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February / février 2010

THE BIRDS OF SOKOTO

Part 1: Introduction and Non-Passerines

by

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Introduction:

Sokoto town, 13°02'N. 5°16'E., lies at the confluence of 2 rivers, the Rima and Sokoto, both of which now maintain flowing water throughout the year because of small dams thrown across them. Sokoto has been a thriving town since it was built up from 1809 by Shehu Usman dan Fodio, the "Sarkim Musulmi", and its site is a favoured one, well-watered and of commanding height. Since 1968 the town has experienced a boom due to its modern position as a State Capital: the population is approaching 200,000 and semi-official estimates put the current density of the surrounding 2,500 sq.miles at about 400 persons per sq.mile (about 160 per sq.kilometre), compared with 120 per sq.mile (=47 per sq. kilometre) for the P rovince as a whole. A considerable part of the neighbouri ng landscape therefore shows the impact of this population pressure, and of the accompanying grazing pressure from the thousands of domestic animals. In b rief, the landscape is flat and "sandy", with very widely spaced trees and shrubs, producing a m uch barer view than that generally associa ted with Sudan savanna, within which vegetational belt almost the whole Province lies.

In this overall view there is some, if little, habitat variety. Laterite outcrops occur everywhere and occasionally break out into groups of low hills, one such at Kalambaina being a study area (see later). There are a number of woodlands: for example, mixed woodland (predominantly palm and along stream courses), Neem plantations and Forest Reserves; the most pleasant of which was undoubtedly that area around the Senior Service Club before development began. Neem plantations are strictly functional and though monotonous are worthy of study in their own right. The Neem tree Azadirachta indica is a recent introduction from India (Radwanski 1969) and it is clear that many of the indigenous organisms are not adapted to it (as one would expect) and in particular these plantations suffer from a poor representation in bacteria, insects and birds. This habitat is bound to change, for the Neem is an invader and it and its environment will slowly become ecologically adapted together.

The rivers, lake Kware and the new lake at Wurno provide rich areas of mixed habitats; we have previously described most of the avifauna at Wurno (Mundy & Cook 1971 b). Finally there is at Sifawa an unusual and interesting area of low-lying lateritic hills well clothed in shrubs and

with occasional trees that merges into sandy farmland dissected by erosion gullies. One-fifth of the bird species here are ploceids.

Study Areas:

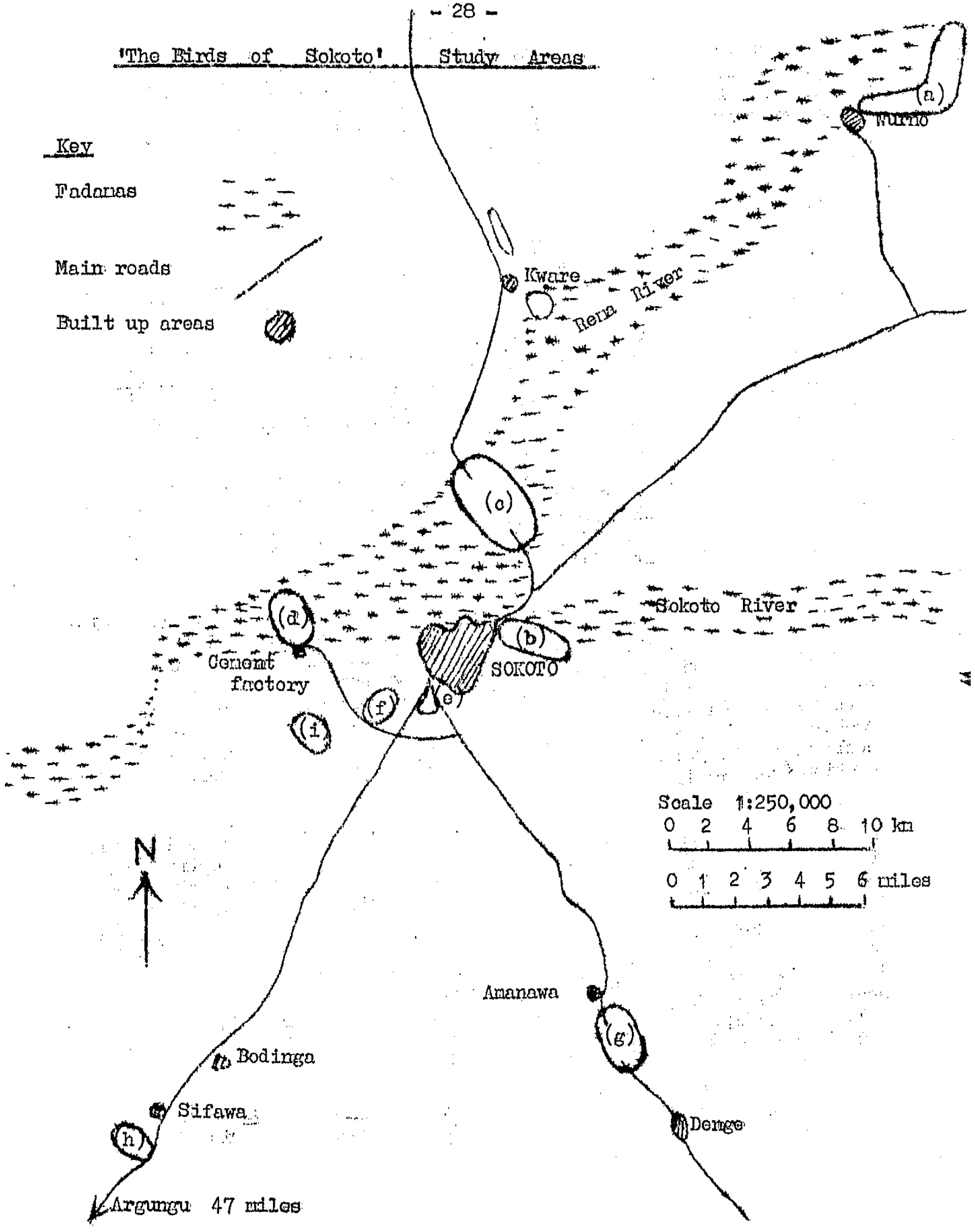
We adopted a 25 mile radius from the town as a limit to the "Birds of Sokoto" simply because that was a maximally accessible distance for a morning's or evening's bird watching of 3 hours. Within these 2000 sq.miles we chose 9 areas for special study each averaging 1 sq.mile in size, and we aimed to visit all of them once every month to assess the occurrence and abundance of birds. Due to annual home leave we have no records for May and very few for April, but over the rest of the years 1970 and 1971 we paid 150 visits to the field, both morning and evening and of 3 hours' duration each visit. During 1971 we also spent a lot of time in certain of the areas studying a small number of species and incidental observations were then recorded. We made occasional forays to other places (e.g. Amanawa, lake Kware).

