}$ =10+
- (b)
 above line - Long-tailed Dove: \perp =1-2 \perp =3-5
 below line - Pink-headed Dove: $\overline{\times}$
 Laughing Dove: \perp
- (c)
 above line - Ethiopian Swallow: \perp =1-2 \perp =3-5 \perp =6-10 \circ =11-20 \circ =20+
 below line - Sand Martin: $\overline{\times}$ =1-2 $\overline{\times}$ =3-5
 Palm Swift: \perp =1-2 \perp =3-5 \perp =6-10 \square =10+

(ALL CONTINUED OPPOSITE)

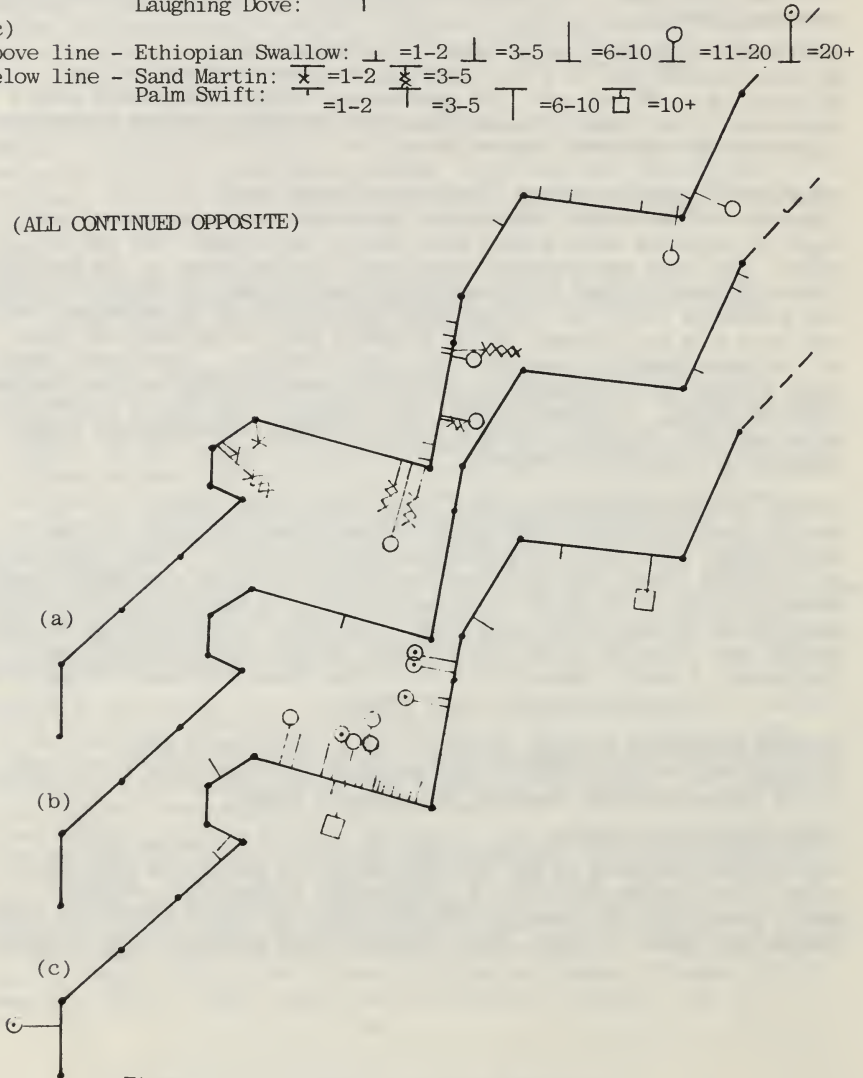
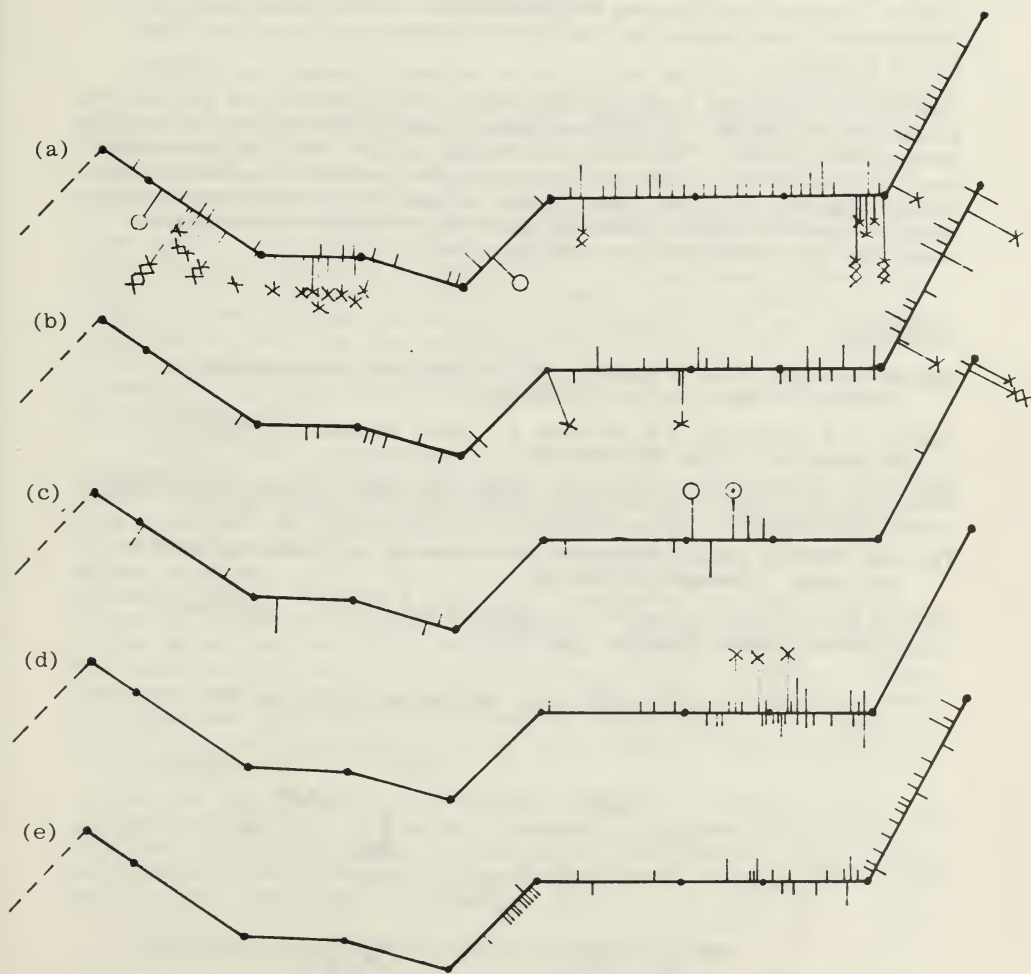


Figure 3 Viagraphs. Continued opposite.



(d)

above line - Little Bee-eater: \perp =1-2 \perp =3-5 \perp =6-10Striped Kingfisher: \times below line - Little Green Bee-eater: \top =1-2 \top =3-5 \top =6-10

(e)

above line - Chestnut-backed Finch-Lark: \perp =1-2 \perp =3-5below line - Crested Lark: \top =1-2 \top =3-5

CHESTNUT-BACKED FINCH-LARK *Eremopteryx leucotis* (Fig. 3(e);above line)
Practically all records were between Potiskum and Mile 90 with no records for the Kari-Kano section where it might have been expected. A migrant south to the Northern Guinea Savanna, but the full southerly extension of this species may not have occurred until after the time of the transect.

CRESTED LARK *Galerida cristata* (Fig. 3(e); below line)
A resident bird whose records complement those of the finch-lark, another ground-feeding bird. The section, Potiskum to Kari, was logged during the first few hours of daylight and the tight cluster of records on this stretch suggests that the Crested Lark is more likely to be seen on the roadside than later; this may have some bearing on the apparent absence of the finch-lark over the same road.

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THE DISTRIBUTION OF RACES OF THE YELLOW WAGTAIL
OVERWINTERING IN NIGERIA

by Brian Wood

During the course of studies on the Yellow Wagtail Motacilla flava, principally at Vom on the Jos Plateau in 1973-74, I had cause also to visit other parts of northern and central Nigeria. Whilst on one of these trips, to the vicinity of Kano from 1st to 4th February 1974, I recorded the occurrence at several localities of Yellow Wagtails that appeared to be of the Italian race, M. f. cinereocapilla. On the nights of 2nd and 3rd February, Mr R. Best and I netted wagtails at a roost in a borrow pit within the city walls of Kano, a site formerly worked by Mr R.E.Sharland (Sharland & Harris 1961). Although most of the birds caught on these occasions could be ascribed to the nominate race M. f. flava, five males seemed to belong to cinereocapilla and detailed descriptions of the colour and head pattern of these birds were taken. R.B. continued to catch wagtails at this roost until the birds departed in early April, and recorded further males which he considered were also cinereocapilla.

Vaurie (1959) considered the winter range of this race to be the southern Sahara, French and Anglo-Egyptian Sudan, rejecting records from further west and east. This was accepted by Moreau (1972) who nevertheless noted that no cinereocapilla had been handled in Nigeria apart from a few at Lake Chad (Fry, Ferguson-Lees & Dowsett 1972). It does not appear previously to have been recorded for the Kano area, where Sharland (Elgood, Sharland & Ward 1966) considered the birds that he ringed to be principally flava and iberiae. This reported occurrence of the latter race was also considered remarkable by Moreau (1972), and he postulated the possibility of a migratory divide in iberiae in order to account for its African distribution. The apparent dilemma between my records and previous ones has prompted me more closely to examine the distribution of cinereocapilla and of other races of the Yellow Wagtail recorded overwintering in Nigeria.

My own data on racial distribution, and all occurrences indicating subspecies that I can find in the literature, are presented in Table 1. At first, these do not appear to conform to a set pattern. M. f. flava is found to be the commonest subspecies everywhere, although the distribution of the other races is confusing.

Two major drawbacks with data of this type are :-

(a) There is in most cases no clear indication if the races recorded are those present for the greater part of the winter, or if merely all races encountered are recorded. A single statement or count cannot hope to be representative of a possibly highly dynamic situation. Inevitably,

Table 1. Racial composition of Yellow Wagtail populations in Nigeria

LOCATION	CO-ORDINATES (N, E)	AUTHOR	SUBSPECIES				
			thumbergi	flava	iberiae	cinereo- capilla	feidegg
Lake Chad	13°30, 13°25	Fry et al. (1972)	2½%(24)	67%(669)	½%(6)	3%(30)	21%(212)
Lake Chad		Hopson (1965)	+	++		+	++
Lake Chad		Dowsett (1969)		++		+	++
Mongonu/Dikwa	12°20, 13°50	Holmes (1974)	+	+++	+	+	+
Maiduguri	11°50, 13°10	Ward (1963)	+?	+++		+?	+
Hadejia	12°27, 10°03	Elgood et al. (1966)	+++	++			
Ringim	12°10, 09°10	pers. obs.		(5)		(7)	
Kazaure/Dambarta	12°30, 08°30	pers. obs.		(4)		(5)	
Sokoto	13°03, 05°15	Dobbs (1959)	+	++			+
Kano	12°00, 08°30	Elgood et al. (1966)		++	++		
Kano		pers. obs.		73%(24)	(1?)	24%(8)	(3)
Bagauda	11°40, 08°20	pers. obs.		(4)		(1)	
Zaria	11°10, 07°40	Fry (1965)	+?	+++		+?	+
Zaria		pers. obs.		+++			+
Vom	09°44, 08°48	Smith & Ebbutt (1964)		83%			
Vom		pers. obs.	2%	3%(23)		90%(638)	
Ibadan	07°28, 03°54	Elgood et al. (1966)	++	++			
Ibadan		Broadbent (1969)		6½%(8)		82½%(104)	
Lagos	06°25, 03°20	Sander (1957)	++	++			

+++ = predominant subspecies ++ = common + = present. Sample sizes in parenthesis.

unless they overfly, birds that winter in the south of the country must pass through areas inhabited by more northerly wintering birds on their way to and from their Palaearctic breeding grounds. Racial composition of birds found during periods of migration will therefore present a misleading picture if represented as wintering birds.

(b) The accurate identification of those races present is essential. Where errors of this nature are made they can lead to repeated mis-statements in the literature, and confusion of the true situation. I believe that the apparently ambiguous situation recorded for Kano and localities on the Hadejia river is of this nature. The separation of thunbergi and cinereocapilla is particularly critical, as they are superficially extremely similar in appearance. This has already been noted by Ward (1963) at Maiduguri and by Fry (1965) at Zaria, who were careful to point out that some of the birds that they found there were either of the race thunbergi or cinereocapilla. Both have rather dark heads and, in most examples, lack a superciliary stripe. The one major difference is that thunbergi tends to have an all-yellow chin and throat, whereas the chin of cinereocapilla is more often white. This was the one consistent character by which I was able to separate dark-headed birds trapped at Vom and Kano. The latter always had white on the chin at least as far back as below the eye, and this was usually separated distinctly from the yellow throat and chest. At Vom, birds which I identified as thunbergi never showed this character. They sometimes had a certain amount of white on the chin, but usually very little indeed, and this invariably blended gradually into the yellow of the rest of the chin and throat. The validity of these identifications is further supported by evidence from ringing recoveries, which will be considered below.

A similar problem exists in separating cinereocapilla from iberiae. Again, both are superficially extremely similar in appearance, though the latter tends to have a much more prominent superciliary stripe, which is often completely absent in cinereocapilla. In the more popular field-guides iberiae is invariably shown with a superciliary stripe extending from the eye backwards, and no stripe between bill and eye, whereas cinereocapilla is always represented as having no superciliary stripe at all (Peterson, Mountfort & Hollom 1954; Heinzel, Fitter & Parslow 1972; Smith 1950). This is by no means a true representation of the situation. Many examples of cinereocapilla possess a white supercilium which, being much reduced by comparison with the nominate race, suggests the field-guide appearance of iberiae. Of the birds examined by Sarmalisto (1961), 29% of cinereocapilla had a superciliary stripe to some extent. The variability in colouration of populations from this part of the Mediterranean basin is in fact often considerable (Sarmalisto 1968a).

EVIDENCE FROM RINGING RECOVERIES

The distribution of all reported recoveries of Yellow Wagtails ringed in Nigeria up to April 1974, together with ringing localities of all foreign-ringed birds recovered in Nigeria, is presented in Figure 1. The area within which all birds recovered (or ringed) between 15th May and 31st July (when they are likely to be breeding) is also delineated (excluding one in northern Italy on 22nd May, discussed below). Yellow Wagtails which winter in Nigeria appear to come from a very limited breeding area in Finland, the parts of the Soviet Union bordering the Baltic, and Poland. The northern part of this area, from central Finland northwards, is occupied by breeding birds of the race thunbergi, and the remainder by the nominate race flava. There is an extensive zone of hybridization between these two in central and southern Finland (Sammalisto 1968b). Most appear to migrate between breeding and winter quarters along a great circle route, and the very narrow longitudinal range of these recoveries, except around the Mediterranean basin, is noteworthy.

It seems very likely, however, that some birds wintering in Nigeria breed much further south in Europe than the area indicated here. There is one late spring recovery from Italy (22nd May), though none between then and the autumn (earliest 2nd September), nor are there any European recoveries of feldegg, which breeds in Yugoslavia, Greece and Turkey and is found wintering commonly at Lake Chad (Dowsett 1969; Fry, Ferguson-Lees & Dowsett 1972). Nevertheless, the vast majority of Yellow Wagtails wintering in Nigeria are likely to come from breeding grounds within the overall area shown here. No Nigerian-ringed birds have yet been recovered in Spain, from where, however, there are many recoveries of birds breeding from Sweden to Great Britain and wintering from Ghana to Senegal, nor further east in Russia, from where there are recoveries of birds ringed in East Africa.

Ringling recoveries therefore tend to indicate that only thunbergi, flava, cinereocapilla and feldegg are likely to be regular winter visitors to Nigeria. There is moreover some evidence from these recoveries to support the contention that northernmost breeding birds winter furthest south. Yellow Wagtails ringed or recovered at Ibadan are mostly from central and northern Finland in the breeding season, ones from Kano are largely from Poland, and Vom birds tend to be intermediate in distribution.

Figure 1 The distribution of all recoveries of Yellow Wagtails ringed in Nigeria up to April 1974 (●) together with ringing locations of all foreign-ringed birds recovered in Nigeria (■). Nigerian ringing sites are Ibadan, Vom, Kano and Malamfatori (★). The area occupied by all recoveries between 15th May and 31st July is shaded, and great-circle routes passing through easternmost and westernmost Nigerian ringing stations are indicated.

