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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 parasites 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 chittering "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 Lamprolornis 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 Lamprolornis 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-Praed & 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 censussing 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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