In total our present conclusions arise from about 1500 observer-hours throughout the year within 25 miles of Sokoto town.

The 9 study areas were -

(a) Lake Wurno: open water, riverine, fadama and farmland habitats.
(b) Sokoto river: ditto, except no lacustrine.
(c) Rima river ditto.
(d) Sokoto/Rima confluence (near Cement Factory): ditto, a smaller area.
(e) Club woodland: well-drained woodland of 60 years' age, with mahogany Khaya senegalensis and silk cotton Ceiba pentandra dominant, many shrubs. Surrounded by farmland.
(f) Marmaru woodland: mixed woodland along a stream course, dominated by palms Borassus, Raphia, Elaeis and mahogany. Very thick undergrowth. Surrounded by farmland. A large Neem plantation adjoins.
(g) Majiya woodland: mixed woodland along a stream course, but not so wet as (f), dominated by palms Borassus, Raphia, magogany and Ficus spp. Very thick undergrowth. A large Neem plantation and a small Forest Reserve adjoin.
(h) Sifawa scrub: see Introduction: a water-hole for much of the year.
(i) Kalambaina hills: see Introduction: almost bare of vegetation with hills rising 100-200 ft. above surrounding farmland.

'The Birds of Sokoto' Study Areas



These areas have been marked on the map, along with other localities mentioned in the text. The bird species distribution has been accurately plotted and is designated by (a)(b) etc. Forest Reserve ("mature savanna" in Fry 1966) was the only habitat not examined. We recorded the calls of several species on a Phillips' portable cassette tape recorder and this is indicated by (rec).

Census Problems:

It is one thing to plot the occurrence and distribution of bird species, but quite another to assess their abundance. There are 4 main types of behaviour of a bird and all gradations in between - solitary to gregarious, secretive to conspicuous. Very few species have constant behaviour: the Chanting Goshawk Melierax metabates for example is solitary and conspicuous throughout the year, the Cordon Blue Estrilda bengala gregarious and conspicuous. Most species have changing patterns of behaviour: the Grey Plantain Eater Crinifer piscator is gregarious and conspicuous in its own right but may show long periods of cryptic behaviour whilst feeding quietly or resting in the tops of the tallest trees. Weavers are the most obvious example, many being gregarious and conspicuous for only 4 months of the year around Sokoto, and then moulting into unidentifiable "small brown birds". One or two species even render themselves as conspicuous as possible by following an observer around, e.g. Black Kite Milvus migrans.

Generally acceptable censusing methods are exacting though possible; usually an area is taken commensurate with the size of animal to be counted, and then strictly regular visits and censusing are adopted. Both these criteria are difficult and we have not attempted them. Even so, we have been able to build up slowly a composite picture of the abundance of our birds, from the number of eagles in a large area to the number of shrikes in a small area. For many birds, of course, netting could provide a yardstick, though the results have to be interpreted with caution (see Fry 1970).

For these reasons, we would criticize Fry's system of indexing (Fry 1966, pp.345-6), while yet admitting that some sort of rationalization is necessary. With our own "sighting" method we have substituted numbers as far as possible for the naturalists' subjective terms "abundant", "common", etc. and have always chosen the lower estimate for the minimum number of birds present in an area. (For us, a " sighting" is a sight of one bird on one day). The aim of any field session is to find all the species present and consciously or not one looks harder for the secretive birds than for the bolder types. But whether a bird is being bold or secretive on a particular day makes little difference to our method: it counts simply as one sighting.

We can use the Great Spotted Cuckoo Clamator glandarius as an example. During 1971 we sighted the bird 16 times, and bearing in

mind the frequency of our excursions this is a very low number; this species is at times secretive and at other times highly conspicuous. Fry (1966) calls the bird "conspicuous" with a rating of 2 (a compromise?) and produces a total index of 4 from a maximum of 160 (given to a maximally secretive bird that obtrudes itself everywhere). Unfortunately, in terms of actual numbers of the cuckoo, this index means nothing to us, and prospects of an estimate worsen if one thinks of the species as one-fortieth as abundant as a hypothetically secretive and common (3 or more records per hour) bird! We think our statement of 16 sightings in one year around Sokoto is a more realistic estimate of abundance, though by implication, than an index of 4.

For several species we have plotted their total monthly sightings and suggested certain movements from the figures (e.g. Black Kite), and have been able to compare resident and migrant populations (e.g. Hoopoe Upupa epops).

Diversity:

To date (March 1972), 320 spp. have been recorded in Sokoto Province, of which 284 or 89% have been seen within 25 miles of Sokoto town. Parts 1 and 2 follow with our own observations on 232 spp.

Our general study area around the town, let it be remembered, is the most highly populated part of the Province, yet we still find 90% of the Province's bird variety here. Superficially it seems that the human's and their animals' impact upon the avifauna has been slight. There must of course be an impact - large areas given over to crops for the wet season, laid bare during the dry season and suffering considerable wind and water erosion; clearance of woodland undergrowth for firewood; the domestic goat preventing natural regeneration over fallow areas and inadvertently aiding the spread of the Neem tree (which is somehow resistant to goat cropping). We suggest that the impact is visible more in a reduction or increase in many species' abundance than in a reduction in the total avifaunal diversity.

Our 2000 sq.miles is now rather a patchwork of habitats than simply the natural Sudan savanna with river and marsh, with a consequent increase of "edge effect". Additionally the natural climax stability has been broken and no one community of birds is continuously favoured but instead smaller populations of more species may be supported. The Sussex weald as an alternative to the climax oak woodland is perhaps analogous.

The Falconiformes is one group however that must have suffered a reduction in diversity. For example, all the 6 species of West African vulture have been seen in Bornu Province and close to Maiduguri, which is a broadly similar area to ours; only 2 species are known from Sokoto Province.

Acknowledgements:

To our wives, for help of various sorts: Mr.R.Lister for field help during 1970. Mr.R.Parker for help in certain identifications; Dr.J.Broadbent for details of his visit to Wurno in April 1971.

List of Non-Passerines:

Species' nomenclature and sequence follow White's Revised Check-List of African Birds; colloquial English names follow Bannerman (1953). References to other works cited are placed after Part 2.

African Little Grebe Podiceps ruficollis: September to March on pond at (f), in July on open water at (b). Breeding in dry season at (f) (see Part 3) and then with its young becoming very conspicuous as they dive and play in the water. 3 birds in July, 4 adults and 8 young at (f). Not clear why it should leave its breeding area in the wet season. Serle (1943) found them breeding at Gwadabawa in July and August.