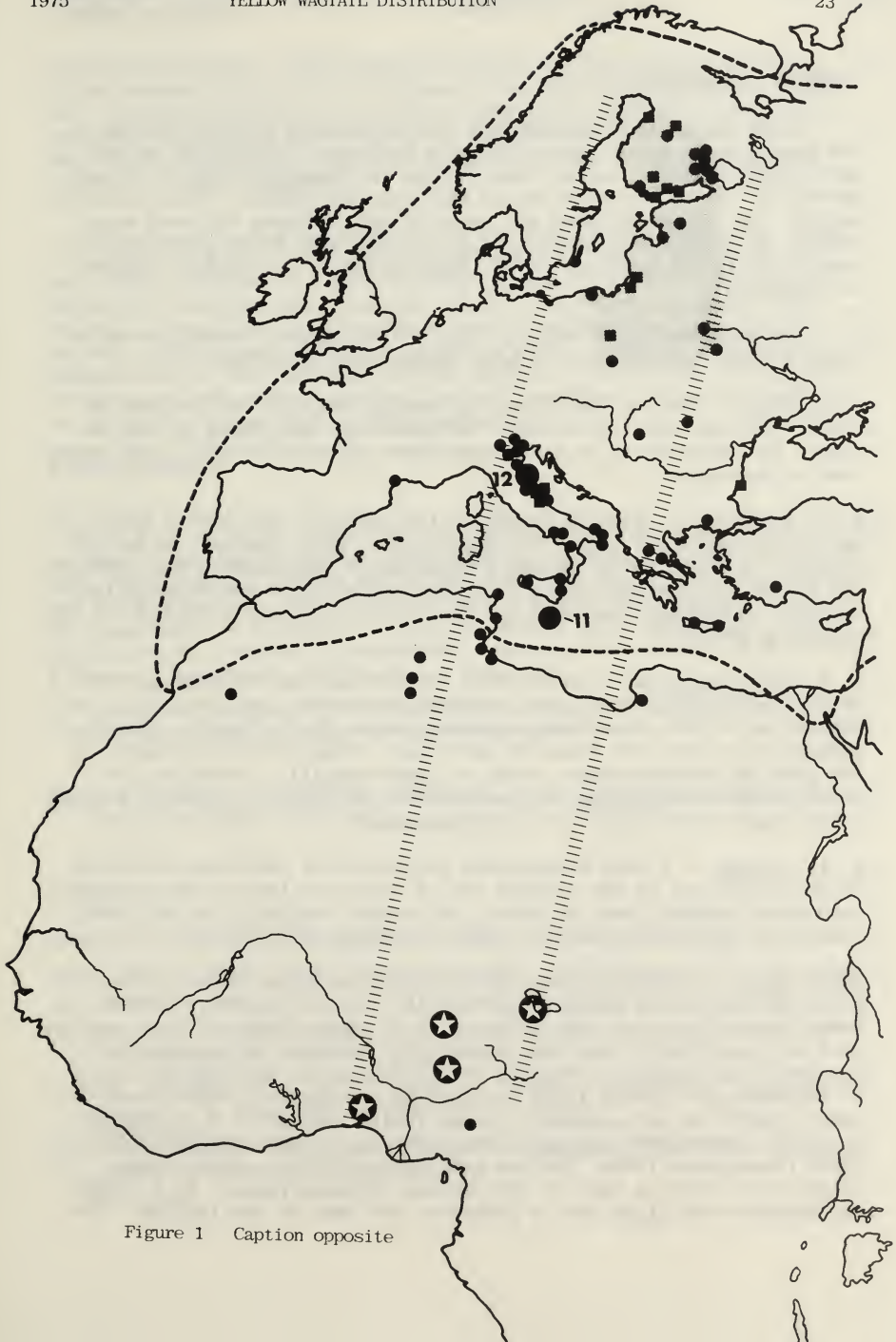


Figure 1 Caption opposite

NIGERIAN DISTRIBUTION

If we accept that dark-headed Yellow Wagtails found wintering in the Kano/Hadejia River area of Nigeria are more likely to be of the race cinereocapilla, rather than iberiae or thunbergi, then a logical pattern of winter distribution of the races is evident. This is not to suggest that thunbergi does not occur at all in these northern areas. Indeed, as pointed out earlier, since it has been found wintering further south in the country, it is likely to occur in northern Nigeria on migration.

The distribution of races of the Yellow Wagtail overwintering in Nigeria seems therefore to be best interpreted as follows :-

M. f. flava : occurs throughout the winter range of the species in Nigeria and is almost invariably the commonest race found in any one area. In the north it is less predominant numerically over other races than in the south.

M. f. thunbergi : winters mainly in the south of the country where it may constitute about 10% of the population. Less abundant in central Nigeria, although still forming a significant component of the population on the Jos Plateau (about 3%). Further north it may occur quite commonly on passage, but does not constitute a regular component of the wintering numbers.

M. f. cinereocapilla : in the area around Kano and the Hadejia River and to the north of here, also possibly around Katsina and Sokoto, this subspecies is the second most abundant (after M. f. flava). Small numbers have also been found at Lake Chad, though this is probably to the east of the main winter range of cinereocapilla. Possibly its place is taken by iberiae only to the west of Nigeria, although separation on head colour alone is not always possible for these two races.

M. f. feldegg : a very significant proportion of the birds wintering in the north-east of the country are of this race (up to 50%). It may also occur commonly west to Nguru, and occurs regularly in very small numbers as far west as Zaria. Only a straggler further south.

Other races : constitute only an insignificant proportion of the wintering population anywhere in Nigeria, which is probably outside the normal winter range of most of them. M. f. dombrowskii is here considered only doubtfully separable from flava, although on geographical grounds it is likely to occur in the north-east of the country, being an intermediate between flava and feldegg. Sammalisto (1968a) and Vaurie (1957) do not consider it genetically distinct. M. f. melano-grisea is lumped with feldegg, from which it is only doubtfully distinct (Sammalisto 1968a; but see also Vaurie 1957), and is rather unlikely to occur in view of its eastern breeding range. M. f. beema intergrades with flava and is therefore not easy to distinguish. Its

reported occurrence at Malamfatori is just feasible geographically. Yellow headed birds that are claimed to be either flavissima or lutea have also been recorded. The latter race would seem more likely for the three birds from Lake Chad (Fry, Ferguson-Lees & Dowsett 1972). They are not generally separable from one another in winter quarters (Pearson & Backhurst 1973).

The overall picture presented by the winter distribution of races of the Yellow Wagtail in Nigeria is essentially one in which winter occurrence conforms to a pattern that is almost a mirror image of the Palaearctic breeding distribution. Thus, races that breed furthest south in Europe are found to winter in the northernmost parts of the country, and the most northerly breeding race, thunbergi, winters in any numbers only in the southern half of Nigeria. This situation appears to be essentially true for this species throughout its range, although in detail it is less well known elsewhere.

ACKNOWLEDGEMENTS

It is a pleasure to record the considerable help provided by my friends in Nigeria during the course of my studies; in particular Mr and Mrs R. Best, Mr R.Harding, Dr and Mrs J.R.Lang, Dr and Mrs A.Rogerson, and Dr and Mrs W.P.Taylor. Professor B.J.Harris kindly provided facilities at the Department of Biological Sciences, Ahmadu Bello University, and assisted with transport arrangements. Ringing details were supplied by R. Best, J.Broadbent, C.H.Fry and R.Sharland.

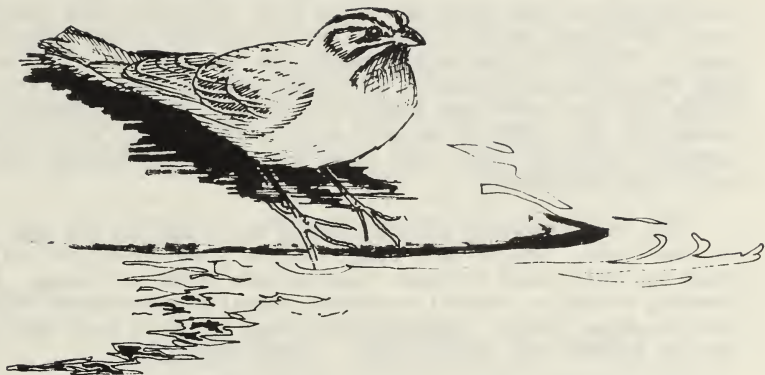
I am also indebted to the Natural Environment Research Council for a grant which made my work in Nigeria possible.

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SOME ASPECTS OF THE BREEDING BIOLOGY OF THE
CINNAMON-BREASTED ROCK BUNTING Emberiza tahapisi

by M. E. Gartshore

INTRODUCTION

The Cinnamon-breasted Rock Bunting Emberiza tahapisi is a common and conspicuous breeding bird at Zaria, northern Nigeria. Little is known of its breeding biology in West Africa, but the species has been studied in Rhodesia by Haydock (1949) and Cumming & Steyn (1966).

Small clutch size, slow growth rates of nestlings and high perinatal mortality are some of the characteristics of the breeding biology of tropical altricial birds (Skutch 1967, Ricklefs 1969, Foster 1974). With this in mind, data were collected on these parameters of the Rock Bunting at Zaria.

METHODS AND MATERIALS

The study area consisted of about 100 ha of deep erosion gullies at Samaru, near Zaria. The Northern Guinea Savanna there has been severely degraded by human activities such as cutting, burning and over-grazing, but is presently uncultivated. That area was chosen simply because Rock Buntings were numerous.

Nests were studied between 24th October and 11th December 1974, and information was taken on clutch size, incubation and nestling periods. Perinatal mortality was recorded only for those nests found intact. Weights of known-age young were taken in the field with a 50-gram Pesola spring balance. Nestlings were not disturbed after 11 days of age for fear that they would be induced to fledge prematurely. From January to April 1975 birds were mist-netted, ringed with coloured or numbered cellulose bands, and their age, sex and breeding condition and moult were determined.

The identification of individuals as to age and sex was important for the study. Adults have bright yellow lower mandibles; males have black and white head stripes, females dark brown and cream. Males in breeding condition exhibit enlarged cloacal protuberances which atrophy when breeding ceases. Females which have recently laid eggs have a swollen abdomen and vascularised brood patch.

Juvenile birds under one year are difficult to sex, but could be aged according to bill colour: those recently fledged (within about four weeks) had solid grey bills, whereas older juveniles develop flesh coloured lower mandibles. Washed out brown head stripes on juveniles help to distinguish them from adults.

RESULTS

Breeding Season

The first nest with eggs was recorded on 24th September. Some netted adults were in breeding condition until mid-February, suggesting that Rock Buntings have a lengthy breeding season. Bannerman (1953) gives December and January as the breeding season in northern Nigeria, but Mackworth-Praed & Grant (1973) suggest a longer season, from October to February in Nigeria. Although breeding may have begun in late August, most nests at Zaria were constructed after the last rainfall on 14th October. Fledglings suddenly became numerous after the end of November, both in the study area and elsewhere near Zaria. After the end of December the number of very young fledglings that I observed declined somewhat. No nests were found after December, and no males were heard singing in March. Of 83 birds caught and ringed in February and March about 70% were juveniles of the current breeding season.

Clutch Size

Of 29 nests where clutch size was established, eight contained two eggs and 21 contained three. One nest containing a single egg was abandoned, possibly before the clutch was completed. No clutches of four were found, and no decrease in clutch size as the season progressed was observed.

Incubation, Fledgling and Weaning Periods

Because of high predation rates and the difficulty of locating recently constructed nests, the incubation period was determined for only three clutches. These each hatched in twelve days' time. The nestling period was more variable, with some young fledging at 13 days while most left at 15 days, being able to fly well by that age. It was difficult to determine for how long fledglings were dependent upon their parents. Colour-ringed individuals were observed feeding within parental territory three weeks after fledging, but they still solicited for food - usually unsuccessfully. One juvenile was retrapped less than 150 metres from its nest site 61 days after fledging.

Fledging Success

Many nests were found during the study period, the contents of which disappeared unaccountably before I discovered them. 13 nests out of 34 found intact (38%) fledged successfully. It was somewhat easier to find nests which were intact for perhaps 30 days, than those which were destroyed shortly after egg-laying. For this reason a fledging success of 38% is probably high. Figure 1 gives a percentage breakdown of sources of mortality at the nest. Clutches of two appeared to survive to fledging better than clutches of three, despite the higher incidence of the latter (Table 1).

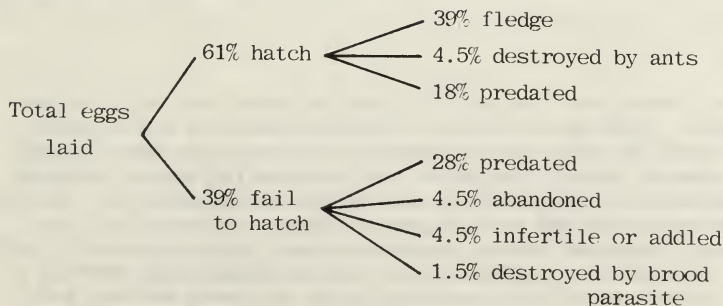


Figure 1 Fate of eggs laid by Cinnamon-breasted Rock Buntings at Zaria

Table 1. Comparison of survival of clutches of two and three of Cinnamon-breasted Rock Buntings at Zaria

Clutch size	Number of nests	Total no. of eggs	Number fledged	Average fledged per nest	Percentage success
2	8	16	10	1.25	62.5
3	21	63	23	1.09	36.4

Growth Rate

The average adult weight during the breeding season was 14.7 g (n=16; 8 males, 8 females). Nestlings reached 90% of adult weight in about 12 days. 55 fledged juveniles of various ages weighed 12.0 to 16.5 g (average 13.5g). A plot of daily average weights of nestlings from the day of hatching is given in Figure 2, with data of pulli from clutches of two and three separated. Applying the Students' *t* test, there is a significant difference in weights between nestlings from clutches of two and of three for each of the first four days of life, but the differences from day 5 to day 11 are not significant (Fig. 2). The lightest or youngest pulli were never observed to have starved to death. In only one instance was the youngest ejected by its two siblings, probably because the crevice in which the nest was placed was too small.

DISCUSSION

Tropical birds must contend with high perinatal mortality arising from predation. Nesting successes of tropical American birds ranged from 10.2% to 58.7%, with heavier predation occurring in humid forest situations (Foster 1974). At Zaria, the Rock Bunting had an observed nesting success of 38.2%, which in actual fact is probably low. Although egg and nestling mortality is high, once fledged tropical birds are generally long lived and are not usually subject to high mortality rates. This is in contrast with temperate zone species, which must produce a surplus to offset mortalities incurred during inclement weather and long migration. The evolutionary significance of reproductive strategies of tropical altricial birds may lie not so much in maximising individual fitness by relatively high and rapid reproductive output, as in producing fewer but fitter progeny.

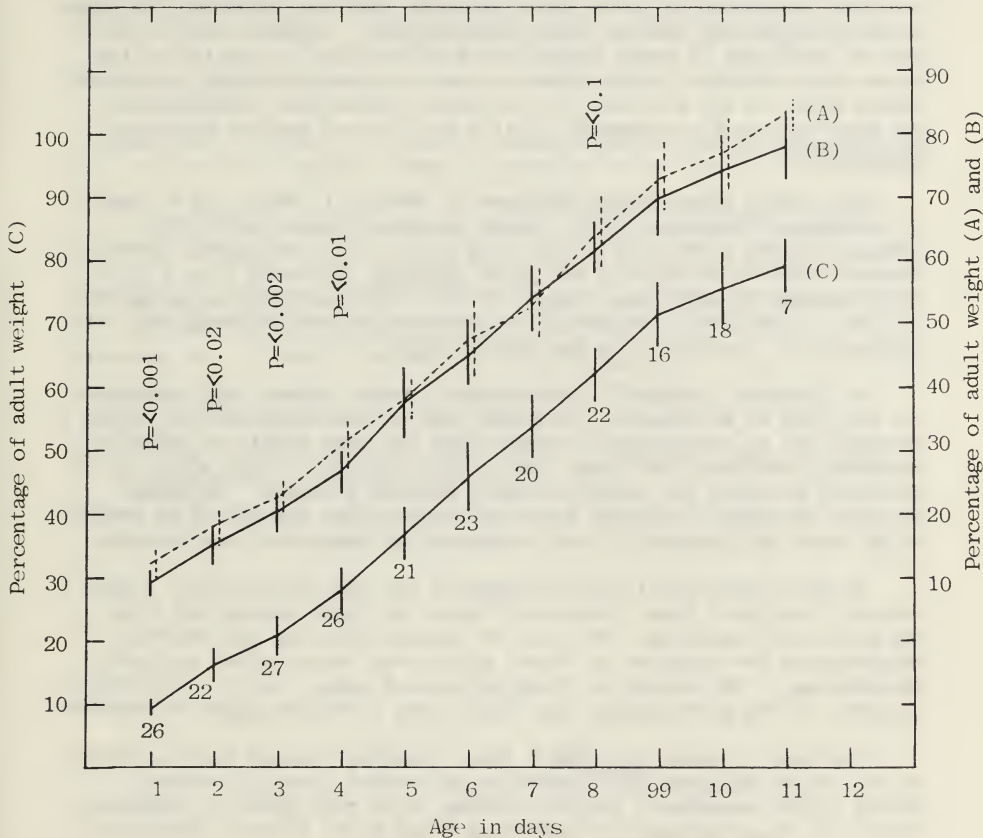


Figure 2 Growth curves of nestlings from nests with two pulli (A); three pulli (B); and overall average (C). Bars indicate standard deviations, and sample sizes are shown under (C). The difference P between (A) and (B) is shown only for those days when it is significant (Students' t test of significance).

Long breeding seasons, long incubation and nesting periods, and extended dependence of young after fledging have been observed for other tropical passerines (Foster 1974, Skutch 1967). A growth rate of 12 days to reach 90% of adult weight for Rock Buntings is similar to the values that Ricklefs (1968) gives for tropical American species and contrasts with 7.6 and 8.5 days for two Arctic passerines, respectively the Snow Bunting Plectrophenax nivalis and Lapland Bunting Calcarius lapponicus.

The clutch size of Rock Buntings at Zaria (11° N) is 2 - 3, but at Essexvale, Rhodesia (20° S), where the species was studied by Cumming & Steyn (1966), the clutch size was 3 - 4. Cody (1966) demonstrated that clutch size of the genus Emberiza increases from 2 to 6 with increase of latitude from 0° to 60° . Generally clutch sizes of tropical birds tend to be small (the average for most is two), but they increase with distance from the Equator (ibid.).