Pink-backed Pelican Pelecanus refuscens: Breeds in Sokoto town August to February (Part 3) and present at (a)(b)(c)(d), but seen in large groups only on 3 occasions: 33 in October at (c), 50 passing over (d) in December, and an unprecedented 150 wheeling around near (f) in December. Also said to be seen at (a) in July by hunters and at Sokoto by Dobbs (1949). At least 50 breeding birds in Sokoto, and not known to breed elsewhere in the area in 1971/72. Although clearly a migrant, we are still unresolved as to where it goes, but presumably to the great rivers or lake Chad. Very regular in its arrival (about August 1st) but less so in its departure, from February onwards to April (Serle).

Long-tailed Shag Phalacrocorax africanus: Throughout the year at (a) (b)(c)(d), and at (f) in August to October. Sometimes in large numbers, 50 being seen at lake Wurno in November, and even up to 10 together around the pond at (f), but usually in groups of 2-6. Mostly immature birds seen (i.e. varying amounts of white underneath), but 26 sightings of "all-black" birds from July to October, and breeding inside the town in September (Part 3). Its occurrence at (f) indicates that small areas of open water may still satisfy it.

African L ittle Bittern Ixobrychus minutus: Seen singly at (a) in March and July. An inconspicuous bird found in thick stream-side vegetation, and doubtless resident.

Night Heron Nycticorax nycticorax: A large roost in the palms of (f), November to March, up to 50 birds with perhaps ½ to ⅔ of these immatures. Also smaller groups at (b) in June and October, and (c) in April, September, October, appearing only at dusk though they may begin their wheeling over the roost site some 2 hours before sunset, and then they make a certain amount of honking (rec). Definitely absent from (f)

during the rest of the year and seemingly in much reduced numbers from May to A ugust. Dobbs (1959) found them in the same palm woodland from November to May and she (1949) only failed to see them from July to September.

Squacco Heron Ardeola ralloides: Seen throughout the year in all fadammas and other marshy areas, and at (f) in February and March. The highest n umbers are recorded during the Northern winter and are presumably migrants. more than 100 being seen at (a) in November for example. Not often a conspicuous bird until they fly. Usually solitary but occasional flying groups up to 8

Cattle Egret A.ibis: Very numerous throughout the year, and a breeding colony within S okoto town in the wet season.(Part 3). Feeds in all our areas and not by any means always with domestic animals. Roosts in trees in (b)(c) and sometimes on the town's edge.

African Green-backed Heron Butorides striatus: Throughout the year at (a)(b)(c)(d)(f)(g), and breeding at (f)(part 3). Always solitary except when breeding, and generally well camouflaged.

Black Heron Egretta ardesiaca: Seen twice - a roosting group of 100 birds at (a) in August, and a pair at (c) in October. On both occasions with cattle egrets.

African Great White Heron E.alba: Resident, and seen at (a)(b)(c)(d), but mostly at (a)(c) due to the wider area and deeper water. Generally single birds, but a loose group of 20 at (a) in March and all with yellow bills. No more than 1 bird in 10 has any black in its bill.

Little Egret E.garzetta: Seen at (a)(b)(c)(d), and 1 bird at (f) in October. Our sightings per month throughout 2 years are: 14, 18, 33, 60, - (observers absent), 4, 4, 0, 41, 109, 3, 11. It seems therefore to move away from our area to breed during the wet season, though we have seen single birds with breeding plumes passing through in July and September (photographed; the red eye and green "face", between eye and bill, is distinctive). The sightings also indicate palearctic migrants on passage - groups of 20 to 50 are seen in April, September and October (Serle saw a group of 12 in June). Always feeding in water, solitarily or in small groups.

Grey Heron Ardea cinerea: (At first confused with A.melanocephala). Only seen at (a)(b)(c)(d). large loose groups appearing in September, October, November, March· up to 50 birds. Very small numbers in the wet season, if seen at all. The best means of field identification is the underwing - grey in this species and black-and-white in melanocephala. Always in water.

Black-Headed Heron A.melanocephala: Resident at (a)(b)(c)(d). Usually in small numbers and solitary, only once exceeding cinerea in numbers: 50 at (a) in March. Once seen standing in a field, otherwise in water. A one-footed bird (complete tarsus but no toes) was seen regularly at the pond at (f) from May to September. A heron once mobbed us. Unlike Serle, we have no evidence of this species breeding.

Purple Heron A.purpurea: Generally absent in the wet season though seen at (a) in July and August. Very small numbers at (a)(b)(c), but 30 birds at (c) in September, and 10 each at (a) in November and March. Hence probably palearctic migrant.

Abdim's Stork Ciconia abdimii: Seen from the end of June to the end of October and usually flying over the area. Breeding to the south (Mundy & Cook 1971 b) but not known to breed near Sokoto now (Serle recorded it breeding at Gwadabawa). Regular in its arrival. On October 29 1971 we saw a compact group of 50 birds flying northwards towards Sokoto in the evening, then abruptly turning and flying south. Sometimes seen singly at little ponds in fields, catching toads.

Open-Billed Stork Anastomus lamelligerus: Seen only at (a) in January (50 birds), February (5) and March (3). Always grouped. In view of this species' migratory behaviour (Bannerman), Dobbs' "all the year round" statement (1959) is surely unreliable. She (1949) saw it only in March, April and December in 1948. The Open-Billed Stork has a conspicuous and distinctive stance.

Marabou Stork Leptoptilus crumeniferus: Seen at (c) in February (1 bird), inside the town in March (breeding, 5 nests), at (b) in September (a pair) and at (c) in December (a pair). Dobbs (1959) recorded it breeding in the town; we did not find it there until March 1972. This bird is conspicuous, so where did it feed during its breeding period? It certainly disappears during the wet season. Always in water, and never seen with vultures at carcasses - a well known habit.

Wood Ibis Ibis ibis: Breeding with the Pelicans in Sokoto town, August to February, during which time they are seen in small groups at (a)(b)(c)(d), but 40 birds at (a) in July and 24 at (b) in September. Dobbs (1959) has a misprint. Toads are a part of their diet.

Sacred Ibis Threskiornis aethiopica: We have not found it breeding within or near Sokoto Town (cf. Serle), but one bird was seen carrying nest material towards the town in July. A sporadic occurrence during the year; not seen at all in August and September, large groups at (a) in January (60 birds), April (25, Broadbent pers. comm.) and November (40) much smaller groups or even pairs occasionally at (b)(c)(d).