In tropical climates a long breeding season is not only possible but may also be a necessity to offset high perinatal mortality. Small clutches may be advantageous because they are less costly in terms of reproductive effort than large ones. The condition of the adult is therefore retained for perhaps several nesting attempts. Although clutches are small, tropical birds allot more time and energy to producing fewer and probably fitter young than do temperate zone species.

In this study pulli from clutches of two had significantly higher weights than pulli from clutches of three, at least during the first few days after hatching. This may be because hatching was somewhat asynchronous for clutches of three, giving the third pullus a slight disadvantage. The weight at fledging was not known, but if pulli from clutches of two were heavier they would have a better chance of survival.

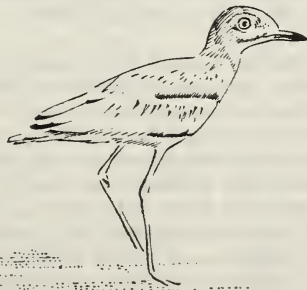
Clutches of three had a much lower fledging success than clutches of two, which suggests that predators may detect larger clutches. Skutch (1949) considered larger clutches to be more prone to predation, since they required more feeding trips which might attract predators.

Tropical birds tend to produce fewer broods in a breeding season, either by breeding only once or by reneating until a brood is raised successfully (Skutch 1967, Foster 1974). A large number of fledgling Rock Buntings was observed in November and early December about one month after the onset of breeding. It is possible that after this time only unsuccessful birds attempted to reneat. This would account for there being fewer newly fledged offspring recorded later on in the breeding season. As this species may require over two months successfully to rear a brood, only two broods would be possibly in the course of a season.

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BREEDING BEHAVIOUR OF Clamator glandarius AT IBADAN

IN SOUTHERN NIGERIA

by Antony Pettet

Serle (1943) and, more recently, Mundy & Cook (1971, 1974) have described in some detail the breeding of the Great Spotted Cuckoo Clamator glandarius at Sokoto, where the bird exclusively parasitises the Pied Crow Corvus albus which nests in the early rains. I suspect that the contrast between the wealth of detail from Sokoto and the almost complete absence of breeding records elsewhere in West Africa causes observers to make two tacit assumptions about the breeding of this cuckoo in Nigeria: firstly, that breeding in Nigeria is confined to the Sudan Savanna after the "spring" passage, and, secondly, that the Pied Crow is the only host. There are, in fact, two other records of breeding from further south, one near Nasarawa (08°40'N, 07°45'E) in the Southern Guinea Savanna (Serle, ex Bannerman 1951), and the other at Ilorin at the boundary between the Southern Guinea Savanna and the Derived Savanna (Brown 1948), both examples involving the Pied Crow. However, observations that I made whilst at Ibadan from 1967 to 1969 have suggested breeding of the cuckoo at this locality at the end of the dry season and involving another host species.

Observations at Ibadan

The Great Spotted Cuckoo is mainly a dry season visitor to Ibadan which leaves some time after the start of the rains, being present from January until June (Elgood & Sibley 1964).

During my stay at Ibadan I made twice-weekly surveys of birds on the University campus over the period October 1967 to July 1968 and somewhat less regular observations from October 1968 to February 1969. The first Great Spotted Cuckoo that I recorded was seen on 31st January 1968, when a silent bird was found in the Botanic Garden. Although the bird is inconspicuous when silent I am fairly certain that it was not in the survey area earlier than this date. Within days it was joined by a second bird, an event marked by frequent calling - the well known "keyar-keyar-keyar-keyar..." which speeds up as the burst continues. Copulation was observed during courtship feeding on 4th February. From about 0800 to 0900 hours the pair was watched in the top of a large Antiaris africana tree where they had been located by their cries. They were feeding on large caterpillars taken from the leaves. One bird repeatedly offered caterpillars to the second which accepted them and copulation took place during this feeding, the first bird mounting the second. Throughout the courtship feeding the normal call was interspersed with a rapid chirruping or chattering "chet-chet-chet-

chet....", somewhat reminiscent of the chirruping call of the Woodland Kingfisher Halcyon senegalensis but less loud and of a lower and constant pitch. On occasions this chattering slowed into something resembling the more usual call, i.e. changing into "....chet-chet-chet-chear-keyar-keyar....".

Subsequently the pair was seen, usually together although sometimes apart, over an area stretching from the open parts of the Botanic Garden, through the University Farm and along the perimeter of the campus towards the Fish Pond, a territory of approximately 350 ha. Together, they were usually very noisy, calling with the typical "keyar..."; apart, they called far less, and frequently were silent. On 18th February at about 0945 hours one bird was seen prospecting the nest holes of a pair of Splendid Starlings Lamprotornis splendidus in the trunk of a dead Oil-palm Elaeis guineensis outside my flat. The bird clung to the trunk and put its head into the hole, withdrew, moved higher up to repeat the performance in the second hole. As it happened the holes were empty at the time, having been robbed two days earlier by Broad-billed Rollers Eurystomus glaucurus for the second time. Unfortunately the starlings did not return to breed after the second robbing of the nest and the cuckoo was not seen at the nest holes again. By the end of April the pair of cuckoos was becoming noticeably less vocal and was last seen on 11th May. Two immature birds were seen in the Botanic Garden on 27th April and a third, very young bird was seen in the same place on 25th May. All three young birds were seen but once, suggesting that they left the area very quickly. No other birds were seen after 25th May.

Discussion

Without finding cuckoo's eggs in the nests, or the hosts feeding the young, the evidence for breeding of this species at Ibadan can only be considered strongly circumstantial, although there seems little room for doubt. For one species of bird wintering at Ibadan and that definitely does not breed, the White-throated Bee-eater Merops albicollis, copulation is known to occur in periods of pre-migratory restlessness a little time before departure (Pettet 1968), but the present observations do not appear to be explicable in this manner since copulation took place more than three months before departure. The discovery of young birds in the territory of the parent birds more or less at the time of the adults' departure also indicates breeding somewhere in the area. It is perhaps not irrelevant to note that Lynes (1925) described adult birds migrating northwards accompanied by birds of the year in May to August in Darfur, Sudan Republic, and the same may occur in Nigeria although it has not been documented (Elgood, Fry & Dowsett 1973).

The question of host species is problematic, but the observed prospecting of nesting holes of the Splendid Starling raises the interesting possibility that Sturnidae may be preferred hosts at Ibadan

rather than *Corvus albus* as might be inferred from the accounts of Elgood & Sibley (1964) and Elgood et al. (1973). In East, north-east and South Africa where the breeding of this cuckoo has been studied in greater detail, the recorded hosts include :-

- (1) Corvidae : Cape Rook Corvus capensis
 Lesser Brown-necked Raven C. ruficollis edithae
 Fan-tailed Raven C. rhipidurus
 Pied Crow C. albus
 Piaciac Ptilostomus afer
- (2) Sturnidae : Redwing Starling Onychognathus morio
 Blue-eared Glossy Starling Lamprotonis chalybaeus
 Red-shouldered Glossy Starling L. nitens
 White-crowned Starling Spreo albicapillus
 Pied Starling S. bicolor
 (Meve's Long-tailed Starling L. caudatus mevesii was considered a probable host in Zambia by Benson et al. (1971).
- (3) Other groups : Ground Woodpecker Geocolaptes olivaceus
 Hoopoe Upupa epops

(Data from Friedmann 1948, 1949, 1956 & 1964, Payne & Payne 1967, Jensen & Jensen 1969, Archer & Godman 1961, Mackworth-Præd & Grant 1957).

Taking the area as a whole, the most commonly recorded hosts are the Pied Crow, Cape Rook and Pied Starling. Although most records of starling hosts originate from South Africa, not all are drawn from that area. L. chalybaeus and S. albicapillus have been recorded as hosts in Somaliland. More recently Holmes (1972) recorded a full-grown immature being fed by glossy starlings on 15th December 1971 on the Nigeria-Cameroun border south of Lake Chad. In this case the most probable host would be L. chalybaeus or L. chloropterus, but there is no certainty that the cuckoo was being fed by its actual foster parents at this late date.

At Ibadan the observed timing of the reproductive behaviour of the Great Spotted Cuckoo and nesting of the local Pied Crows would also indicate that the latter is not the host. The regular censusing of the area showed that only one pair of Pied Crows bred in or near the territory of the cuckoos. Winter flocks of Pied Crows on the campus, peaking at about 100-115 birds in November and January, starting declining in numbers from mid-January until only a single pair of birds remained in mid-February, although small groups of 3-5 appeared occasionally until mid-March. The pair of crows built an inaccessible nest at the top of a large tree on the University Farm and from their behaviour I deduced that eggs were laid in mid-April. Young Pied Crows newly out of the nest were seen accompanied by adults on 19th June, more than three weeks after the last immature cuckoo was seen, and this was the last date that I recorded

Pied Crows on the campus until the following early autumn. There was no evidence that this pair of Pied Crows reared any of the young cuckoos.

Of the potential hosts amongst the Sturnidae of the Ibadan campus, only three were frequent enough to be likely candidates: Chestnut-winged Starling Onychognathus fulgidus, Splendid Starling, and Purple Starling L. purpureus. Surprisingly, in view of their frequency in Nigeria, there appears to be very little published information on the breeding of any of these species. Bannerman (1948, 1951 & 1953) has no information on the breeding seasons apart from giving August - October for L. splendidus in the Southern Cameroons. Mackworth-Praed & Grant (1973) give :

O. fulgidus - July (Ghana)

L. splendidus - January (S.Nigeria) and August-October (Cameroun)

L. purpureus - April-July (Nigeria)

My own information of their breeding in southern Nigeria is also meagre:

O. fulgidus - seen taking palm-leaf strips into a hole high in a palm trunk on 14th January and another bird doing the same with small twigs at another locality on 6th February, but in neither case was I convinced that they were actually breeding.

L. splendidus - general behaviour of the species suggests breeding at Ibadan begins in early or mid-December and continues until late March or early April when feeding flocks tend to be reconstituted; eggs on 29th December and 16th February (noted when Eurystomus seen taking both clutches from nest hole); nestlings being fed on 24th February and 23rd March at two other nesting sites; all three nests high in dead or moribund trunks of Oil-Palms.

L. purpureus - in small numbers on the campus and far less common than L. splendidus; the only breeding record I have in southern Nigeria comes from the Northern Guinea Savanna at Kishi, c.185 km north of Ibadan, where nestlings were being fed in a hole in Parkia on 24th April.

It would seem that at the beginning of the cuckoo's reproductive phase only the Splendid Starling is likely to be available as host although towards the end the Purple Starling may also become available. It is interesting to note that egg size in L. splendidus approximates more closely to that of C. glandarius than does C. albus (Table 1). It would seem that, on average, the eggs of C. glandarius at Sokoto are slightly shorter than those from Somaliland and the Palaearctic region. Egg colour in L. splendidus is also very close to that of C. glandarius (data from Bannerman 1948 & 1951) :-

C. glandarius - "...pale blueish-green ground...spotted and blotched with different shades of brown and yellow-brown, the markings...generally distributed, but more numerous towards the large end...pale lilac under-

Table 1. Egg sizes (in mm) of *C. glandarius*, *L. splendidus* and *C. albus*

Locality	Average dimensions and (number)	Maximum (or range)	Minimum	Source
<i>C. glandarius</i>				
Sokoto	30.3 x 25.1 (20)	35.2 x 26.4 32.7 x 26.5	29.1 x 23.8 33.0 x 22.6	Serle (1943)
Sokoto	30.5 x 24.0 (7)	(27.0-32.0 x 23.5-24.5)		Mundy & Cook (1974)
Somaliland	32 x 25 (?)	35 x 25.5	30.5 x 25	Archer & Godman (1961)
Palaeartic	32.1 x 24.0 (78)	35.4 x 25.1 33.6 x 26.3	28.4 x 22.0 31.0 x 21.5	Jourdain (1940)
<i>L. splendidus</i>				
S. Cameroons	30.2 x 22.6 (5)	31.5 x 24.5	29.0 x 21.5	Ogilvie-Grant ex. Bannerman (1948) (Two clutches)
<i>C. albus</i>				
Sokoto	45.7 x 31.1 (15)	49.1 x 31.6 42.5 x 31.0	42.5 x 31.0 43.5 x 30.0	Serle (1943)
Sokoto	45.0 x 30.7 (74)	(40-50 x 28.5-33)		Mundy & Cook (1974)
Kano	45.3 x 31.7	49.0 x 32.5 44.5 x 33.0	41.5 x 30.5	Shuel in Bannerman (1948)
Jos	48.0 x 31.3 (5)	50 x 31	47 x 31.5	Fairburn in Bannerman (1948) (One clutch)
Ilorin	47.1 x 31.3 (5)	48.0 x 31.5 46.5 x 32.0	46.5 x 32.0	Boughton-Leigh (1932) (Two clutches)

markings following the same distribution. The streaking and linear blotches found in many crows' eggs are absent".

L. splendidus - "The ground colour is pale greenish-blue, sparingly marked all over with spots and blotches of pale reddish-brown and lilac brown."

C. albus - The ground colour is variously described as "pale blueish-green", "pale greenish-grey", "pale blue" and "pale green". The ornamentation ranges from being "heavily smeared and blotched with olive-brown" to "blotched, spotted or streaked with various shades of brown with ashy-violet shell marks".

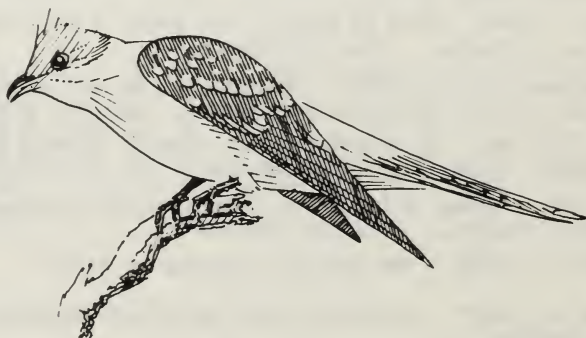
Should L. splendidus be an alternative host for C. glandarius, the cuckoo may be found breeding during the early part of the year over a much wider area in southern Nigeria, for the starling is a common bird of the forest which penetrates into the savanna zones along fringing or gallery forest. At Sokoto the cuckoo parasitises Corvus at the same time as several species of starling are also breeding (Lamprotornis chalcurus, L. chalybaeus, Spreo pulcher and possibly L. caudatus) and there have been no reports of the birds using these as hosts. This raises the possibility of host specialization and differences in the breeding-migration cycle of the cuckoo.

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NOTES

VIDUINE FORAGING BEHAVIOUR AND Lonchura COMMENSALISM - It will be known to many ornithologists - although I have failed to find any concise description of the habit in any of the standard texts - that viduine weavers forage on dry, powdery soil in a different way from other ground-feeding weavers and weaver-finches. The behaviour involved is too rapid for reliable visual interpretation, but in the absence of photographic analysis it may be described as follows. With both legs together the bird jumps a few millimetres forwards then backwards to the starting place with such speed that the human eye hardly registers the movement, although a forward-kicked scuff of dust is easily apparent. Instantly the bird prods its beak one or a few times just in front of its feet, i.e. about the place that was kicked, before jump-kicking again. Sometimes there may be two or three kicks in quick succession before beak prodding, while the speed is such that a kick-prod sequence seems to take less than a second. I judge that in the largest Nigerian viduine, the Broad-tailed Paradise Whydah Steganura orientalis, the jump-kick is not more than 10 mm; and in the smallest, the combassous Hypochoera (Vidua) spp., it is less than this. Only the legs appear to move forwards and backwards, not the body, although with the neck being retracted and the head bent down immediately after each kick the first impression is that the whole body does oscillate horizontally. The beak-prods are presumably seed-gleaning movements, and according to Bannerman (1953) combassous pick up tiny seeds on sandy ground, "the seeds of Eleusine coracana (being) so minute that it is surprising the birds can detect them". (E. coracana is a grass.) I have often seen this foraging behaviour in both birds mentioned above - including male Paradise Whydahs with full tail trains - and have also recorded it in Pin-tailed Whydahs Vidua macroura. It may be noted that the three viduine groups are usually considered very closely related, if not congeneric (Vidua).

On 15th February 1975 a flock of combassous, Bronze Mannikins Lonchura cucullata and Red-billed Fire-finches Lagonosticta senegala was feeding on dusty earth under a window at Samaru, Zaria, affording me close views. The combassous were foraging by kick-jumping, and the mannikins and fire-finches by hopping and searching. But in addition a mannikin often made a dash at a jump-kicking combassou, which hopped or flew off to continue foraging a half-metre away, leaving the mannikin to search the ground that the combassou had just kicked. This was witnessed about a dozen times, involving several pairs of mannikins and combassous, and the latter never offered any apparent resistance to the former. It appears to be a standard commensal feeding practice on the part of Bronze Mannikins.

GREY CANARY FEEDING TECHNIQUE - Grey Canaries Serinus leucopygius are partial to the 'seeds' of the abundant and widespread composite flower Tridax procumbens. They have a method for obtaining them in situ on a fruiting head well beyond the reach of the standing bird, which in its behavioural complexity is comparable with pulling up strings from which peanuts hang, as is well known in the case of weavers, tits and crows.

In February 1975 I stayed in a house at Samaru, Zaria, which afforded views at only two metres of canaries feeding on the ground. A bird would reach with its beak as high as seemed possible up a Tridax stem (peduncle), bend the stem down to the ground, tread on it proximal to the place where gripped by the beak, release the grip and rapidly walk crabwise along the prone stem to the fruiting head. It spent a few seconds plucking and eating seeds before moving off (when the stem sprang upright again) and selecting another stem to pull down. Up to three birds at a time were seen feeding in this manner, more or less independently of each other, on several dates. Since Tridax procumbens is exotic, introduced into West Africa about 1930, either the canary has acquired the technique since that time, the habit spreading culturally, or it has adapted to this flower a pre-existing method of foraging on other flower species - a behaviour which could be cultural or innate. A native composite with a similar fruiting habit, Vernonia sp., was ignored by the canaries.

I am grateful to Professor B.J.Harris for his botanical help. C.H.Fry

ADDITIONS TO LOCAL AVIFAUNAS

ZARIA. I stayed at Ahmadu Bello University, Zaria, from January to March 1975 inclusive, and during this period with Mr and Mrs M. Dyer and with Mr D.Johnson I encountered the following new species for the district as defined by Fry (1965), i.e. within 35 miles (55 km) radius of Zaria City (11° 05' N, 07° 43' E).

Peregrine Falco japonensis (F. peregrinus) One, 5 km north-west of Zaria Sabon Gari, 25th January, and probably the same bird there on 24th February. See remark under Lanner F. biarmicus on p.71 of Fry (op. cit).

Red-billed Wood-Dove Turtur afer Three seen separately and clearly in the kumi (forested watercourse) in Anara Forest Reserve (10° 43' N, 07° 32' E) on 2nd March. Black-billed Wood-Doves T. abyssinica were plentiful elsewhere within the reserve.

Guinea Turaco Tauraco persa One, feeding on small canopy fruits in company with two Violet Turacos Musophaga violacea, Anara Forest Reserve kumi, on 2nd March.

(Cardinal Woodpecker Dendropicos fuscescens A bird very probably of this species (certainly not any of the other Zaria woodpeckers) viewed briefly in Anara Forest Reserve kurmi on 2nd March (D.Johnson,C.H.F.).)

Singing Bush-Lark Mirafraga cantillans Two, or three, on the Samaru-Bassawa watercourse 6 km north-west of Zaria Sabon Gari on 20th and 21st January (C.H.F., Mr and Mrs M.Dyer), one at Bomo Lake, Samaru, on 23rd March, and a probable at Ahmadu Bello University on 14th March. These astonishing occurrences of a Sahel-zone lark, hitherto recorded in Nigeria only at Malamfatori (Hopson 1964), are discussed in relation to other arid-zone bird species at Zaria by Fry (1975, Savanna, in press).

White-crowned Robin-Chat Cossypha albicapilla One, Anara Forest Reserve kurmi, 2nd March. One or more (possibly Snowy-headed Robin-Chats C. niveicapilla) in a dense growth of the shrub Syzygium guineense on the River Galma 37 km east of Zaria on 9th February (11° 13'N, 08° 01'E) (Mary Dyer, C.H.F.).

Rufous Swamp-Warbler Calamocichla (Acrocephalus) rufescens I suspected (1965, p.94) that this was the species heard at Maska Dam and Fish Farm (11° 25' N, 07° 19'E) near Funtua ten years ago. On 26th January the same song was heard in a reed-mace Typha bed in exactly the same part of the ponds, and on 2nd February a determined effort to capture it, using 90 metres of net strung in the 3-metre tall reed-mace over a metre's depth of water, was rewarded with the capture of one of at least two birds. It was identified, photographed, ringed and released.

Grey-headed Olive-back Nesocharis capistrata One in the Kahuga kurmi on the south bank of the River Galma 37 km east of Zaria on 9th March (Mary Dyer).

For the record, additions to the Zaria avifauna recorded in this journal since my 1965 article are in Vol. 3: 43-44, 74 & 100; Vol. 4: 37-38 & 15; Vol. 5: 66-67; and Vol. 7: 39. The total now stands between 368 and 382 species.

C.H.Fry

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"MACKWORTH-PRAED & GRANT"

Sir ,

I was interested in Mr G.D.Field's recent comments (Bull. Nigerian Orn.Soc 10:74-80) and would like to see an appraisal of Serle's forthcoming field-guide versus Bannerman and Mackworth-Praed & Grant. I have not inspected the Praed & Grant plates very carefully, but must caution West African ornithologists not to rely on Plate 80 for identifying the Brown-capped Weaver Ploceus ('Phormoplectes') insignis, as the figure actually represents Bertram's Weaver P. ('Othyphantes') bertrandi, which does not occur in West Africa at all ! The figures were obviously wrongly 'removed' from Plate 87 in their Eastern African Vol. 2, where both species are correctly shown.

I would like to take issue with Mr Field, where he says (loc. cit., p.77) that I coined the ugly name used by Praed & Grant for Melaenornis annamarulae. Unfortunately, however, I did not suggest a common name in the original description in 1970 (Bull.Br.Orn.Cl. 90:145-148) or subsequently. In my forthcoming publication on the birds of Liberia (in prep.) I will be calling this species the Nimba Flycatcher, and hope that others will do the same.

As is so often the case after publishing the 'last word' on something, I will now have to add to what I said then about the voice of M. annamarulae. In early 1971 Mr G.S.Keith and I tape-recorded its song at Grassfield, Mt Nimba; it was from a bare tree-top and fairly loud : "a variety of slow trills, high-pitched but pure sweet notes - a fine singer " (G.S.K.). Incidentally, Mr C. Erard, at present working on flycatchers in Gabon, tells me he is sure he has seen the Nimba Flycatcher there, so it ought to occur elsewhere in the Upper Guinea forests.

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CHECKLIST OF THE BIRDS OF GAMBIA

A comprehensive checklist of the birds of the Gambia is currently being prepared by Mr Jens Kirkeby and Mr Jorn Vestergaard Jensen in co-operation with the Gambian Ornithologists' Society. It is intended that this checklist shall bring together all bird records, published and unpublished, for the Gambia. Anyone having unpublished records for this area is requested to make these known to Jorn Vestergaard Jensen, Holtejev 13, DK-8000 Aarhus C., Denmark. All contributions will be fully acknowledged.

NOTICE TO CONTRIBUTORS

The BULLETIN publishes papers, short notes, reviews, letters and illustrative material. Contributions should be typed on one side of the paper with double spacing and wide margins. Wherever possible papers should have first been submitted to at least one ornithologist or biologist for critical scrutiny.

Written contributions will be retyped for offset printing, but FIGURES should be prepared as for final reproduction, allowing for 20 percent reduction, using Indian ink on good quality white paper, Letraset and Letratone lettering and shading (or equivalent) as appropriate.

CONVENTIONS regarding tabular material, dates, numbers, metric values, references etc. should be carefully adhered to and can be sought in this and recent issues of the Bulletin.

Pending standardisation, English and scientific bird NAMES should follow Mackworth-Praed & Grant, African Handbook of Birds, Ser. 3 Vols. 1 and 2 (1970,1973). Bannerman's scientific names (Birds of West and Equatorial Africa, Vols. 1 and 2 (1953)), should be given in parenthesis if they differ from Praed & Grant's.

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The vignettes on pp. 18 and 33 are from photographs by
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**Nigerian
Ornithologists'
Society**

BULLETIN

Vol.11 No.40 October 1975

THE NIGERIAN ORNITHOLOGISTS' SOCIETY

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- to Prof. B.J. Harris (Department of Biological Sciences, Ahmadu Bello University, Zaria, Nigeria) regarding purchase of back numbers of the BULLETIN, and all other matters

The Society was formed in 1964 to link bird observers in Nigeria in the furtherance of the country's ornithology through the publication of the BULLETIN. Applications for membership are welcomed. Annual membership subscription rates (1975) ₦ 2.00 or £ 1.00.

Members receive the BULLETIN free of charge

Nigerian Ornithologists' Society

Bulletin

Vol.11 No.40 , October 1975

EDITORIAL

As indicated in the last Bulletin, a Draft Constitution and a Members' List appear in this issue. Members' comments on the Draft Constitution are invited and in the event of none being received by the end of the year the Constitution will be formally adopted as it stands and will come into effect on 1st January 1976.

C O N S T I T U T I O N

(DRAFT)

Title

The Society shall be named the NIGERIAN ORNITHOLOGISTS' SOCIETY.

Objects

The objects of the Society shall be the promotion of scientific interest in birds, and the publication of observations and studies relating to ornithology, particularly of Nigeria and adjacent countries.

R U L E S

I Management

- (1) The affairs of the Society shall be managed by a Committee of four members elected to the following offices and responsible for all matters of general policy and finance except editorial policy of the Society's journal (the BULLETIN) :
 - (a) a President
 - (b) an Honorary Secretary
 - (c) an Honorary Treasurer , and
 - (d) the Managing Editor of the Bulletin.
- (2) An Editorial Board shall be responsible to the Committee for editorial policy, production and publication of the Bulletin.
- (3) (a) Officers shall be elected for a term of three years.
 - (b) At least one officer must be resident in Nigeria at the time of the triennial election.
 - (c) Officers shall be eligible for re-election immediately upon completion of their terms.

- (d) Elections shall be organised in March by the retiring Secretary and shall be carried out by postal ballot.
- (4) The Committee may at any time during its term co-opt one, or two, members resident in Nigeria at the time of co-optation to serve as Ordinary Members of Committee until the end of the triennium.
- (5) The Committee shall normally meet at least once in each year of its triennium, but in the event of this proving impracticable the Secretary shall by post : solicit Agenda; circularise Agenda with proposers' notes; and put any contentious matters to postal vote.

II Membership and Subscription

- (1) There shall be two classes of membership, namely individual and corporate, and their annual dues may differ. All members shall receive a copy of each issue of the Bulletin.
- (2) The Committee shall review subscriptions annually.
- (3) Corporate (institutional) members, i.e. libraries, museums, university departments, etc., may receive the Bulletin either at corporate subscription rates or on an exchange basis.
- (4) The Committee shall be empowered to offer honorary membership to any distinguished ornithologist and to terminate membership of any member failing to pay due subscriptions after a written reminder and also any whose conduct a majority of the Committee shall decide is prejudicial to the welfare of the Society.

III Meetings

Meetings will not normally be arranged.

IV The Bulletin

- (1) The Editorial Board shall consist of : the Managing Editor ; two Assistant Editors drawn by invitation from the membership of the Society who may be the same persons as are also Officers or Ordinary Members of Committee ; the head of the Ahmadu Bello University Department of Biological Sciences or his nominee ; and two appointees of the Ahmadu Bello University Press for the duration of the interest of the Press in publishing the Bulletin.
- (2) Editorial policy shall be outlined from time to time in the pages of the Bulletin. Instructions to contributors shall be published in every issue of the Bulletin.

- (3) The Bulletin shall normally be published at least twice in each calendar year and shall carry, in addition to ornithological papers, information pertaining to membership, current Officers and Ordinary Members of Committee, and subscription rates.
- (4) Each Officer may at his discretion dispose of complimentary copies of the Bulletin and shall be responsible for accounting for same to the Secretary.
- (5) The Editorial Board may compile a list of institutes to whom the Bulletin shall be sent gratuitously on a regular basis. Such a list shall be reviewed annually by the Committee.

V Change of Rules

Amendments to these Rules may be made if approved by a majority of the Committee. Proposed amendments shall be published in the Bulletin and shall come into effect six months after such publication.

(End of Draft Constitution)

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RINGING IN NIGERIA 1974. 17th ANNUAL REPORT

by R.E. Sharland

Received 2 July 1975

In 1974 Dick Best ringed in Kano, Brian Wood at Vom, Philip Hall on the edge of the Plateau in North-Eastern State, and Peter Jones near Malamfatori. Brian Wood has now returned to the U.K. and we have to thank him for carrying on the ringing tradition at Vom. Dick Best added what is clearly a new bird to the Nigerian list when he caught a *Sylvia* warbler at Kano - but its specific identity has not yet been resolved. Peter Woods, netting in Acacia woodland near the Niger border, found an area where Lesser Whitethroats *S. curruca* were more common than Whitethroats *S. communis*. He also caught the second Orphee Warbler *S. hortensis* to be recorded from Nigeria and reported that this species (the main winter range of which was previously thought to be considerably to the west) is fairly common in the Niger Republic.

Schedule 1. Numbers of Palaearctic species ringed

		<u>1974</u>	<u>Total to date</u>
Little Bittern	<i>Ixobrychus minutus</i>		5
Squacco Heron	<i>Ardeola ralloides</i>		4
Teal	<i>Anas crecca</i>		8
Pintail	<i>A. acuta</i>		3
Garganey	<i>A. querquedula</i>		96
Shoveler	<i>A. clypeata</i>	1	3
Pallid Harrier	<i>Circus macrourus</i>		1
Quail	<i>Coturnix coturnix</i>		1
Spotted Crake	<i>Porzana porzana</i>		1
Ringed Plover	<i>Charadrius hiaticula</i>		23
Little Ringed Plover	<i>C. dubius</i>		51
Black-tailed Godwit	<i>Limosa limosa</i>		1
Greenshank	<i>Tringa nebularia</i>		9
Marsh Sandpiper	<i>T. stagnatilis</i>		17
Wood Sandpiper	<i>T. glareola</i>		468
Green Sandpiper	<i>T. ochropus</i>		27
Common Sandpiper	<i>T. hypoleucos</i>		171
Redshank	<i>T. totanus</i>		2
Dusky Redshank	<i>T. erythropus</i>		12
Terek Sandpiper	<i>T. terek</i>		1
Common Snipe	<i>Gallinago gallinago</i>		45
Great Snipe	<i>G. media</i>		1
Jack Snipe	<i>G. minima</i>		16
Curlew Sandpiper	<i>Calidris ferruginea</i>		15
Little Stint	<i>C. minuta</i>		274
Temminck's Stint	<i>C. temminckii</i>		14
Sanderling	<i>C. alba</i>		1
Ruff	<i>Philomachus pugnax</i>		553
Black-winged Stilt	<i>Himantopus himantopus</i>		18
Common Tern	<i>Sterna hirundo</i>		1

White-winged Black Tern	<i>Sterna leucoptera</i>		1
Great Spotted Cuckoo	<i>Clamator glandarius</i>		4
Scops Owl	<i>Otus scops</i>		11
Hoopoe	<i>Upupa epops</i>		14
Wryneck	<i>Jynx torquilla</i>	3	52
Lesser Short-toed Lark	<i>Calandrella rufescens</i>		1
Sand Martin	<i>Riparia riparia</i>	11	1488
European Swallow	<i>Hirundo rustica</i>		1464
House Martin	<i>Delichon urbica</i>		2
Yellow Wagtail	<i>Motacilla flava</i>	2387	36339
White Wagtail	<i>M. alba</i>		31
Tawny Pipit	<i>Anthus campestris</i>		3
Tree Pipit	<i>A. trivialis</i>	3	122
Red-throated Pipit	<i>A. cervinus</i>		130
Isabelline Shrike	<i>Lanius collurio</i>		4
Woodchat Shrike	<i>L. senator senator</i>		48
Corsican Woodchat Shrike	<i>L. senator badius</i>		1
Golden Oriole	<i>Oriolus oriolus</i>		4
Whinchat	<i>Saxicola rubetra</i>	9	499
Wheatear	<i>Oenanthe oenanthe</i>	4	26
Black-eared Wheatear	<i>O. hispanica</i>		1
Rock Thrush	<i>Monticola saxatilis</i>		8
Blue Rock Thrush	<i>M. solitarius</i>		1
Redstart	<i>Phoenicurus phoenicurus</i>	13	232
Nightingale	<i>Luscinia megarhynchos</i>	24	284
Bluethroat	<i>L. svecica</i>		4
Cetti's Warbler	<i>Cettia cetti</i>		2
Savi's Warbler	<i>Locustella luscinioides</i>		6
Sedge Warbler	<i>Acrocephalus schoenobaenus</i>	28	1938
Reed Warbler	<i>A. scirpaceus</i>	16	948
Great Reed Warbler	<i>A. arundinaceus</i>	6	142
Icterine Warbler	<i>Hippolais icterina</i>	2	166
Melodious Warbler	<i>H. polyglotta</i>	7	52
Olivaceous Warbler	<i>H. pallida</i>	11	140
Olive Tree Warbler	<i>H. olivetorum</i>		1
Garden Warbler	<i>Sylvia borin</i>	41	1587
Blackcap	<i>S. atricapilla</i>	1	24
Whitethroat	<i>S. communis</i>	9	2841
Lesser Whitethroat	<i>S. curruca</i>	20	152
Subalpine Warbler	<i>S. cantillans</i>	10	177
Menetries Warbler	<i>S. mystacea</i>	1	1
Orphean Warbler	<i>S. hortensis</i>	1	1
Willow Warbler	<i>Phylloscopus trochilus</i>	10	802
Chiffchaff	<i>P. collybita</i>		5
Bonelli's Warbler	<i>P. bonelli</i>	1	20
Wood Warbler	<i>P. sibilatrix</i>		138
Spotted Flycatcher	<i>Muscicapa striata</i>	4	281
Pied Flycatcher	<i>Ficedula hypoleuca</i>	3	230
Collared Flycatcher	<i>F. albicollis</i>		23
Ortolan Bunting	<i>Emberiza hortulana</i>		6

Palearctic birds	:	2626	52299
Ethiopian birds	:	50	14623
Total	:	2676	66922

Schedule 2. Recoveries of birds ringed in NigeriaYellow Wagtail Motacilla flava

- JS 64516 Ringed 12.i.1974 Vom $09^{\circ}52' N 08^{\circ} 53' E$
 Found dead 8.v.1974 Stixneusiedl , Austria, $48^{\circ} 05' N 16^{\circ} 35' E$
- JS 64877 Ringed 26.i.1974 Vom
 Controlled Malta (details to follow)

Schedule 3. Recoveries of foreign-ringed birdsYellow Wagtail Motacilla flava

- S 705807 Ringed 17.viii.1973 Rybatchi, Kalinigrad, U.S.S.R. $55^{\circ}11' N$
 Moscow $20^{\circ}49' E$
 Controlled 29.xi.1973 Vom
- HB 32638 Ringed 20.viii.1973 Rydwan, Lowicz, Lodz, Poland $52^{\circ}04' N 19^{\circ}49' E$
 Controlled 26.i.1974 Vom

White Stork Ciconia ciconia

- CA 0349 Ringed juv. 4.vi.1961 Campurthein Bas Rhin, France $48^{\circ}29' N 07^{\circ}42' E$
 Paris Ring found -.ii.1974 Nguru $12^{\circ}03' N, 10^{\circ}30' E$

R.E.Sharland, c/o Nigerian Oil Mills Ltd., P.O.Box 342, Kano, Nigeria



THE YELLOW-BILLED EGRET Egretta intermedia in SIERRA LEONE

A cautionary tale of identification

by G. D. Field

Received 24 July 1975

I write this to emphasise the ease with which one can overlook a species one is not expecting and refuse to accept the evidence before one, relying on reference books to the exclusion of common sense, in the hope that others may be enabled to avoid the mistake.