West African Hadada Bostrychia hagedash: Of sporadic occurrence during the year; not seen in April, June and August, group of 50 birds at (a) in November, smaller groups of 6-10 occasionally at (a)(c)(d). Always in marshy areas with thick vegetation, and thus usually seen only when they fly and easily confused, we feel, with the Glossy Ibis. Neither Dobbs nor Serle recorded the Hadada, though they both saw the Ibis, sometimes in large numbers. Possibly our own record of 50 was of the Ibis.

Glossy Ibis Plegadis falcinellus: (see Hadada). One bird at (f) in September.

Fulvous Duck Dendrocygna bicolor: Generally in small numbers at (a)(b), but a group of 80 at (c) in March, 25 at (c) in April, 50 at (a) in November. Not seen in February, June and December.

White-Faced Duck D.viduata: Much more common than the Fulvous Duck, being found on (a)(b)(c)(d) regularly except December, January and April. Groups of 100 at (b) in June and at (a) in July, group of 150 at (b) in October. Otherwise in smaller groups of less than 20 birds. Our sightings indicate a definite dispersal from the area during the dry season. Never seen feeding in the day. but always clustered together.

Egyptian Goose Alopochen algyptiaca: Seen only at (c) in Febuary (1 bird), at (a) in April (20, Broadbent, pers. comm.) and at (a) in July (30). Dobbs recorded it as "rare".

Spur-winged Goose ?Plectropterus gambensis: Throughout the year at (a) (see Mundy and Cook 1971 b) and odd birds at (b)(c)(d), with a group of 25 at (c) in September. Attracted to wet grassy areas.

Knob-billed Goose Sarkidiornis melanota: Seen more often than the Spur-winged Goose at (a)(b)(c)(d) and sometimes in groups of 30-50. Attracted to small pools. Absent for months from any one place, and overall its numbers are lowest from August to December.

Pygmy Goose Nettapus auritus: Generally in pairs at (a)(b)(c)(d) in the wet season and also a pair at (b) in January. No evidence of breeding but 10 pairs seen on a pool at (b) in July. Always swimming on open water.

Pintail Anas acuta: Seen at (a) in January and November, groups of 4 and 10. Very scarce in both seasons 1970/71 and 1971/72.

Hottentot Teal A.hottentota: A single bird "unconcernedly" swimming on a pool at (c) in March.

Garganey A.querquedula: Much the commonest duck in both seasons at Sokoto, from late October to late March. Occurring at (a)(b)(c)(d)

during these months: its favourite place being the large lily-covered pools of (b) (see the 2 "lakes" on map II of Dobbs 1959), groups of 150 in October, 500 in Feburary and 200 in March there.

Ferruginous Duck Aythya nyroca: Seen twice, at (d) in January (14 birds) and (b) in October (6) in 1970/71; none in 1971/72.

Hooded Vulture Neophron monachus: Very numerous, resident mostly around human habitation. Breeding begins in October and eggs may still be laid in March (Part 3). The immature birds are recognised by the black down on the head and neck, in place of adults' white down; immatures may comprise one-half of roosting groups in the breeding season. The total population is probably between 1000 and 2000 (Mundy & Cook, in prep.). Once, 300 vultures were seen in a thermal in March.

Palm Nut Vulture Gypohierax angolensis: One bird at (f) in late September and flying over (e) on October 3rd. Dobbs (1949) saw it from late July to late October, but later (1959) described its occurrence as "regular". It certainly does not occur here outside the wet season.

Pale Harrier Circus macrourus: "Ringtail" harriers are seen from early November to late April, effortlessly quartering low over the ground at (a)(b)(c)(d)(h)(i). They are conspicuous, yet only 2 males have been seen out of 23 sightings, and those in December and February. We would expect at least one-sixth to be males (full male grey plumage coming in the 3rd year, Witherby et al, 1943) on a random dispersion. Perhaps some of these 23 sightings are of Montagu's Harrier C. pygargus, though the proportion of males should remain at one-sixth or higher. Males of both species were seen in equal numbers at lake Chad in 1961/62 (Elgood et al, 1966).

Generally 1 or 2 birds are seen at any one time, but 6 at (a) in January, and a pair of these "dancing" in the air together.

Marsh Harrier C. aeruginosus: From October 16 to early April at (a)(c), and much restricted in its feeding grounds compared to the Pale Harrier. Of 30 sightings, 9 were males (the expected number). Ofter 4 or 5 at one time over the large area at (a). Dobbs (1959) recorded the Pale as more numerous than the Marsh ("common" and "occasional" respectively), but probably due to lack of suitable feeding areas close to Sokoto for aeruginosus. Both Harriers and the Black Kite may be seen quartering the same marshy area together.

West African Harrier Hawk Polyboroides radiatus: A pair often seen at (f) where they probably bred; juveniles seen here in September and at (g) in October. Single birds seen at (b)(c)(e)(f)(i) from late June to late November where they were no doubt searching for weaver nests. We only once saw them at such work; in September, one adult attacking nests

and the other feeding on the ground. But we found much evidence of their (presumed) activity at (c)(f)(i). Possibly only one adult pair near Sokoto.

Eritrean Shikra Accipiter badius: Seen from June to October at (c)(e)(f)(g)(h)(i) and around the town, hunting birds and termites. Often chased by Pied Crows Covus alb us. Juveniles seen in July, differing from the adult in their yellow eye and streaking on the breast and belly. Once 4 were seen "playing" together in October.

Chanting Goshawk Melierax metabates: Seen throughout the year and resident at (a)(b)(c)(d)(e)(h), where it was often in pairs. Occasionally seen at (f)(i). An adult and a juvenile were seen together in November, a single juvenile in September. Juveniles have yellow eyes, white cere and pink legs. The adults often flush Black Kites out of trees.

Gabar Goshawk M.gabar: Less often seen than the Chanting Goshawk; throughout the year. Serle recorded it breeding here in April and May. Of 28 sightings, 7 have been of melanistic birds(cf. Morel and Morel 1962, 2 sightings only). A melanic juvenile was seen in July (rec.); it had a pale green eye, grey cere and yellow legs. Adults seen at (e)(g) and probably resident there, and (h)(i).

Lizard Buzzard Kaupifalco monogrammicus: Seen twice: single birds at (g) in July and (f) in September.

Grasshopper Buzzard Butastur rufipemis: Seen 3 times: single birds at (d) in March, near (e) in July and over (g) in November.

Long-legged Buzzard Buteo rufinus: Once seen wheeling over (d) on February 11 (cf. Fry 1967). Our thanks to Mr.R.Sharland who pointed out rufinus to P.J.M. in Kano.

Red-tailed Buzzard B.auguralis: Seen from late June to late January, resident pairs at (h)(i), occasionally at (f) and once over (b).

Booted Eagle Hieraaetus pennatus: Seen around Sokoto in October and January to March, 13 sightings 1 of which was a dark phase. Single birds pairs and one trio.