There is little information on the Yellow-billed Egret Egretta intermedia in the West African literature. It occurs only in Vol. 8 of Bannerman (1951), an example from Fort-Lamy with no information except a plumage description, and there is nothing further in his condensed book (1953). Mackworth-Praed & Grant (1970) merely write "Senegal to the eastern Congo" with an irrelevant map taken from their Series I (1952), and record breeding in Senegal and Lake Chad. The first detailed information that I can find for West Africa is supplied by de Naurois (1969), who records it breeding in the Senegal delta and probably in the Bijagos Islands of Guinea Bissau where he found it rare. Elgood, Fry & Dowsett (1973) say "Egretta intermedia has only recently been recognised in Nigeria", mention breeding near Lake Chad, and continue "the only records from southern Nigeria are in the dry season, November, April and May, but no conclusion about migration can yet be drawn for this overlooked species".

Overlooked it certainly has been, and the fault lies at least partially with the standard reference books where the information is not only scant but erroneous. Thus Bannerman wrote (p.22) "feet and toes black, the joints and bare part of the tarsus yellow...in breeding dress plumes...are assumed". De Naurois complicates the leg colour by mentioning (p.150) "la teinte généralement rose vif des tarses" and (p.222) "la teinte grise ou jaune pâle de la peau des cuisses".

I confess that I spent ten years in Sierra Leone without suspecting the presence of this bird, although I had been vaguely puzzled by the apparent size difference in Egretta alba and had concluded that juveniles took a long time to grow a full-sized beak. Then J.B.Smart, with experience in Kenya, suggested that E. intermedia was present in inland swamps. In December 1974 I spent some time studying egrets at an enormous heron concentration at falling flood waters in southern Sierra Leone. There were definitely two sizes of large white egrets but all had pure black legs and I still naively accepted this as the diagnostic recognition mark. In a visit to a large swamp in north-east Sierra Leone in March 1975 I thought there was some yellow on one bird's legs, and in May, while some 'smaller' birds still had all-black legs, others had varying amounts of yellow, the colour first appearing on the inside of the leg so that birds might appear all black and only show pale yellow when a leg was stretched forward. Finally, J.B.S. and I visited the swamp in mid-June and found three

individuals with pure straw yellow tibia down to and including the joint, although one other was almost certainly still wholly black. The difficulty at this time of year, with the grass growing, was to see the legs at all and great patience was needed to get clear views. Easiest views were often at the moment a bird rose, legs dangling, in flight. Once in full flight, the yellow was quite invisible.

Thus, the legs are yellow only during the breeding season, and the correlation between length of plumes and yellowness of legs seemed close. Whether they go on from straw yellow to 'rose vif' as the season progresses I do not know.

As often happens, once one's eyes are opened there is no difficulty in identifying the species. Bannerman said "easily confused with Buff-backed Heron in non-breeding season" and Mackworth-Praed & Grant made the same remark. In fact it is with the Great White Heron *E. alba* that confusion is likely. In flight the two species appear very similar and the size of a single bird on the ground is not always easy to appreciate. However, the bill is much shorter, hardly longer than that of the Cattle Egret *Ardeola ibis* and, if seen together, this bird is so much less bulky that one wonders why one was ever in doubt.

Further misleading information as far as Sierra Leone is concerned is provided by Mackworth-Praed & Grant : "usually gregarious, but only in small flocks" and "feeds mainly in the water". In the swampy area already mentioned birds were either solitary, or a single one was with a group of Cattle Egrets, or there was a mixed flock of herons in which two or three Yellow-billed Egrets occurred, scattered through the flock and not associating together. Furthermore, although water was available, they fed in the open grass or over old or newly-planted rice fields. Only in the drying out of the flood waters, when fish were trapped in thousands, were they seen in the water.

Their status in Sierra Leone as at least a dry season migrant is now established. They do not occur on the coast, as do all the other egrets, but in inland swamps, particularly when partially dry, associating more often than not with Cattle Egrets and even seen with them in a small patch of old rice field close to a village. There must be at least the possibility that they breed with other herons in the unexplored islands at the mouth of the Scarcies river.

I have no proof, of course, that this is not a newly arrived species, but I think it more likely that it has always been here but has simply never caught the critical eye of an ornithologist. The credit for recognising its presence goes to J.B.Smart, without whose alerting I should probably never have got around to thinking of the possibility of its occurrence.

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EDITORIAL POSTSCRIPT

After production of this issue had commenced I received a copy of 'Comparative Nomenclature of Nigerian Birds for the Amateur' by J.B.Heigham, 26 pp., 1975, published by the author. Mr Heigham has very kindly sent a complimentary copy to all Individual Members of the Society. Most members will already possess or have fairly easy access to 'Mackworth-Praed & Grant' and perhaps 'Bannerman', which has been somewhat displaced by 'M-P & G'; but very few members have

been able to refer to C.M.N.White's nomenclature (1960-1965). Heigham's most valuable booklet lists the scientific and English names used by all three of these authorities.

Mr J.H.Elgood's forthcoming 'Check-List of the Birds of Nigeria', to be published in book form, will doubtless become the standard nomenclature, to which contributors to the Bulletin will be asked to adhere. Mr Heigham's 'Comparative Nomenclature' does not make recommendations where a bird species has been given alternative scientific or English names by preceding authorities, and pending the publication of Elgood's check-list contributors to the Bulletin are asked to follow White's sequence and scientific nomenclature, and Mackworth-Praed & Grant's English names.

Ed.

THE NORTHERN LIMITS OF FRINGING FOREST BIRDS IN

NORTH CENTRAL STATE, NIGERIA

by C.H.Fry

Received 1 August 1975

By 'fringing forest' I mean the narrow and dense tree and shrub growth that is commonly found along watercourses in the Northern Guinea Savanna zone and in adjacent biomes. Typically, fringing forest is sharply demarcated floristically and physiognomically from adjacent woodland (Lamb 1943), which has poorer access to soil water, and it constitutes a distinctive habitat often known by its Hausa name kurmi (Jones 1963). Keay (1960) described the fringing forest of Anara Forest Reserve (near Kaduna) as a narrow strip that remains relatively moist all year, with some residual pools in the dry season, and the palm Raphia sudanica and scrambling tree Syzygium guineense dominant in the tunnel-like understory of darkly evergreen forest. In places, fringing forest may be as narrow as $4\frac{1}{2}$ - $6\frac{1}{2}$ m, consisting mainly of Raphia, but usually with an outer zone of better drained ground growing Vitex domiana, Khaya senegalensis, Diospyros mespiliformis and Parinari kerstingii as the main emergents, up to 25 m high, above a dense low stratum composed of numerous species (Keay 1960). Elsewhere fringing forest may become confluent with a more extensive forest growing on moist soil, comparable with the drier forests of southern Nigeria, with the trees Ceiba pentandra, Antiaris africana, Albizia zygia and Phyllanthus discoideus, and Kershaw (1968) used the term fringing forest for such growth around the bases of inselbergs.

In North Central State about 30 bird species are virtually confined in the dry season to the 'dark tunnel' kurmis, and they constitute a most interesting element of essentially southern species in the avifauna. During the rains many of them are found in the more open and better-illuminated type of fringing forest. Several are migrant, and in the wet season extend even further to the north, in such closed kurmis or more open forests as they can find.

During February and March 1975 I made a systematic effort to assess the northern limits of these birds, by spending at least one afternoon, night and morning at each of four kurmis, recording the birds by observation and netting. Easily accessible kurmis in North Central State are limited in number, especially in the more northern part of the State towards the Sudan Savanna zone; but having visited kurmis at Danbagudu for another purpose on 9 February, I was able to select kurmis at approximately 25 seconds of latitude intervals, and work them progressively northwards during the next few weeks. The findings are presented in Table 1, which includes my previous years' dry-season and 'spring' observations at Anara Forest Reserve and Dunbi Woods.

The Sites

- (1) Danbagudu 9-10 February; 20-21 February (with Ms M.E.Gartshore)
(10° 19' N, 07° 46' E; about 65 km by road ESE of Kaduna)

Three kurmis run more or less parallel and about 2 km apart. Two were about 10 m wide and 2 km long, and the third, starting at Danbagudu village, was exceptionally wide, up to 100 m, in places with moderately undisturbed shrubby understorey, elsewhere with separated boles, open at ground level and free of passage. Two of the kurmis were aerial-sprayed with different tsetse-control insecticides between my first and second visits, the third (near Kufana village) being a control. This resulted in substantial bird mortality. In addition the Kufana and Danbagudu kurmis had been heavily damaged by tree cutting and burning, a process continuing unabated during both of my visits.

- (2) Anara Forest Reserve 1-2 March (with Mr D. Johnson)
(10° 44' N, 07° 33' E; about 25 km by road NNE of Kaduna)

The principal kurmi within Anara F.R. runs through a long-abandoned village, the only obvious evidences for which are the remains of perimeter walls and ditches, Datura plants, and an avenue of huge Cassia trees now deep in a continuous forest of Anogeissus schimperi, Khaya senegalensis, Ceiba pentandra, Adansonia digitata, etc. The kurmi is at least 2 km long, starts narrow but well structured and, through the village, becomes broad and merges imperceptibly with drier forest in and around the village. For most of its length it adjoins mature Guinea Savanna woodland, and the Reserve shows little evidence of recent disturbance. The vegetation is fully described by Keay (loc. cit.).

I visited Anara F.R. several times from 1962 to 1967. On the present visit I saw or heard nearly all the expected kurmi species, and also came across three that I had not hitherto recorded, despite observation being impeded by exceptionally heavy harmattan haze.

- (3) Dunbi Woods
(10° 50' N, 07° 35' E; about 25 km SSW of Zaria)

Not visited by me in February-March 1975, but I totalled some 50 hours observation and netting there in 1962-1967. The woods were formerly an excellent example of Kershaw's (1968) inselberg-base fringing forest, but (despite special protection afforded by its present Reserve status) felling for fuelwood and cattle browsing have almost destroyed Dunbi Woods as a habitat of kurmi wildlife.

- (4) Gubuchi 8-9 March (with Ms M.E.Gartshore)
(11° 12' N, 08° 01' E; 35 km direct and 75 km by road ENE of Zaria)

The Kuhugu watercourse drains into the Galma River from the south, and its kurmi appears on the December 1963 air survey photograph (Figure 1) as a typical, dense strip of forest about 2 km long, starting at about 15 m wide and irregularly broadening towards the Galma, where the fringing forest merges into dense Guinea Savanna woodland. The photograph shows

no evidence of agriculture 12 years ago within 1 km to the east or 1½ km to the west. But to-day the woods are in process of being felled for fuel and farming, with a majority of the trees already removed; and in the kurmi many fine mahoganies and other trees have been felled and burned in situ.

However, several marker bird species were found in Kuhugu kurmi, and a few also in dense, shady thickets of the shrub Syzygium guineense growing nearby along the banks of the Galma. Other kurmis, within the Kurmin Kogi Forest Reserve on the north bank of the Galma, were not investigated but are probably much less adversely affected than Kuhugu.

(5) Mazaure Forest Reserve 28-29 March (with Dr J. Huff)
(11° 32' N, 07° 39' E; about 55 km by road north of Zaria)

The densest stands of timber were found along the right bank of the Sheka riverbed, and observations were also made in dense woods 5 km to the east on the Danhankala riverbed (see Nigeria 1:250,000 map Sheet 21 edtn. 1, 1970). The woods here are not 'dark tunnels' but the more open fringing forest of Kershaw (1968), with little evidence of recent human disturbance.

KURMI BIRD HABIT AND HABITAT

Kurmi bird species have to be defined in relation to latitude and to season.

Latitude

Further south in Nigeria the species which I think of as 'kurmi birds' in Northern Guinea savanna are more eurytopic, i.e. they occur in a variety of woodland, thicket and forest-edge situations. In the northern part of the North Central State these species occur only in the densest woods and are therefore very locally distributed; further south they are much more widespread. Presumably they are intolerant of one or a combination of physical factors like high shade temperature, low humidity or high illumination, variables which impose progressively greater restriction at increasing latitudes in the Guinea and Sudan savannas.

In one of the very few good kurmis near Kano, at Gaya Forest Reserve 65 km ENE of that city, Mr R.E. Sharland informs me that he has recorded Violet-tipped Coursers Cursorius chalcopterus, Violet Turacos Musophaga violacea, Swallow-tailed Bee-eaters Merops hirundineus, Black Wood-Hoopoes Phoeniculus aterrimus, Lesser Honey-guides Indicator minor, Orange-breasted Bush-Shrikes Malaconotus sulfureopectus, Black Flycatchers Melaenornis edolioides and Red-tailed Lavendar Waxbills Estrilda caerulescens. He has not observed any of these species anywhere else in the Kano district and so regards them as 'kurmi birds'. But at Zaria I would not regard any of them as kurmi species except the Violet Turaco (Swallow-tailed Bee-eaters have never been recorded near Zaria).



Figure 1. Aerial photograph of Kuhugu kumi, Gubuchi, to show fringing forests (December 1963). (Courtesy Federal Survey Department.)

To afford greater definition of topographical detail the photograph has been lightly retouched in ink.

Season

Much as physical factors vary with latitude, so at any given latitude do they change with season. At Zaria, for instance, some species which are 'kurmi birds' insofar as they are pretty much restricted to kurmis during the dry season nevertheless become more generally spread around the countryside in the rains, e.g. Violet Turaco, Blackcap Babbler Turdoides reinwardii and Yellow-throated Leaf-love Chlorocichla flavi-collis. Lesser amelioration of the climate, in "spring" at Zaria (mid February to April) when trees come into leaf in advance of the first rains, serves to release some species (for instance, Olive Thrush Turdus pelios) from the more dense and shadier habitats to which they are confined during the dry season.

Sunbirds

If, as seems likely, most kurmi species shun bright illumination and associated climatic variables, sunbirds, spending much of their time feeding at blossoms growing in the sunniest extremities of trees, are atypical. Kurmi sunbirds are stenotopic (habitat-tied) probably because of reliance for food upon flowering trees found only in kurmis.

Migration

One species listed in Table 1 is a visitor from the Palaearctic (Pied Flycatcher Ficedula hypoleuca). Others are established intra-African migrants in Nigeria (Paradise Flycatcher Terpsiphone viridis, Snowy-headed Robin-Chat Cossypha niveicapilla, Red-shouldered Cuckoo-Shrike Campephaga phoenicea, Variable Sunbird Nectarinia venusta) (Fry 1971, Elgood, Fry & Dowsett 1973). Many of the other species are likely to be migratory too, which is suggested for some by the speed with which they have re-invaded tsetse-sprayed areas (Koeman et al. 1971 and Koeman, pers. comm.).

THE SPECIES

From the foregoing it will be clear that a particular species is unlikely to be a 'kurmi bird' at all places and all seasons. But in North Central State in the late dry season the 30 species listed in Table 1 are quite typical of that habitat, some (Blue-breasted Kingfisher Halcyon malimbica, Wattle-eye Platysteira cyanea, Blue Flycatcher Trochoercus longicauda, White-crowned Robin-Chat Cossypha albicapilla, Oriole Warbler Hypergerus atriceps, Green-headed Sunbird Nectarinia verticalis) more distinctively so than others (Violet Turaco, Olive Thrush).

The list is thought to be exhaustive of kurmi species in this area and season; other (migratory) species may occur in and be practically restricted to kurmis at other seasons.

Table 1. Northern limits of kurmi birds in North Central State

	Danbagnudu 10° 19'	Lat. N				Other records north of 10° N in Nigeria *
	Anara 10° 44'	Dunbi 10° 50'	Gubuchi 11° 12'	Mazaure 11° 32'		
Blue-spotted Wood-Dove	o					
Green Pigeon	o					
Violet Turaco	o	o	o	o	1,8,9,15,17,18	
Guinea Turaco	o					
Blue-breasted Kingfisher	o	o	o	o	3,5,8	
African Wood-Owl	o					
Cardinal Woodpecker	o	o			2,8,9,14	
Blackcap Babbler	f	o	o	o	5,7	
Yellow-thr. Leaf-love	c	o	o		1,5,8,10 (rains)	
Leaf-love	o	o				
Pied Flycatcher	o	o	o		5	
Wattle-eye	f	c		o	3,5,8	
Blue Flycatcher	c	o			formerly 6; 9	
Paradise Flycatcher	o	f	o	o	8,9,12,13,19 (rains),20	
Olive Thrush	o	o	f	o	4,8,9,16	
White-crowned Robin-Chat	c-f	o			2,3,8	
Snowy-headed Robin-Chat	o	o	o	o	5,9,16,20	
Grey-winged Robin-Chat					3	
Yellow-chested Apalis		o	o			
Oriole-Warbler	o	o	o	o	3,5,8	
Red-faced Cisticola	o			o	5	
Red-should' Cuckoo-Shrike	o		o	o	6,8,9,11,16	
Square-tailed Drongo	o	o	o			
Tropical Boubou	o	o				
Splendid Sunbird	o					
Variable Sunbird	c	c	f		1,16 (rains), 21	
Green-headed Sunbird	f	o	f		3,5	
Violet-backed Sunbird	o	o	o		1, near 7 (11° 20' N)	
Black-necked Weaver	o	o	o		5	
Grey-headed Olive-back	o			o	1,3	

c = common; f = frequent; o = observed

- | | |
|--|--|
| * 1 Kari 10° 43'N, 08° 55'E | 6 Samaru 11° 08'N, 07° 37'E |
| 2 Ririwai 10° 43'N, 08° 45'E | 7 Shika 11° 11'N, 07° 33'E |
| 3 Old Birnin Gwarri 11° 01'N, 06° 47'E | 8 Aliya 11° 15'N, 10° 45'E |
| 4 Bunga 11° 04'N, 09° 38'E | 9 Komadugu Gana R., 10° 15'N, 10° 10'E |
| 5 Zaria For. Res. 11° 07'N, 07° 44'E | 10 Birnin Kudu 11° 25'N, 09° 30'E |

NOTES ON SPECIES

BLUE-SPOTTED WOOD-DOVE Turtur afer Likely to occur further north than Anara. Great interest attaches to the relationship of this dove with its sibling species T. abyssinica, which has the same song, habits and plumage. In Anara Forest Reserve the two species have discrete habitats but live within metres of each other.

AFRICAN WOOD-OWL Ciccaba woodfordi Identified only by voice : several were calling at Danbagudu all night long. I learnt the call of this species in Kenya in 1972, and any doubts that I had at Danbagudu were immediately dissipated when I listened to a recording by Keith (1971) in April 1975. I believe this is the first record from 'Northern Nigeria'.

GREY-WINGED ROBIN-CHAT Cossypha polioptera Not recorded during the present survey, but included on the strength of a bird netted at Old Birnin Gwarri in 1964 (Fry 1965).

Records of the above three species and of the Green Pigeon Treron australis, Guinea Turaco Tauraco persa, Tropical Boubou Laniarius ferrugineus and Splendid Sunbird Nectarinia coccinigaster, made during this field study, represent substantial extensions of range to the north.

DISCUSSION

Some of the records in the final column of Table 1 refer to the wet season, and thus are not entirely comparable with my dry-season records from the five kurmis I investigated. The following Table shows the numbers of species at each of the five kurmis (A), with the numbers that

Table 2.

	Danbagudu	Anara	Dunbi	Cubuchi	Mazaure	More northerly records
(A)	26	23	16	11	1	/
(B)	30	27	21	19	8	

Table 1 legend cont./

11 Dan Gora For. Res.	11°34'N, 08°11'E	17 Biban Baki	12°30'N, 05°15'E
12 Maburtata	11°47'N, 10°43'E	18 Caya For. Res.	12°30'N, 08°48'E
13 Maiduguri	11°49'N, 13°09'E	19 Kazaure	12°39'N, 08°25'E
14 Gadau	11°50'N, 10°12'E	20 Sokoto	13°03'N, 05°15'E
15 Maska	11°50'N, 07°23'E	21 Malamfatori	13°37'N, 13°23'E
16 Kano	12°00'N, 08°32'E		

Observers : 1,2,3,12,14 P.Blasdale; 8 Rijkse & Koeman (1970); 13 P.Ward; 16,18,19 R.E.Sharland; 21 A. & J.Hopson; remainder CHF.

might be expected by adding those species with other more northerly records than mine (B). I have made no attempt to correct the figures in (B) to allow for the well-known shifts to north or south of the vegetation zones at various longitudes, and so the values are gross only. They suggest, however, a marked diminution in the number of essentially southern species in the avifauna at a latitude between those of Gubuchi ($11\frac{1}{4}^{\circ}$ N) and Mazaure ($11\frac{1}{2}^{\circ}$ N). Since at this longitude the border between the Guinea and Sudan savanna zones falls at approximately $11^{\circ} 25'$ N (and continues about the level $11-11\frac{1}{2}^{\circ}$ N across much of northern Nigeria), values (B) in Table 2 indicate what was to be anticipated, that the northerly limits of most of the 'Northern Guinea savanna kurmi' species of birds fall at or somewhat south of the interface between that zone and Sudan savanna. The seven kurmi birds that have been recorded north of $11\frac{1}{2}^{\circ}$, incidentally, are nearly all highly migratory.

Acknowledgements

My interest in kurmis and their birds was aroused upon visiting, at the invitation of Dr J. Koeman of Wageningen Agricultural University, Holland, his students Mr H. de Jongh and Ms P. Spliethoff at Danbagudu. Here they were evaluating the effects upon wildlife of experimental tsetse spraying operations, and I am most grateful for their kindness and hospitality during both of my visits. Ms Beryl Turner of Ahmadu Bello University kindly provided me with maps and information about the kurmis. I am grateful for the companionship and help in the field of Ms M.E.Gartshore, Dr Jane Huff and Mr David Johnson, and I thank Professor B.J.Harris for allowing me the use of facilities (particularly transport) at A.B.U. Dept. of Biological Sciences.

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Appendix

During the kurmi field studies some scarce species were noted in adjacent mature savanna woodland, as follows :

- SMALLER BANDED HARRIER-EAGLE Circaetus cinerascens. One, Danbagudu, 10 Feb.
- EUROPEAN TURTLE-DOVE Streptopelia turtur. 35-50, Galma R. by Gubuchi.
- ADAMAWAU TURTLE-DOVE S. lugens. Several pairs and singles seen at Danbagudu and Kufana, in kurmis and farm parkland (CHF, Ms M.E. Gartshore, Mr H. de Jongh, Ms P.Spliethoff. Identified by plumage features and by the distinctive song, heard once. A notable westward extension of range.
- RED-FACED LOVEBIRD Agapornis pullaria. One, brought in freshly dead, Danbagudu, 20 Febr.
- GREY-RUMPED SWALLOW Hirundo griseopyga. c.7 over a burnt fadama by the Galma R. near Gubuchi.
- WHITE-THROATED CUCKOO-SHRIKE Coracina pectoralis. 3, Danbagudu; 1+, Anara.
- YELLOW-BELLIED FLYCATCHER Hyliota flavigaster. Scarce, Danbagudu, Anara.
- GREY TIT-FLYCATCHER Myioparus plumbeus. Three separately, Anara.
- VIOLET-TIPPED COURSER Cursorius chalcopterus. One, Danbagudu, 20 Feb.

Systematic names not already given in the text (Table 1)

Cardinal Woodpecker Dendropicos fuscescens, Leaf-love Phyllastrephus scandens, Yellow-chested Apalis flavida, Oriole Warbler Hypergerus atriceps, Red-faced Cisticola Cisticola erythrops, Square-tailed Drongo Dicurus ludwigii, Tropical Boubou Laniarius ferrugineus, Violet-backed Sunbird Antheptes longuemarei, Black-necked Weaver Ploceus nigricollis, Grey-headed Oliveback Nesocharis capistrata.

NOTES ON THE BREEDING OF THE KAKELAAR AT LEGON, GHANA

by L.G.Grimes

Received 1 May 1975

The Kakelaar Phoeniculus purpureus is locally distributed in the more wooded savannas of coastal areas of eastern Ghana, where the rainfall is low and erratic (average annual rainfall is in the range 30-50 inches) and double peaked, with a major one in May and June and a minor one in September and October. In the 1940's J.R.Marshall lived a few miles west of Legon (05° 63' N, 00° 19' W) at Achimota College, where parklands and wooded residential areas were under development, and he only recorded it (Bannerman 1951, p.306) in the period December to April when little rain falls. Legon was open savanna with few trees, and the Kakelaar probably rarely occurred there. In contrast both areas to-day have well-developed parklands, residential areas and botanical gardens, and a copious supply of mature trees. These provide nest sites for Kakelaars and there is an ample supply of food for them throughout the year. As a result it is now resident, and there is no evidence that any coastal movement occurs through the area (Mackworth-Praed & Grant 1970, p. 472), although it may have done so in the early 1940's.

Breeding data for one group of Kakelaars are given in Table 1, which extends the known breeding information of the Kakelaar in West Africa. Other data for other groups obtained at Achimota are in agreement with these. At Legon a breeding season cannot be defined, for breeding (eggs and/or young present) has occurred in each month of the year. Whether this is generally true for West Africa or simply reflects the localised hospitable conditions of Legon and Achimota awaits confirmation. Although the incubation and fledgling times are not known, the observations at Legon suggest that they both may cover a period of just over two months, with two to three month intervals or less between broods. All data in Table 1 apart from those of May to July 1972 refer to one nest site first found in 1969 and still being used in 1975. It was located in a cavity formed by the matted aerial roots of the fig tree Ficus thonningii. In May 1972 the group nested under the roof of a house some 200 yards from the fig tree. Two groups at Achimota regularly nested under a roof and another group at Legon nested in the wooden housing of an unused air-conditioner mounted 20 ft. above the ground.

The co-operative breeding of the Kakelaar is well documented for the South African race (Rowan 1970, p. 257) and this is probably its normal breeding behaviour throughout its range in Africa. At Legon each group forages over a large area and although a territorial boundary is ill-defined, territorial disputes involving all members of a group do occur when two groups meet. Mutual allopreening occurs regularly, but I have not been able to detect any peck order since only two birds have been

Table 1. The months in which one group of Kakelaars bred at Legon, Ghana*

	Jan	Feb	Jan	Feb	Mar	Apr	May	Jun	Jly	Aug	Sep	Oct	Nov	Dec
1970						o	o	o						
1971									o	o	o			
1972		o	o	o			o	o	o		o	o	o	
1973					o	o	o		o	o	o			o
1974		o	o											

*Regular records were kept only from July 1971 to early 1974.

colour ringed. Only one female in a group breeds, and there is no evidence to support the statement in Mackworth-Praed & Grant that several nests may be found close together. In 1972 the breeding group at Legon numbered three, and it increased to six by early 1973, to seven by late December 1973, and eight or nine by February 1974; mainly as far as I could judge through surviving offspring. Two adults, both considered males by their size, one ringed in early 1972 and the other in 1973, were still with the group in early 1975. At Achimota a group consisted of seven adults (red or partly red bills) and one immature (black bill). These were found in March 1972 when they were attending young which were evidently quite large judging from the noise, although they remained a further 24 days in the nest hole. Feeding rates (Table 2) were 3-4 times higher than those recorded by Rowan (1970), but the young she had

Table 2. Average feeding rates at a nest of Kakelaars attended by seven adult and one immature bird

Date	Days prior to departure from nest	Period of observation	Number of feeds / hour
22 Feb	24	1000 - 1200	22
25 Feb	21	0800 - 0920	28
3 Mar	14	0700 - 0900	31
8 Mar	9	0640 - 0900	23

under observation were evidently very small. The breeding female often successfully begged for food as an incoming bird, including the immature, came to feed the young, and then proceeded to feed the young herself (for details of the soliciting display see Rowan 1970). Others, however, ignored her cries and continued their flight path into the nest entrance. This was under the eaves of a roof but food could be passed to the young and to the female through a crack in the slates. The immature bird and one older bird, which had a dull red beak with black tip and probably was an offspring of the previous brood, persistently failed to locate the crack although excited by the cries of the nestlings and the soliciting female. The older bird also found it difficult to locate the entrance under the eaves. Throughout my observations this inefficiency persisted in the immature bird, and although it presumably gained in experience, its usefulness as a helper to the group is questioned. It also occasionally begged for food but was never fed. Food items included small lizards, spiders, caterpillars, and preying mantises. Although none of the groups have been collected, differences in size and behaviour suggest that helpers are of both sexes and not just males (Rowan 1970).

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THE NEW NIGERIAN CHECK-LIST

by J.H.Elgood

Received 22 August 1975

Thanks to the encouraging response from members of the Society to my earlier request for information towards the Check-List, it will now be a much more accurate statement of present knowledge about Nigerian birds. I am most grateful to everyone who has contributed such information. New observations continue to arrive, two species on the Obudu Plateau having been added to the Nigerian list very recently. In fact it is inevitable that the Check-List will be a little out-of-date when it is eventually published; but as a publication date is not even foreseeable, I hope that Members will continue to send me their data.

The present brief article is intended to be an interim statement, a comparison of the new list with my original one (Elgood 1964), and an indication of those areas where new information is most urgently wanted.

Nomenclatural changes

The adoption of White's nomenclature (1960-1963) for the new list, as opposed to Bannerman's (1953) (alone available in 1964 when the first list was published), means that direct comparison of names is difficult. But Mr Roy Parker's most useful manuscript, circulated to members* of

*Written before Mr J.B.Heigham's paper was circulated (see p.55) - Ed.

the Society in 1970, clearly sets out the name changes involved and also shows the transfer of a number of passerine species to a different family, that resulted from the adoption of White's arrangement. White's nomenclature is employed below, but reference either to Parker or to the forthcoming paper by Heigham on comparative nomenclatures should make it clear which species are meant.

The first problem posed by using White's nomenclature is the apparent deletion of some species, given separate specific status by Bannerman but regarded by White only as subspecies; these cases are :-

<u>Demigretta gularis</u>	merged in	<u>Egretta garzetta</u>
<u>Cuculus gularis</u>	"	<u>C. canorus</u>
<u>Otus senegalensis</u>	"	<u>O. scops</u>
<u>Tricholaema flavipunctata</u>	"	<u>T. hirsutum</u>
<u>Terpsiphone melampyra</u>	"	<u>T. viridis</u>
<u>Terpsiphone tricolor, T. nigri-</u> <u>ceps and T. smithii</u>	"	<u>T. rufiventris</u>
<u>Hirundo lucida</u>	"	<u>H. rustica</u>
<u>Motacilla aguimp</u>	"	<u>M. alba</u>
<u>Anthus bannermani</u>	"	<u>A. similis</u>
<u>Dicrurus modestus</u>	"	<u>D. adsimilis</u>
<u>Sylvietta flaviventris</u>	"	<u>S. virens</u>

In addition, all combassous Hypochera (five species in my 1964 list) have been merged into the single species H. chalybeata. In most instances the merged forms are regarded by White as distinct subspecies and will receive separate treatment in the Check-List.

Deletions from the 1964 list

Happily there are few cases of removal of species from the 1964 list, and of course new information may relieve such deletions. Formerly there were no substantiated records of Ceyx lecontei in Nigeria, but this year two were netted by Mr D. Johnson at Benin (J. Heigham, pers. comm.) which saves the bird from removal. The following species will probably be deleted :-

Anas platyrhynchos Despite Bannerman's assertion that the species "must occur in Nigeria", no evidence of its occurrence has been traced.

Apus horus Formerly included on the strength of a sight record by Miss K. Dobbs from Sokoto, but unconfirmed, unlikely, and there are no other records from West Africa.

Cisticola troglodytes)
C. brunescens) Both were formerly listed as dubious and are now removed, being entirely unsubstantiated and not yet known to occur west of eastern Cameroun.

Anthreptes aurantium Formerly included because Bannerman quoted a record from near Owo as "due to the vigilance of Mr and Mrs H.F.Marshall". But Sir Hugo Marshall, in response to my request for information, said that he has reason to doubt the validity of the record. Inspection of the skin at the Natural History Museum, Tring, revealed that it had already been re-identified as A. longuemarei, with which determination I concur. The specimen is a female, and females are difficult to differentiate.

To this list may be added Ammonanes deserti, not included in my 1964 list but added by Parker. I can find no grounds for its inclusion and am not at present proposing to list it.

It may also be mentioned here that Parker listed Hirundo fuliginosa, a lowland forest species not yet known west of southern Cameroun, whereas my list included Psalidoprocne fuliginosa, a montane swallow known from the Cameroun highlands and Fernando Po and sighted by myself on the Obudu Plateau, where its presence has recently been confirmed by Mr T. Russell-Smith. I think possibly Parker may have confused the two species.

Additions to the 1964 list

There have been about 40 additions to the earlier list, many of which have already received mention in this journal. An early claim for the inclusion of Indicator maculatus (Button 1965) has unfortunately been invalidated as a 'first' for Nigeria since my research has revealed a skin in the British Museum collection, taken in 1937 by Ffoulkes-Roberts at Ondo. My apologies to John Button for the oversight that caused the omission of this species from the 1964 list. As already mentioned by Parker, contrary to the general tendency by White to 'lump' species, an addition occurs through the 'splitting' of Indicator exilis, with both I. exilis and I. willcocksii now appearing in the Nigerian list. A hidden addition is the Red-backed Shrike Lanius collurio collurio, collected at Lagos by John Gee. Since White merges the former L. isabellinus with L. collurio, this would seem to be a name change and not an addition of a subspecies of special Palaearctic interest, in that this migrant moves into southern Africa mainly to the east of Lake Chad. Nigeria can therefore only expect the odd straggler.