Tawny Eagle Aquila rapax: Seen from October to February, and a possible sight in July. Breeding at (i) in November 1970, copulating at (i) in October 1971 and aerial display there in November. Also seen every month at (h) and one sighting each at (b)(d). Presumably the same pair each year. On one occasion, an Eagle allowed us to approach to 15 yds. before flying off.

West African Black Kite Milvus migrans: Recorded in every fortnight throughout the year, and every week by Dobbs (1949). However, this

conceals a definite movement away from Sokoto during the wet season. A major roosting area are the high Mahoganies of (e) used by 50-100 Kites for most of the year, but from July to September only 1-10 may be seen. Our sightings in 2 years in the study areas were:- 162, 88, 193, -, - (observers absent), 151, 73, 4, 47, 281, 113 174. These figures indicate a fairly constant Kite population in 9 months of the year and only falling to near zero for the weeks of August. On July 16 a group of 30 Kites was wheeling over (f) in the evening, and perhaps preparing for their move north. Clearly, Sokoto is at the southern limit of the Kites wet season distribution, and this detail apart, their movements seem as outlined by Brown (1970).

They breed here, in any suitably high tree (part 3). Often seen quartering the marshes, and may be seen sitting on the ground there. Once seen chasing a heron until the heron dropped its fish when the Kite picked it up.

No positive identification of Milvus m.migrans.

Black-shouldered Kite Elanus caerulescens: Seen throughout the year except September at (a)(b)(c)(d) and at times over farmland near (f)(g). The highest numbers are recorded in the dry season and there is a definite dispersion during the wet season; our sightings are:- 18, 23, 35, -, - (observers absent), 9, 16, 7, 0, 5, 4, 6. It prefers marshland around Sokoto which helps to explain its decrease with the rains, but this preference seems atypical (cf. Bannerman 1953). Breeding noted at (d) in February and March, copulation in February, and once in July 2 birds were "playing" in the air - keeping close together, flapping their wings exaggeratedly and flying around each other; the performance lasted 5 mins.

Swallow-tailed Kite E.riocourii: Seen only from November 18 to early February over all dried fadama areas (a)(b)(c)(d) and once in January at (h) (a pair). Usually very small groups but 20 seen at (a) in January. These birds have orange legs, and one Kite did not have the black patches on the under-wing.

Osprey Pandion haliaetus: One bird fishing at (a) on March 7.

Abyssinian Lanner Falco biarmicus: (At first confused with F.chicquera). Seen singly or in pairs at (b)(c)(d)(e)(i) throughout the year, and occasionally in the other areas. Breeding in January and February (part 3), juveniles seen in June and July.

Red-necked Kestrel F.chicquera: Occasional pairs seen at (a)(b)(e) and single birds more often at (a)(d)(f)(i). Very adept at catching flying insects which it then holds in the talons during flight while it eats them.

Grey Kestrel F.ardosiaceus: Seen on 4 occasions: a juvenile at (g) in August and October, a pair at (b) in November, and an adult at (d) in December.

Kestrel F.tinnunculus: From September 27 to April 12 at all areas except (e). Up to 6 birds in one area at a time. They have favourite perches for eating their prey; one such was covered in the guts of grasshoppers. No Falco t.rufescens seen.

Double-spurred Francolin Francolinus bicalcaratus: Seen throughout the year at (b)(c)(g) and occasionally at (a)(d)(f)(h). Usually in groups of 5-10, but once numbering 20 at (g) in January and most were juveniles. Courtship seen in October.

Stone Partridge Ptilopachus petrosus: Seen or heard from June to November at (h) but possibly resident there (rec.). Never more than 3 birds.

Helmet Guinea Fowl Numida meleagris: Everywhere and especially on old farmland (rec.). The domestic birds completely confuse knowledge of the wild distribution. The former's eggs are available from May to September.

Black Crake Limnocorax flavirostra: Though the Crakes, moorhens and gallinules are conspicuously coloured birds they are often overlooked because of their secretive behaviour in marshes. The Crake is seen, and is probably resident at, (a)(c) and in the wet season also at (b)(f). Kware marshes provide the best habitat.

Lesser Moorhen Gallinula angulata: Seen on 4 occasions: pairs at (b) in June, and (c) in August and September.

African Moorhen G.chloropus: Throughout the year at (a)(b)(f) and once at (c). Juveniles seen in November. Up to 20 seen at the pond at (f). This species is more frequently and widely observed than the Lesser Moorhen.

Purple Gallinule Porphyrio porphyrio: Single birds at (b) in June and July, at (c) in March and September.

Lesser Gallinule P.alleni: Seen on 2 occasions: a pair at (a) in July, one bird at (c) in September.

Senegal Bustard Eupodotis senegalensis: Seen or heard only among the rocky hills of (i) in January, July to October. In the evenings of July to September, 3 or 4 birds at least would call loudly and fly around. Probably resident there.

Lilytrotter Actophilornis africana: Throughout the year at (a)(b)(c)(d) all of which have large lily-covered pools for most or all of the year. Sometimes in large numbers of 100 or more (rec.). Copulation seen in July and August, chicks in September to November. Also seen at the clear pond at (f).

Spotted Thick-Knee Burhinus capensis: A pair of birds at (i) in January.

Spur-winged Plover Vanellus spinosus: Throughout the year at (a)(b)(c)(d) sometimes in numbers of 20-30 and once 50 birds at (b). Usually in pairs (rec.). A persistent robber of humans and raptors. Breeding in April (part 3), a chick seen in August.

Black-headed Plover V.tectus: Seen 5 times: groups of 4-6 at (h) in July and (i) in June, July and December. Copulation seen in June, without any courtship but much calling. Once seen mobbing a Red-tailed Buzzard.

Senegal Wattled Plover V.senegallus: Seen on 3 occasions: a single bird among rocks at Amanawa in July, a tight group of 7 on the floating vegetation of lake Kwaro in August, and a single bird at (b) in September.

Lesser Ringed Plover Charadrius dubius: From September 29 to April 1 in very small numbers at (b) and at odd times at (a)(c)(d)(f). One loose group of 15 at (d) in January. A single bird at (b) on June 10. No C.hiaticula seen.

Kentish Plover C.alexandrinus: Seen once at (d) on February 1.

Caspian Plover C.asiaticus: Unmistakable male in breeding plumage at (c) on February 6, standing on a grassy island with a large group of Pratincoles. This seems to be the third Nigerian record (Elgood et al, 1966).

Black-tailed Godwit Limosa limosa: From September 25 to March 21 at (a)(b)(c)(d), usually in groups of 4-6, but a group of 200 flying over (c) on September 25, and 10 at (a) on July 1.