The following table shows the additions to the avifauna since 1964, with the original locality, observer and date. An asterisk denotes a sight record and + signs denote subsequent encounters. It will be realised that several of the records antedate the 1964 list, when they had not however yet come to my attention.

*Anser albifrons +	Zaria	N.Gower	Feb.'73
*Anas sparsa ++	Mambila Plateau	P.Hall	Sep.'74
*Buteo rufinus ++++	Malamfatori	A.Hopson	Dec.'64
*Falco subbuteo +++	Borgu Game Res.	Wells & Walsh	Oct.'65
Sarthrura rufa	Ilorin	Boughton-Leigh	()
S. bohmi	Ife	R.Farmer	Feb.'68
*Neotis nuba	Udubo-Cadua rd.	P.Blasdale	May '59
*Phalaropus fulicarius	Lagos	Brown & Heigham	Mar.'73
*Haematopus ostralegus ++	Bonny R.mouth	P.A.Smith	Aug.'66
Charadrius leschenaultii	Malamfatori	R.J.Dowsett	Aug.'68
C. asiaticus	Kano	R.E.Sharland	Nov.'53
*Tringa flavipes ++	Lagos	D.I.M.Wallace	Feb.'69
*Limicola falcinellus +	Malamfatori	Dowsett & Parker	Aug.'68
*Stercorarius skua	Lagos	D.I.M.Wallace	Jan.'71
*S. pomarinus ++	Lagos	D.I.M.Wallace	Aug.'69
*S. longicaudus	Lagos	G.Pettitt	Dec.'67
*Larus genei	Lagos	D.I.M.Wallace	Jan.'70
*L. sabini ++	Lagos	D.I.M.Wallace	Nov.'67
*L. argentatus +	Lagos	D.I.M.Wallace	Feb.'69
*L. minutus ++	Lagos	D.I.M.Wallace	Jan.'69
*Sterna bergii	Lagos	D.I.M.Wallace	Feb.'69
Asio flammeus	near Lake Chad	Boyd Alexander	Dec.'04
Caprimulgus europaeus ++	Ibadan	Sir Hugo Marshall	Dec.'44
*Chaetura melanopygia +	near Benin	J.B.Heigham	Mar.'75
Apus barbatus	Obudu Plateau	R.Parker(C.Sibley)	Mar.'61
Indicator willcocksi ++	Tatara (Bannerman, BBC 49 1928)		Apr.'74
Jynx ruficollis +	Mambila Plateau	P.Ward	-
Dendropicos poecilolaemus	Serti	P.Hall	Sep.'74
Indicator maculatus	Ondo	Ffoulkes-Roberts	Aug.'37
Lanius collurio collurio	Lagos	J.Gee	Nov.'70
Locustella luscinioides ++	Malamfatori	Ash,F-Lees & Fry	Mar.'67
L. naevia	Ilorin	R.Axell	Jan.'75
Acrocephalus palustris +	Kano	R.E.Sharland	Oct.'62
A.dumetorum ++	Malamfatori	Ash,F-Lees & Fry	Mar.'67
Hippolais olivetorum	Kano	R.E.Sharland	Oct.'71
Sylvia nisoria	Malamfatori	R.J.Dowsett	Oct.'68
S. mystacea	Kano	R.Best	Apr.'74
*Cisticola hunteri	Obudu Plateau	T.Russell-Smith	Dec.'74
Batis orientalis +	Malamfatori	J.Button & Hopsons	Jan.'66
Ploceus baglafaecht +	Mambila Plateau	P.Hall	Oct.'74
*P. bannermani	Obudu Plateau	T.Russell-Smith	Dec.'74
Clytospiza monteiri ++	Abong, NE State	P.Ward	-

(*) undated feathers, not a complete skin, in the Brit.Mus.nat.Hist. collection. Additional notes : Acrocephalus dumetorum - the taxonomy of the Lake Chad population is controversial (see Fry, Williamson & Ferguson-Lees 1974 and Clancey 1975). Sylvia mystacea - see p. 85).



The problem of sight records

The question as to which species are finally accepted for inclusion in the Check-List is obviously difficult for those species not validated by Nigerian skins. Sight records of birds that through size or colouration are readily distinguishable in the field are acceptable, particularly when supported by a second observer and when encountered more than once. Clearly, netted and held-held specimens can almost always be accepted, although in some cases a confirmatory photograph would be a great help. However, there remains a considerable number of sight-recorded species for which I still hope that some observers may be able to provide the information that will improve their status. In addition to those species asterisked in the list on p. 71, the following birds have sight records only and ideally require substantiation :-

Procellaria grisea
Oceanites oceanicus
Sula leucogaster
Ciconia nigra
Platalea leucorodia
Hieraaetus spilogaster
H. pennatus
H. dubius
Falco vespertinus
F. neumanni
Fulica atra
Anthropoides virgo
Burhinus oediconemus
Pluvialis dominicus
Charadrius alexandrinus

Limosa lapponica
Arenaria interpres
Calidris canutus
C. alpina
Larus ridibunda
Anous stolidus
Sterna nilotica
S. hybrida
Poicephalus robustus
Pachycoccyx audeberti
Apus melba
A. aequatorialis
Chaetura sabini
C. cassini
Pogoniulus coryphaeus

Melichneutes robustus	Muscicapa epulata
Riparia cincta	M. olivascens
Motacilla clara	Remiz punctifrons
Lanius mackinnoni	Serinus burtoni
Corvus ruficollis	Ploceus ocularis
Oenanthe deserti	Mesocharis ansorgei
O. leucopygia	
Mymecocichla nigra	Cossypha heuglini (placed apart as a
Turdus princei	more dubious claim)

Many of these are quite well supported, with several observations by more than one person, but if anyone has handled a corpse, netted or photographed, obtained a breeding record, or even recently sighted any of these, it might tip the scales in favour of admitting the species in question if they would kindly inform me.

Breeding records

The position with regard to breeding records is much less favourable; there are some 170 species (exclusive of non-breeding migrants) for which I have no proof of breeding in Nigeria. The list is too long to append, and any information on breeding will be most gratefully received.

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MIXED NESTING COLONIES OF Quelea quelea AND Quelea erythroptera

IN THE LAKE CHAD BASIN

by P.O. Park

Received 8 August 1975

INTRODUCTION

The Red-billed Quelea quelea, one of the most destructive grain-eating bird pests in Africa because of its huge numbers, exists in all semi-arid zones of the Sub-Sahara, east, central and southern Africa. The Lake Chad basin, including North Eastern State, Nigeria, has long suffered attacks on rice, sorghum and millet. Nesting occurs in Acacia scrub near the lake and elsewhere.

The Red-headed Quelea erythroptera also causes losses to rice, in the more humid areas, for example in the East Central State (latitudes 6-7° N approx.), and it is known to nest there, in colonies in elephant grass, in September. Adegoke (unpubl.) and Barré, Nortoli, Ndiaye & Park (1974) have reported a small colony where the two species were found nesting side by side, much further to the north at Madelhout, Cameroun, 12° 00' N, 14° 40' E. A similar colony in Chad is the subject of this note.

Communal nesting by the two species has also been reported from Tanzania (Burke 1960).

SITUATION

Approximately 100 nests, each attached to two stems of wild sorghum Sorghum lanceolatum in a partially-flooded area of about 100m² were immediately adjacent to a small (2 ha) colony of Q. quelea established in Acacia sayel and Ziziphus scrub. The site was at Dougui Magueta, 12° 20' N, 15° 08' E, about 55 km northeast of that recorded by Barré et al.

IDENTIFICATION

The nests, somewhat resembling those of Q. quelea, were first recognised from the description of Barré et al. - ovoid, the longer axis approximately 11 cm, evenly and densely woven, unlined, with a side opening just under the roof. Confirmation of identification of the nests was by sighting a few males in breeding plumage and a number of females which occasionally visited the nests.

STATE OF DEVELOPMENT

The blue eggs were incubating when first discovered, and hatching occurred, in fairly close synchronisation with the Q. quelea alongside, around 25 September 1974.

DISCUSSION

Bortoli et al. (cited by Barré et al., 1974) reported large-scale breeding of G. erythrope at latitude 15° N in north-west Mali, by birds which had apparently migrated northwards from more humid areas. Dr P. Ward (pers. comm.) has mentioned a similar colony in the Potiskum area of Nigeria some years ago. However, no such single-species large colonies of Q. erythrope have yet been reported from the Lake Chad basin.

This mixed colony in Chad, and that in Cameroun described by Barré et al. raise interesting questions on how the small numbers of Q. erythrope might have become associated with the larger numbers of Q. quelea.

The latter species is known to migrate 300-400 km southwards from the Lake Chad basin at the beginning of the rains in June-July (Ward 1965, Jackson 1974), and to return northwards later to breed around September. Vielliard (1972) has reported Q. erythrope in breeding condition at Moundou (about 08° 30' N) in mid July. Thus it seems possible that the two gregarious species could become associated at this period and evidence for this was obtained in 1975 when small mixed flocks were observed 15 km north-west of Moundou on 22 July. Given suitable conditions of semi-inundated grassland alongside thorn bush, other mixed nesting colonies are likely to be found in the Chad basin. It is also possible that Q. erythrope, as well as Q. quelea, may occasionally be involved in attacks on flood rice at the end of the rains in this area, although no such reports have been received so far.

Acknowledgements

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BIRDS OF YANKARI GAME RESERVE, NIGERIA

by M. Dyer and M.E.Gartshore

Received 24 September 1975

As an addendum to her comprehensive and excellent survey of Yankari Game Reserve, North Eastern State, Nigeria, Sikes (1964) published a list of 56 species of birds recorded from various sources dating back to 1956; but no other lists have, to our knowledge, been published subsequently.

Between December 1974 and March 1975 the authors and C.H.Fry spent a total of 15 days in Yankari, recording 173 species. The habitats visited in the Reserve over this period were principally those adjacent to the Gaji River (56 km being covered on foot) and areas that could be driven to by road.

We give below a list of the species recorded by ourselves and by Sikes (1964) within the confines of the Reserve, incorporating also the unpublished notes of J.H.Elgood, C.H.Fry and J.B.Wood. The list numbers rather over 210 species, nearly all observations having been made in the dry season. Visitors to Yankari in the wet season are likely to encounter many additional birds, and we expect that about 400 species will eventually be recorded as regular in the Reserve. Observers are invited to submit new records to The Bulletin.

The list follows the sequence of Mackworth-Praed & Grant (1970-1973) and the nomenclature is that of White (1960-1963). Notations are as follows :-

br - has been recorded breeding

* - see appended note

a - commonly seen throughout the Reserve in large numbers

c - seen regularly in small numbers

u - not common, seen in small numbers in scattered localities

o - seen rarely; only one or two individuals recorded

(no abundance symbol is given for those birds which we did not ourselves observe.)

Struthionidae

*Ostrich *Struthio camelus*

Phalacrocoracidae

Long-tailed Cormorant *Phalacrocorax africanus*

Darter *Anhinga rufa*

Pelecanidae

Pink-backed Pelican *Pelecanus rufescens*

Ardeidae

Grey Heron *Ardea cinerea* c

Black-headed Heron *A. melanocephala* u

Goliath Heron *A. goliath* u

Purple Heron *A. purpurea* c

Great White Heron *Egretta alba* c

Yellow-billed Egret *E. intermedia* u

Little Egret *E. garzetta* u

Cattle Egret *Ardeola ibis* a

Squacco Heron *A. ralloides* c

Green-backed Heron *Butorides striatus* c

Night Heron *Nycticorax nycticorax* u

Scopidae

Hammerkop *Scopus umbretta* c

Ciconiidae

Woolly-necked Stork *Ciconia episcopus* o

Abdim's Stork *C. abdimii* u

Open-bill *Anastomus lamelligera* o

Saddle-bill *Ephippiorhynchus senegalensis* c

Marabou *Leptoptilus crumeniferus* c

Wood Ibis *Ibis ibis*

Threskiornithidae

Sacred Ibis *Threskiornis aethiopicus* u

Hadada *Hagedashia hagedash* c

Glossy Ibis *Plegadis falcinellus*

Anatidae

White-faced Tree-Duck *Dendrocygna viduata*

Pygmy Goose *Nettapus auritus*

Knob-billed Goose *Sarkidiornis melanotus*

Spur-winged Goose *Plectropterus gambensis* u

Sagittariidae		
*Secretary Bird	Sagittarius serpentarius	
Accipitridae and Falconidae		
Ruppell's Griffon	Gyps ruppellii	a
White-backed Vulture	G. benghalensis	c
Lappet-faced Vulture	Aegyptius tracheliotus	
White-headed Vulture	Trionocephs occipitalis	o <u>br</u>
Hooded Vulture	Neophron monachus	u <u>br</u>
Hobby	Falco subbuteo	o
Red-necked Falcon	F. chicquera	u
Kestrel	F. tinnunculus	c
Fox Kestrel	F. alopex	o <u>br</u>
Grey Kestrel	F. ardosiaceus	u
Kite	Milvus migrans	u <u>br</u>
Tawny Eagle	Aquila rapax	u
Wahlberg's Eagle	A. wahlbergi	u
African Hawk-Eagle	Hieraaetus spilogaster	o
Martial Eagle	Polemaetus bellicosus	o
Lizard Buzzard	Kaupifalco monogrammicus	c
Short-toed Eagle	Circaetus gallicus	o
Grasshopper Buzzard	Butastur rufipennis	u
Bateleur	Terathopius ecaudatus	c
Fish Eagle	Haliaetus vocifer	u
Palm-nut Vulture	Gypohierax angolensis	c
Red-necked Buzzard	Buteo auguralis	u
Shikra	Accipiter badius	c
Gabar Goshawk	Melierax gabar	u
Dark Chanting Goshawk	M. metabates	u
Harrier-Hawk	Polyboroides radiatus	c
Phasianidae		
White-throated Francolin	Francolinus albogularis	<u>br</u>
Double-spurred Francolin	F. bicalcaratus	c
Stone-Partridge	Ptilopachus petrosus	c
Guinea-fowl	Numida melagris	a <u>br</u>
Rallidae		
African Crake	Crex egregia	
Black Crake	Limnecorax flavirostra	u
Lesser Moorhen	Gallinula angulata	
Helionithidae		
Finfoot	Podica senegalensis	
Gruidae		
Crowned Crane	Balearica pavonina	
Otididae		
Arabian Bustard	Otis arabs	
Denham's Bustard	Netis denhami	<u>br</u>
Senegal Bustard	Eupodotis senegalensis	
Black-bellied Bustard	E. melanogaster	
Burhinidae		
Senegal Thick-knee	Burhinus senegalensis	o
Jacaniidae		
Jacana	Actophilornis africana	u

Charadriidae		
Spur-winged Plover	Vanellus spinosus	c
White-headed Plover	V. albiceps	
Wattled Plover	V. senegallus	<u>br</u>
Black-headed Plover	V. tectus	u
Great Snipe	Gallinago media	u
Common Sandpiper	Tringa hypoleucos	u
Green Sandpiper	T. ochropus	c
Wood Sandpiper	T. glareola	c
Greenshank	T. nebularia	
Glareolidae		
Egyptian Plover	Pluvianus aegyptius	
Pteroclididae		
Four-banded Sandgrouse	Pterocles quadricinctus	<u>br</u>
Columbidae		
Speckled Pigeon	Columba guinea	c
*Adamawa Turtle-Dove	Streptopelia lugens	
Red-eyed Dove	S. semitorquata	c
Vinaceous Dove	S. vinacea	c
Laughing Dove	S. senegalensis	c
Namaqua Dove	Oena capensis	u
Black-billed Wood-Dove	Turtur abyssinicus	a
Bruce's Green Pigeon	Treron waalia	c
Green Pigeon	T. australis	
Cuculidae		
Cuckoo	Cuculus canorus gularis	
Senegal Coucal	Centropus senegalensis	c
Musophagidae		
Violet Turaco	Musophaga violacea	c
Grey Plantain-eater	Crinifer piscator	u
Psittacidae		
Yellow-bellied Parrot	Poicephalus senegalus	c
Rose-ringed Parakeet	Psittaculus krameri	u
Coraciidae		
Abyssinian Roller	Coracias abyssinica	c
Rufous-crowned Roller	C. naevia	u <u>br</u>
Blue-bellied Roller	C. cyanogaster	u
Alcedinidae		
Pied Kingfisher	Ceryle rudis	c
Giant Kingfisher	C. maxima	u
Malachite Kingfisher	Alcedo cristata	o
Pygmy Kingfisher	Ceyx picta	u
Woodland Kingfisher	Halcyon senegalensis	c
Blue-breasted Kingfisher	H. malimbica	u
Grey-headed Kingfisher	H. leucocephala	c
Striped Kingfisher	H. chelicuti	
Meropidae		
*Little Green Bee-eater	Merops orientalis	
Carmines Bee-eater	M. nubicus	u
*Red-throated Bee-eater	M. bulocki	a <u>br</u>
Swallow-tailed Bee-eater	M. hirundineus	u