Greenshank Tringa nebularia: From September 11 to April 3 (to April 10, Broadbent pers.comm.) at (a)(b)(c) and odd birds at (d)(f). Usually very small groups, but 30 at (a) on July 1.

Marsh Sandpiper T.stagnatilis: From October 22 to April 11 at (a)(b)(c)(d) in small groups, but 20 at (a) on July 1.

Wood Sandpiper T.glareola: From September 30 to April 12 at (a)(b)(c)(d)(f) in small groups of 5 or 6, once numbering 20 on March 21 (rec.). One bird seen at (b) on June 13.

Green Sandpiper T.ochropus: From September 29 to April 7 at (a)(b)(c)(f). Not at all common and only 23 sightings, single or paired birds. Group of 6 at (c) on April 11.

Common Sandpiper T.hypolencos: From August 5 to April 12 at (a)(b)(c)(d)(f). Always singly though several may be in an area together. Group of 25 at (b) on September 29.

Redshank T.totanus: From September 19 to April 7 at (a)(b)(c). Only 12 sightings in 2 years; one bird feeding on a field near the river.

Spotted Redshank T.erythropus: Much commoner than the Redshank, 100 sightings. From January 8 to April 6 (to April 10, Broadbent pers.comm.) at (a)(b)(c)(d)(f). Often standing on one leg. A tight group of 50 at (c) in February. Five birds on July 1 and one bird on April 1 were in their black breeding plumage.

Common Snipe Gallinago gallinago: Only this one of the 3 species satisfactorily identified. From January 8 to April 6 at (a)(b)(c)(f).

Little Stint Calidris minuta: From October 17 to April 11 at (a)(b)(c)(d). Generally in groups of 10-30, but 100 on February 6 and February 11. No C.temminckii seen.

Ruff Philomachus pugnax: Without doubt the commonest Charadriid and usually in flocks of thousands. From August 30 to April 11 at (a)(b)(c)(d). Of 34 groups of this species, only 3 held less than 100 birds each. See also Mundy & Cook (1971 b). The fadamas at (a)(b)(c) at times must be supporting millions of these birds: they probably outnumber all other Charadriids together and their ecological impact must be tremendous. Once, over lake Wurno, a flock rose up into the air like a billow of smoke and then rapidly subsided, levelling itself into a thin line flying over the lake at a height of 3' - 5'.

Black-winged Stilt Himantopus himantopus: Our sightings show that it is a dry season visitor, and probably therefore a palearctic migrant, with very few staying throughout the year:- 37, 132, 87, 51, - (observers absent) 10, 3, 0, 12, 77, 19, 40. Usually in groups of 15-20 at (a)(b)(c)(d)(f), and rarely are single birds seen. Once, in March, 2 birds were seen jumping up and down together and perhaps fighting.

Painted Snipe Rostratula benghalensis: Seen 10 times: at (b) in March and June around a lily-covered pool (8 times, male and female), a female at (f) in June, a female at (c) in December. Dobbs (1959) saw it every week from March to July 1954, at the same pool on (b).

Egyptian Plover Pluvianus aegyptius: Throughout the year at (a)(b)(c) normally in small groups but occasionally numbering 50-100 (in August to October only). Often scurrying along the roadsides at its favourite

spots near the bridges of (b)(c). It seems to disappear in certain months:- 0, 39, 23, -, - (observers absent), 3, 0, 120, 71, 63, 30 3.

Temminck's Courser Cursorius temminckii: Pairs seen on 3 occasions: at (h) in February and (i) in February and June.

Bronze-winged Courser C.chalcopterus: One killed by our car in July, through sandy rocky country at dusk. Several others on and over the road.

West African Pratincole Glareola pratincola: Group of 20 at (a) in January, and 50 at (c) in Feburary (rec.).

Lesser Black-backed Gull Larus fuscus: Group of 6 on the open water of (a) on March 19.

White-winged Black Tern Sterna leucoptera: (At first confused with S.albifrons.) Small groups at (a) in January and March.

West African Little Tern S.albifrons: Probably resident at (a) in small numbers; we have seen it there in January to March, July and November. Also at odd times over (b)(c) in February, June and August.

Chestnut-bellied Sand-Grouse Pterocles exustus: Seen on 3 occasions at (i), groups of 25 in January, October and November.

Speckled Pigeon Columba guinea: Encountered almost everywhere in and around Sokoto town, but especially gathering on the fadamas and near water; this preference being confirmed by its absence from (h)(i). The Cement Factory serves as a roost for perhaps 200. Local people set out earthenware pots in trees and on houses which prove a favourite nesting site for this species (and not unusual as noted by Serle): the people then eat the nestlings.

European Turtle Dove Streptopelia turtur: Seen 3 times: single birds at (g) in October and February, and at (e) in October.

Niger Mourning Dove S.decipiens: Seen everywhere near Sokoto with the same preference for water as shown by the Speckled Pigeon; also occasionally at (h) but never at (i). Generally in smaller groups than the Speckled but more widespread. Breeding (part 3). We have never seen S.semitorquata though it reaches latitude 14°50'N. in Senegal (Morel and Morel, 1962). The Mourning Dove is the bird that "laughs", as also noted by Dobbs (1949).

Vinaceous Turtle Dove S.vinacea: Rather few seen, perhaps because Sokoto is well-watered. Resident at (h) and also occasionally seen at (b)(e)(g).

Laughing Dove S.senegalensis: Seen everywhere in and around Sokoto, but no preference for fadamas. Found throughout the town as is the Speckled Pigeon, and especially at (e)(f)(g), and surprisingly at (h). Once seen at (i). Breeding (part 3).

Namaqua Dove Oena capensis: Occurs in all our areas but only occasionally at (b)(c)(d)(e)(f)(g) and then usually in twos or threes; throughout the dry season at (a) in small numbers. Its favoured habitat is (h) where in December and January 50-100 birds may live. Pairs also seen at (i). Breeding in October and November at (h)(i)(part 3). They practically disappear from June to September (see Robinson 1971): our sightings are:- 49, 26, 50, -, - (observers absent), 10, 3, 0, 3, 83, 13, 105.

Black-billed Wood Dove Turtur abyssinicus: Resident throughout the year at (e)(f)(g)(h) and occasionally seen at (a)(b). Generally a bird of woodland and thick undergrowth where we see it in small numbers, but it also appears to be equally numerous in the more exposed (h). Dobbs (1959) calls it a "dry season bird" and our sightings do indicate perhaps a movement away during the rains:- 11, 31, 22, -, - (observers absent), 6, 6, 4, 4, 11, 4, 6. No T.afer seen.

Yellow-bellied Fruit Pigeon Treron waalia: Seen on 2 occasions at (g): 1 bird in November and a group of 10 in December.