Bucerotidae			
Grey Hornbill	Tockus nasutus		c
Red-billed Hornbill	T. erythrorhynchus		c
Ground Hornbill	Bucorvus abyssinicus		o <u>br</u>
Upupidae			
Hoopoe	Upupa epops		u
Green Wood-Hoopoe	Phoeniculus purpureus		<u>br</u>
Black Wood-Hoopoe	P. aterrimus		o
Strigidae			
Scops Owl	Otus scops senegalensis		c
Pearl-spotted Owlet	Glaucidium perlatum		c
Fishing Owl	Scotopelia peli		u
Caprimulgidae			
Standard-winged Nightjar	Macrodipteryx longipennis		u
Capitonidae			
Bearded Barbet	Lybius dubius		u
Vieillot's Barbet	L. vieilloti		u
Yellow-fronted Tinkerbird	Pogoniulus chrysoconus		c
Indicatoridae			
Black-throated Honeyguide	Indicator indicator		c
Picidae			
Fine-spotted Woodpecker	Campethera punctuligera		u
Cardinal Woodpecker	Dendropicos fuscescens		u
Grey Woodpecker	Mesopicos goertae		u
Apodidae			
Little Swift	Apus affinis		c
Palm Swift	Cypsiurus parvua		c
Mottle-throated Spinetail	Chaetura ussheri		
Alaudidae			
Flappet Lark	Mirafraga rufocinnamomea		
Crested Lark	Galerida cristata		<u>br</u>
Chestnut-back Sparrowlark	Eremopterix leucotis		
Motacillidae			
Yellow Wagtail	Motacilla flava		
Timaliidae			
Brown Babbler	Turdoides plebejus		a
Black-cap Babbler	T. reinwardii		c
Pycnonotidae			
White-vented Bulbul	Pycnonotus barbatus		c
Yellow-throated Leaf-love	Chlorocichla flavicollis		u
Muscicapidae			
Swamp Flycatcher	Muscicapa aquaticus		o
Grey Tit-Flycatcher	Myioparus plumbeus		c
Black Flycatcher	Melaenornis edolioides		u
Sen. Puff-back Flycatcher	Batis senegalensis		c
Wattle-eye	Platysteira cyanea		o
Paradise Flycatcher	Terpsiphone viridis		u
Turdidae			
Olive Thrush	Turdus pelios		c
White-fronted Black Chat	Myrmecocichla albifrons		u
Wheatear	Oenanthe oenanthe		

	Whinchat	<i>Saxicola rubetra</i>	
	White-crowned Robin-Chat	<i>Cossypha albicapilla</i>	o
Sylviidae			
	reed warbler	<i>Acrocephalus</i> sp.	
	Willow Warbler	<i>Phylloscopus trochilus</i>	
	Wood Warbler	<i>P. sibilatrix</i>	
	Crombec	<i>Sylvietta brachyura</i>	u
	Smaller Green-backed Eremomela	<i>Eremomela pusilla</i>	u
	Grey-backed Camaroptera	<i>Camaroptera brevicaudata</i>	u
	Oriole Warbler	<i>Hypergerus atriceps</i>	o
	Black-backed Cisticola	<i>Cisticola eximia</i>	
	Winding Cisticola	<i>C. galactotes</i>	c
	Moustache-Warbler	<i>Melocichla mentalis</i>	u
	Tawny-flanked Prinia	<i>Prinia subflava</i>	c
Hirundinidae			
	Swallow	<i>Hirundo rustica</i>	c
	Ethiopian Swallow	<i>H. aethiopica</i>	c
	Pied-winged Swallow	<i>H. leucosoma</i>	c
	Wire-tailed Swallow	<i>H. smithii</i>	u
	Red-rumped Swallow	<i>H. daurica</i>	u
	Rufous-chested Swallow	<i>H. semirufa</i>	u
Campephagidae			
	Red-should. Cuckoo-Shrike	<i>Campephaga phoenicea</i>	o
	Grey Cuckoo-Shrike	<i>Coracina pectoralis</i>	
Dicruridae			
	Drongo	<i>Dicrurus adsimilis</i>	c
Laniidae			
	Straight-cr. Helmet-Shrike	<i>Prionops plumata</i>	u
	Northern Brubru	<i>Nilaus afer</i>	c
	Yellow-billed Shrike	<i>Corvinella corvina</i>	o
	Black-headed Gonolek	<i>Laniarius barbarus</i>	c
	Puff-backed Shrike	<i>Dryoscopus gambensis</i>	u
	Black-headed Bush-Shrike	<i>Tchagra senegala</i>	u
	Sulphur-breast. Bush-Shrike	<i>Malaconotus sulfureopectus</i>	c
	Grey-headed Bush-Shrike	<i>M. hypopyrrhus</i>	u
Paridae			
	Black Tit	<i>Parus leucomelas</i>	c
Oriolidae			
	African Golden Oriole	<i>Oriolus auratus</i>	c
Corvidae			
	Pied Crow	<i>Corvus albus</i>	c
	Piapiac	<i>Ptilostomus afer</i>	c
Sturnidae			
	Violet-backed Starling	<i>Cinnyricinclus leucogaster</i>	c
	Blue-eared Glossy Starling	<i>Lamprotornis chalybaeus</i>	
	Bronze-tailed Gl. Starling	<i>L. chalcurus</i>	u
	Purple Glossy Starling	<i>L. purpureus</i>	c
	Long-tailed Gl. Starling	<i>L. caudatus</i>	c
	Chestnut-bellied Starling	<i>Spreo pulcher</i>	u

Zosteropidae			
Yellow White-eye	<i>Zosterops senegalensis</i>		c
Nectariniidae			
Beautiful Sunbird	<i>Nectarinia pulchella</i>		c
Pygmy Sunbird	<i>Anthreptes platura</i>		c
Copper Sunbird	<i>Nectarinia cuprea</i>		u
Scarlet-chested Sunbird	<i>N. senegalensis</i>		u
Green-headed Sunbird	<i>N. verticalis</i>		c
Ploceidae			
Chestnut-cr. Sparrow-Weaver	<i>Plocepasser superciliosus</i>		u
Grey-headed Sparrow	<i>Passer griseus</i>		u
Bush Petronia	<i>Petronia dentata</i>		u
Bl.-headed Village Weaver	<i>Ploceus cucullatus</i>		c
Black-necked Weaver	<i>P. nigricollis</i>		u
Little Weaver	<i>P. luteola</i>		u
Red-billed Quelea	<i>Quelea quelea</i>		c
Red Bishop	<i>Euplectes orix</i>		c
Bronze Mannikin	<i>Lonchura cucullata</i>		c
Red-winged Pytilia	<i>Pytilia phoenicoptera</i>		c
Red-billed Firefinch	<i>Lagonosticta senegala</i>		c
Bar-breasted Firefinch	<i>L. rufopicta</i>		u
Black-faced Firefinch	<i>Estrilda larvata</i>		u
Red-tailed Lavender Waxbill	<i>E. caerulescens</i>		u
Orange-cheeked Waxbill	<i>E. melpoda</i>		u
Red-cheeked Cordon-bleu	<i>E. bengala</i>		u
Broad-tail. Paradise Whydah	<i>Vidua orientalis</i>		u
Fringillidae			
Yellow-fronted Canary	<i>Serinus mozambicus</i>		c
Emberizidae			
Cinnamon-br. Rock-Bunting	<i>Emberiza tahapisi</i>		u

*Ostrich : reported by Sikes (1964) from a record in 1962. The bird is now extinct in Yankari, although there are still some between the Reserve and the Benue (Dr S. Sikes, pers. comm.).

*Secretary Bird : recorded by J.H.Elgood just outside the Reserve limits. There is no reason why this species should not be found in Yankari.

*Adamawa Turtle-Dove : usually considered restricted to the Plateau region.

*Little Green Bee-eater : probably near its southern limit of distribution.

*Red-throated Bee-eater : perhaps one of the most evident species in the Reserve numerically. Not listed by Sikes (1964).

Acknowledgements

We thank Mr J.H.Elgood, Dr C.H.Fry and Mr J.B.Wood for kindly providing us with their notes on Yankari birds. We also gratefully acknowledge the facilities afforded by the staffs of Yankari Game Reserve and Ahmadu Bello University (Department of Biological Sciences), especially Dr R.A.Shotter, who was responsible for organising two of the trips to Yankari.

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Occ. Pap. nat. Mus. S. Rhod. 24B and 26B, and Govt. Printer,
Lusaka.
- Michael Dyer and Mary E. Gartshore, Department of Biological Sciences,
Ahmadu Bello University, Zaria, Nigeria



ALBINISM AMONGST ETHIOPIAN BIRDS - Numerous instances of albinism in African birds have been recorded in recent years (e.g. Ostrich 37: 238; 38:205,281,288; 40:62; 41:220,261; 42:70,148,230; 43:176,184; 45:42) to which I can add the following.

In March 1971 at Sabon Gida dam, near Jos, I saw two White-faced Tree-Ducks Dendrocygna viduata which had large patches of white in their wings. Recently in a patch of thorn scrub on the outskirts of Kano I saw a small flock of Grey-headed Sparrows Passer griseus, one of which was pure white. There did not appear to be any animosity towards it, and as it was fairly approachable I was able to photograph it.

I would be interested to hear of any other reports of albinism amongst Ethiopian birds. R.E.Sharland

MENETRIES' WARBLER Sylvia mystacea NEW TO NIGERIA AND WEST AFRICA -

On 17 April 1974 my wife and I netted a female-plumaged Sylvia warbler at Gaya, Kano State, in an overgrown dry river-bed, whose identity was unknown to us. The general impression of the bird in the hand was of a small grey Sylvia with sandy brown wings, dark tail and, as the only distinctive feature, rufous forehead. Detailed description :-

Forehead rufous, crown grey-brown, lores pale grey, ear coverts grey-brown, nape grey-brown; mantle, back, rump and uppertail coverts grey-brown; chin white with buff wash, throat and belly white, breast, flanks and thighs buff; undertail coverts white with light brown feather centres; lesser wing coverts grey, median coverts brown-grey, greater coverts brown with light brown fringes, primary coverts brown, primaries and secondaries dark brown with light chestnut edges, tertiaries brown-grey; tail dark grey, outermost feathers with white edges and tips. Beak grey, with base of lower mandible flesh and mouth yellow-orange; iris brown-olive, eye-ring buff; legs light grey-brown, feet dirty yellow. Wing 57 mm, tail 51 (in moult, the outer 5 rectrices being replaced), beak 12. Wing tip $p_3=p_4=p_5$, $p_1 = pc + 3$, $p_2=p_3 - 3.5$, $p_6=p_5 - 2$, $p_7=p_5 - 4$, $p_8=p_5 - 6$, $p_9=p_5 - 8$, $p_{10}=p_5 - 10$; p_3-5 emarginate; $p_2=p_6/p_7$; p_3 with notch 11 mm from tip. Weight 9.25g.

The bird was ringed, photographed and released. Mr I.J.Ferguson-Lees has very kindly compared our description with skins in the British Museum collection at Tring, and informs us that he has no doubt whatsoever that the bird was an adult female Menetries' Warbler S. mystacea, a species which, with most of its congeners, Mr Ferguson-Lees knows in the field. Menetries' Warbler breeds in southern Russia and Palestine

to Tadzhistan, and migrates southwestwards to winter in Arabia, Eritrea, Somalia and the Sudan. Our bird seems to have overshoot its winter range by several hundred km, for it is the first record of the species west of Sudan.

D. Best

AN UNSUCCESSFUL ATTEMPT BY A GREATER HONEY-GUIDE TO PARASITISE RED-THROATED BEE-EATERS - During a study of Red-throated Bee-eaters Merops bulocki at Zaria I witnessed an attempt by a female Greater Honey-guide Indicator indicator to parasitise a nest of bee-eaters at a colony I had under observation.

At 11.00 hrs on 7 February 1975, the honey-guide flew into a tree a few metres from the colony. Groups of bee-eaters up to seven began chasing and mobbing it. It was reluctant to leave the area and for 1½ hours it remained inconspicuously perched deep in the foliage of bushes around the colony. Whenever the honey-guide left its cover it was immediately chased and mobbed by any bee-eaters in the area at the time. By a progression of short flights it positioned itself in a tree close to the colony. At 12.00 hrs, when no bee-eaters were apparent, it flew to the entrance of a nest tunnel and had inserted its head and shoulders into the tunnel when two bee-eaters converged onto it, one pulling aggressively at the tail and the other at the wing and scapular feathers of the intruder. A few seconds of this treatment forced the honey-guide from the nest entrance, and it flew off and was not seen again during the observation period.

Most of the bee-eaters at this colony had previously been marked for identification in the field, but the events surrounding the eviction of the honey-guide happened so quickly that there was no opportunity to determine whether or not the bee-eaters involved in the fracas were the occupants of the nest. These particular bee-eaters may have been the only two to have seen the honey-guide fly to the colony, and perhaps the reaction to honey-guides by all bee-eaters in a colony is the same, regardless of which nest the honey-guide is attempting to enter. Similar aggressiveness by host birds towards honey-guides has been documented for Black-collared Barbets Lybius torquatus with the Lesser Honey-guide I. minor in Rhodesia (Steyn & Scott 1974, Ostrich 45:143).

The attentiveness of bee-eaters around a colony and the degree of harassment given to honey-guides would suggest that colonially nesting bee-eaters make difficult hosts to parasitise. Presumably colonial birds (including bee-eaters) are parasitised at a lower frequency than solitary-breeding ones.

M. Dyer

Sir,

TWO COMMENTS ON 'THE BIRDS OF SOKOTO'

I read with great interest the account of bird life in Sokoto recently published in the Bulletin by Messrs. Mundy & Cook.

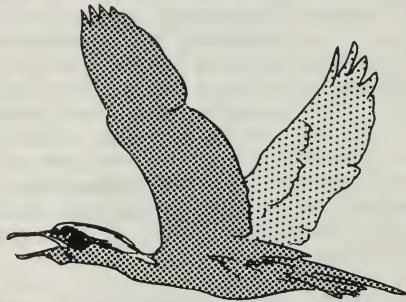
In Part 1 (Bull. Nigerian Orn.Soc. 9(35): 26-47), writing of Neem Azadirachta indica plantations, they point out the poor representation of bacteria, insects and birds in such habitats. This is explained as a result of the recent introduction of Neem and the lack of ecological adaptation by indigenous species. It is suggested that this habitat is bound to change.

The Neem has long been famed in India for its medicinal properties and its value as a mulching plant (H.F.MacMillan, 'Tropical Planting and Gardening', 5th ed., 1935). Recently it has been found that a suspension of crushed seeds or leaves, when applied to plant foliage, will deter some insect species from feeding. The compound Azadirachtin which has been isolated from Neem seeds has been found to be a strong feeding deterrent for the desert locust Schistocerca gregaria (Morgan, Gill & Lewis 1972, Ceres 5: 60). It is probably this compound which accounts for the value of the leaves for mulching and which also largely explains the paucity of life in Neem plantations, rather than the fact that Neem is exotic in West Africa. It is unlikely that this situation is capable of change except over a very long period of time. This chemical property of Neem adds to the interest of any observations on animals eating Neem products. I have so far seen only the Common Bulbul Pycnonotus barbatus, the African Golden Oriole Oriolus auratus and the Blue Rock Thrush Monticola solitarius eating the fruit. I should be interested to hear of other observations.

In Part 3 (Bulletin 10(37): 1-28), Mundy & Cook gave data on the breeding of the Long-tailed Shag Phalacrocorax africanus in Sokoto during late August and September. This they consider to be the second record for Nigeria and the fifth for West Africa. However they (in common with Elgood, Fry & Dowsett 1973, Ibis 115: 1-45) have overlooked records of two colonies on the River Niger. Wells & Walsh (Bulletin 6(21): 1-25) reported two colonies, one at Libate village and the other at Warra village, both on the left bank of the river more or less opposite Old Bussa before the formation of the Kainji Lake. At both of these villages Long-tailed Shags were present at their nests from September to February in 1966 and 1967. They were associated with breeding Black-headed Herons Ardea melanocephala and Great White Herons Egretta alba. Unfortunately I no longer have my field notes for this period but at least 17 pairs of Long-tailed Shags were nesting at the Warra colony on one occasion (data from photographs).

In addition to these records I have unpublished records of two colonies of about a dozen nests found on 26 December 1968. The nests were in dying trees standing in the newly-formed Lake Kainji in the region of the Swashi River outfall (just north of Shagunu, 10° 20' N). A Darter Anhinga rufa was sitting in each colony. At about the same time Dr R.W.Ashford told me of several other colonies in the southern portion of the lake.

Frank Walsh,
Onchocerciasis Control Programme,
B.P. 549,
Ouagadougou,
Upper Volta.



NOTICE TO CONTRIBUTORS

The BULLETIN publishes papers, short notes, reviews, letters and illustrative material. Contributions should be typed on one side of the paper with double spacing and wide margins. Wherever possible papers should have first been submitted to at least one ornithologist or biologist for critical scrutiny.

Written contributions will be retyped for offset printing, but FIGURES should be prepared as for final reproduction, allowing for 20 percent reduction, using Indian ink on good quality white paper, Letraset and Letratone lettering and shading (or equivalent) as appropriate.

CONVENTIONS regarding tabular material, dates, numbers, metric values, references etc. should be carefully adhered to and can be sought in this and recent issues of the Bulletin.

Pending standardisation, English and scientific bird NAMES should follow Mackworth-Praed & Grant, African Handbook of Birds, Ser. 3 Vols. 1 and 2 (1970,1973). Bannerman's scientific names (Birds of West and Equatorial Africa, Vols. 1 and 2 (1953)), should be given in parenthesis if they differ from Praed & Grant's. See also p. 55.

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The vignettes on pp. 52, 67, 68 and 88 are by J.B.Wood, on pp. 55 and 77 by M.E.Gartshore, and on pp. 72 and 84 by C.H.Fry from photographs by P.Steyn published in Bokmakierie