Senegal Parrot Poicephalus senegalus: Seen twice at (e), single birds in June and August. This is a gregarious bird, common to the south of latitude 12½°N.; and it is a popular cage bird at Sokoto. We feel, then, that these 2 records are of an escaped parrot rather than of a species at its northern-most extent - though it reaches 16°N. in Senegal (Morel and Morel 1962).

Grey Plantain Eater Crinifer piscator: Resident at (e) in a group of 5 and breeding there in September (part 3). Resident also at (g), no more than 3 seen there; occasionally also at (f). Always in the tree-tops.

Great Spotted Cuckoo Clamator glandarius: Parasitic upon the Pied Crow Corvus albus; the Crow breeds in May to July and we have seen adult cuckoos from April to September, generally singly, occasionally in pairs (rec.). During this period and whilst on a study of Crows (Mundy & Cook 1971 and in prep.), we found very few cuckoo eggs and sighted adult birds only 11 times. This indicates a small population, perhaps at the northern limit of its migration (but cf. Serle); this Cuckoo is "common" at 16°N. in Senegal, but has not been recorded breeding there (Morel and Morel 1962).

Adults can be seen anywhere except in thick woodland. A juvenile (i.e. rufous throat and dark back) was seen on January 6 and might have been a palearctic migrant (cf. Elgood et al, 1966).

Pied Cuckoo C.jacobinus: Seen once at (h) in October. (Doubtfully at (e) in December).

Levaillant's Cuckoo C.levaillantii: From June to October at (g), generally a pair; also once seen in a Forest Reserve near Kware in September.

Solitary Cuckoo Cuculus solitarius: Once at (h) in September.

African Yellow-billed Cuckoo C.canorus: Seen on 4 occasions: at Amanawa in July, September and October, and at (e) in August. Six sightings.

Klaas' Cuckoo Chrysococcyx Klaas: Seen from May to October at (e), 7 single birds. Hence much less common than the Didric Cuckoo. On occasions it will call loudly and monotonously from a conspicuous perch (cf. Dobbs 1949). Once, individuals of Klaas' and Didric were very close to each other, allowing direct field comparison; the useful features additional to Bannerman's (1953) description are:- Klaas' has a black eye and the underside of its tail appears white with faint grey bars; Didric has a red eye, yellowish throat, and the underside of its tail appears black with white bars. Both species have a conspicuous white patch behind the eye.

Didric Cuckoo C.caprius: Seen from June to October at (b)(e)(h)(i), 18 sightings. It was seen in every one of these months at (h) where many weaver species nest. Chasing and calling noticed from July to August (rec.). In October at (h) an adult pair were seen together with a juvenile (i.e. rufous throat and spotting rather than barring).

Black-bellied Coucal Centropus toulou: Seen once at Kware marshes in July.

Senegal Coucal C.senegalensis: Resident in all our areas except (i). It prefers woodland, when several pairs may be found. Copulation seen in July and October.

African Barn Owl Tyto alba: Sighted 6 times; resident at (f) at least.

African Scops Owl Otus scops: Found once at (e) in January. Probably resident there.

White-faced Owl O.leucotis: Breeding in February near (f) (see part 3). No other sightings.

Pearl-spotted Owlet Glaucidium perlatum: Seen twice, in the evenings, at (e) in April and June. (We did not note the occurrence and distribution of owls aurally.)

Algerian Marsh Owl Asio capensis: From January to July at (a)(b) and Kware, 18 sightings. Always sitting on hard ground or on floating, marshy vegetation. A characteristic rufous patch on the wings.

Plain Nightjar Caprimulgus inornatus: Nightjars are difficult even when in the hand, and we have therefore been very careful in our identifications, to the extent of pursuing a bird around the area until we are sure. We have identified 3 species on field characters alone:- the Long-tailed is distinctive, thus leaving confusion between the Plain and Standard Winged; the key field characters we use are white wing patches (a Plain male), rufous and black wing barring (Standard-winged birds), neither of these (a Plain female).

On this basis the Plain Nightjar occurs from June to January at (h) (i) and always at least in pairs. Four birds at (a) in January.

Long-tailed Nightjar C.climacurus: Seen 4 times: at (b)(g) in January, April and December, on open fields, woodland paths, or within the Neem plantation (cf. Dobbs, 1959).

Standard-winged Nightjar Macrodipteryx longipennis: From June to August at (h)(i). A male with plumes on the town's edge in June.

Common Swift Apus apus: Seen on August 13 at (a) (100 birds), on August 13 (separate years) at (h) (5 birds), and on November 30 at (e) (50 birds).

Little African Swift A.affinis: Seen throughout the year and resident in certain towns (e.g. Sokoto, Sifawa). Seen over all our areas, usually in groups of 20-40.

Palm Swift Cypsiurus parvus: Probably more numerous and more widespread than the Little Swift, and following the general distribution of Borassus Palms. Seen over all our areas but not usually in such groups as the Little African Swift. Is this due to a less social habit or to the nature of its food?

Pied Kingfisher Ceryle rudis: Resident at (a)(b)(c)(d) and present at (f) at the end of the wet season (1 pair). Usually singly or in pairs (rec.); up to 10 birds in any locality. Breeding in October. This species is by far the commonest kingfisher. It seems to have a low success rate with its fishing method - on perhaps one plunge in ten it catches a fish.

Malachite Kingfisher Alcedo cristata: A juvenile on Kware marshes in October (cf. Dobbs, 1959).

Pygmy Kingfisher Ceyx picta: Seen at odd times in the year at (b)(c)(f) and probably resident; at (g) in June; and surprisingly at (e) in June and August. Always seen singly and close to water (or the swimming pool at (e)!). Possibly breeding at (f) in August. 13 sightings.

Senegal Kingfisher Halcyon senegalensis: Once at Amenawa in July.

Striped Kingfisher H.chelicuti: A pair at (e)(f) and probably resident. Seen once at (h) in August. A display among 4 birds was seen in late March, 2 raising and lowering their wings and calling loudly (rec.).

Grey-headed Kingfisher H.leucocephala: 38 sightings from June to October:- 0, 0, 0, -, - (observers absent), 8, 17, 4, 3, 6, 1, 1. Possibly nesting at (f) in June, juveniles (i.e. lacking the chestnut belly, and once with a black bill) in June to September. Regularly seen at (e)(f)(h) and occasionally at (b)(c)(g). In June a pair were seen sitting side by side on a branch, one was ruffled on the head and persistently tried to prod the belly of the other, which soon flew off. In marked contrast to the Pied Kingfisher, the Grey-headed seems to have a high success rate with its hunting swoops.

Carmine Bee Eater Merops nubicus: Seen at (a) from November to April, not more than 5 together; a noisy group of 25 passing over (g) in June, and a pair over (h) in July; a group of 12 over Lake Kwaro in August. Often sitting on the backs of cows and goats.

White-throated Bee Eater M.albicollis: Seen once, a group of 25 passing slowly through (e) on October 27.

Least Bee Eater M.pusillus: Very catholic in its choice of habitat, for we find it in all our areas except (g); surprisingly always 1 or 2 birds inside the Neem plantation near (f). Hole-digging in April. Up to 20 birds seen in any one locality, but especially at (b)(d)(f) (rec.). Our sightings indicate a marked reduction in numbers in August and September:- 26, 17, 61, -, - (observers absent), 32, 47, 6, 5, 19, 38, 11.

Abyssinian Roller Coracias abyssinica: Seen throughout the year, and breeding. However it almost disappears in August and September (cf. Least Bee Eater), and it is certainly most obvious in the dry season:- 16, 31, 33, 10, - (observers absent), 16, 22, 5, 1, 12, 12, 7. It is found in all our areas except (i) in groups of 2-4 (rec.) though seeming to prefer the fadamas. Juveniles (i.e. without the long tail streamers) are seen in June to August. Once seen sitting on a branch 6 ins. away from an Abyssinian Lanner. No C.garrulus seen.

European/Senegal Hoopoe Upupa epops: Single birds seen at (d)(f)(g)(h)(i) in February, March and October; (e) is its favourite habitat (⅔ of our 42 sightings there) where it occurs in groups up to 8 in January to March, October and December, the group of 8 being seen on February 8. Breeding in a treehole at (e) in March, at a height of 2', with both parents feeding the nestlings - a group of 4 seen there in June. Although we cannot distinguish the 2 subspecies in the field, our sightings indicate the arrival of palearctic migrants:- 1, 10, 14, -, - (observers absent), 5, 1, 0, 0, 5, 0, 6.

Grey Hornbill Tockus nasutus: Seen at (e)(f)(g) singly or in groups of 3-6 and usually feeding on the ground. On 4 occasions we have seen "migration" movements: 2 groups of 16 and 20 passing westwards over (h) in July in separate years; a group of 12 flying northwards over lake Kware in August; a group of 50 passing south through (g) in October, generally noisy (rec.) but determinedly moving with only an odd bird stopping to feed. Outside these 3 months, few have been seen:- 6, 0, 3, -, - (observers absent), 1, 47, 16, 2, 55, 6, 4. These Hornbills can cling to trees like a woodpecker.

Red-beaked Hornbill T.erythrorhynchus: Found in the same areas as the Grey, (e)(f)(g) and also seen once at (c). Generally in smaller groups of 1-3, though a group of 8 at (g) in January. These birds seem to be resident throughout the year; we have seen no movements and their numbers are constant:- 10, 7, 6, -, - (observers absent), 8, 6, 6, 2, 10, 3, 4. Each area holds a few. Our sightings of these 2 Hornbills support Dobbs' (1959) figures, but certainly not her conclusion. The Grey is also a migrant, and the Red-beaked a resident, at 16°N. in Senegal (Morel and Morel, 1962).

Bearded Barbet Lybius dubius: Found only in (e)(f)(g). Though a brightly coloured bird its behaviour is mostly cryptic. Seen singly or in pairs, but groups of 4 on 3 occasions, in January, July and December. At least 1 pair live at (e) - courtship (i.e. chasing each other in circles) there in April, and a quartet in July.

West African Barbet L.vielloti: More common than the Bearded and conspicuous. It has a much wider habitat tolerance, being found in (b)(e)(f)(g)(h)(i) though resident only at (e)(g)(h). Nearly always found in pairs (rec.), generally outside woods. As with the Bearded, (e) holds 1 or 2 pairs. Bannerman fails to note the preliminary crescendo "purr" (called a "snarr" and "snarl" by Payne and Skinner, 1970) at the beginning of a call. Birds call thoughout the year and would often pass unnoticed were it not for that. On several occasions we noted that one bird may keep calling after its partner had stopped. We agree with Payne and Skinner's conclusion that each bird has its own rythm of calling.

Yellow-fronted Tinker Bird Pogoniulus chrysoconus: Without doubt the commonest Capitonid of the three. Found in the same areas as the Bearded, (e)(f)(g), where it is resident in some numbers; (e) holds at least 10 pairs (rec.). Courtship seen in April, and copulation in December.

Black-throated Honey-Guide Indicator indicator: 12 sightings: at (e) in February; at (g) in June, October and December; and (h)(i) in July. When 2 birds fly in circles, in courtship, they make a loud and distinctive "whirring" noise; heard at (e) in February.

Grey W oodpecker Mesopicos goertae: Resident at (e)(f)(g) and occasionally seen in the wooded parts of (c)(h). We do not find it a shy bird and, more often than not, it is the Grey Woodpecker that gives the alarm when an observer quietly enters the wood. Usually seen in pairs, (e) holding at least 2 pairs. Courtship (i.e. chasing each other) in August and December. Once seen catching flying termites.

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BIRD NOTES FROM THE PLAINS SOUTH OF LAKE CHAD

WINTER 1971-1972 PART 1

by

D.A.HOLMES

Among a team of soil surveyor working on the South Chad Irrigation Project were three bird-watchers, R.A.J.Harrison, R.B.Tucker and myself. Only the first named had had previous experience of this climatic zone (in Sudan), the other two being newcomers to the African continent in the context of this report. We arrived in mid-October 1971, shortly after the last rains, and remained in the area for most of the period until we left at the end of March 1972.

The project area consists of the flat clay pains south of Lake Chad, in the area of Marte, Dikwa, Logomani, Ngala and Gambaru. It is bordered on the south by the seasonally swampy area south of Logomani, on the east by the river Ebeji (a river of the Logone-Chari system), and on the north by a well marked sand ridge. This northern sand ridge slopes down to a flat marginal zone bordering Lake Chad (this zone lies outside the project area and we were rarely able to visit it). The seasonal River Yedseram runs north across the clay plains Scattered through the plains are a number of low sandy rises, and all the villages are sited on these.

The clay pains are uncultivated, being used only for grazing, and are not normally burnt in the dry season. They are largely devoid of trees and carry three types of grassland. The predominant type is a dense growth of tall wild Sorghum, while adjacent areas carry a sparser growth of Permisetum grass. Some extensive areas however carry only very short grass and quickly become almost bare in the dry season. Acacia arabica groves grow along depressions and seasonal channels. The sand ridges originally carried a dense thorn scrub of such species as Acacia sayal, Balanites, Zizyphus, Calotropis and Tamarindus, but in most