

NOTES ON BREEDING OF THE RED-CHESTED CUCKOO IN NAIROBI

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INTRODUCTION

The Red-chested Cuckoo *Cuculus solitarius* is a known brood parasite of small thrushes and, in southern Africa, it has been shown by Payne & Payne (1967) and by Jensen & Jensen (1969) from nest record cards that the Robin Chat *Cossypha caffra* is the prime host species. Belcher (1941) and Wiley (1948) have noted that this species is also one of the hosts for the Red-chested Cuckoo in the Nairobi area. Other reported hosts in East Africa are given in Table 1 which has been compiled mainly from EANHS nest record cards.

TABLE 1

Hosts of Cuculus solitarius in East Africa (other than Cossypha caffra)

Host species	Nests	Localities
African Pied Wagtail <i>Motacilla aguimp</i>	1	Entebbe
Mountain Wagtail <i>Motacilla clara</i>	2	Kiambu, Limuru
Well's Wagtail <i>Motacilla capensis</i>	1	Kabete
Dark-capped Bulbul <i>Pycnonotus barbatus</i>	3	W. Kenya, Uganda
Rufous Chatterer <i>Turdoides rubiginosus</i>	1	N. Tanzania
Red-backed Scrub Robin <i>Cercotrichas leucophrys</i>	2	Olorgesailie, Lorugumu
White-browed Robin Chat <i>Cossypha heuglini</i>	5	Karen, W. Kenya, Iringa, Entebbe
Rüppell's Robin Chat <i>Cossypha semirufa</i>	12	Ngong
Bush shrike <i>Tchagra</i> sp.	1	Baragoi

The Red-chested Cuckoo has been heard calling regularly in my garden in Nairobi each year between early November and July. The garden, of about $\frac{1}{2}$ ha, is well covered with a variety of reasonably tall trees and flowering shrubs, and has thick cypress and bougainvillea boundary hedges. For the past five years a pair of Robin Chats has bred regularly in the garden. In the period April 1974 to January 1977 they raised at least five broods of one or two chicks, using the hedges and, on one occasion, the dead fronds of a palm, as nesting sites. During this period there was no case of nest parasitism by the Red-chested Cuckoo. However, during the 11 months April 1977 - March 1978 the Robin Chats attempted to breed on four further occasions and each time the nest was parasitised by the Red-chested Cuckoo. Three cuckoos were raised and only one attempt was unsuccessful. Table 2 shows a chronology for these breeding records which enables fairly accurate estimates to be made of incubation time, fledging time and of the post-fledging period, during which the young cuckoo was dependent upon the host species for food.

The first breeding attempt was particularly well documented: nest building began on 13 April 1977 in a bougainvillea hedge near the house, and on 19th a Robin Chat egg, pale fawn flecked with chocolate brown, 23.0 x 16.5 mm, was found in the nest. At 0700 hrs on 20th a Red-chested Cuckoo was seen to leave the hedge near the nest and a plain greenish egg, 24.5 x 18.0 mm, was subsequently found in the nest. This egg hatched on 4 May, after an incubation period of 14 d. On 5 May the Robin Chat egg was found on the rim of the nest and, on examination on 6th, was found to be punctured and to contain an almost fully developed embryo. The cuckoo left the

TABLE 2

Chronology of breeding attempts discussed in this paper

Nest No.	Nest building started	Eggs laid	Cuckoo egg hatched	Cuckoo fledged	Host stopped feeding	Cuckoo left garden
1	13.4.77	19.4 ¹ 20.4 ²	4.5	25.5	18-19.6	20.6
2	7.6.77	19.6 ²	(nest abandoned, egg found punctured 21.6)			
3	?	?	c.15.7.77	4.8	*	*
4	?	?	?	c.11.2.78	2.3	3.3

¹ Robin Chat egg laid, ² Red-chested Cuckoo egg laid, * unknown: author away on leave

nest after 21d and remained in the garden with the Robin Chats for a further 25d, and finally left on 20 June. During the post-fledging period the young cuckoo made no attempt to feed itself and begged for food continuously. During the latter half of this period one of the Robin Chats continued to feed the cuckoo whilst the other built a new nest in a strangely exposed position on the trunk of a palm tree and, on 19 June, a pale marble green cuckoo egg, 24.5 x 18.1mm, was found in this nest. By 24 June it was apparent that this nest had been abandoned, and the egg, which was found to have been punctured in two places, was removed from the nest and given to the Department of Ornithology of the National Museum, Nairobi.

The third nest, in a cypress hedge, must have been built before the end of June because, on 19 July when the nest was first discovered, it contained one Robin Chat egg and a nestling cuckoo which was estimated to be 4 + 1d old. This cuckoo left the nest on 4 August and was still in the garden when I went on overseas leave on 8 August.

I saw no further breeding activity by the Robin Chats until early February 1978, when they were seen collecting food and flying away. On 11 February, a young cuckoo was seen being fed in the boundary hedge, and its begging call was heard regularly until it left on 3 March.

DISCUSSION

The eggs The Red-chested Cuckoo is known to lay eggs with considerable variability in colour. In southern Africa, Oatley (1970) reports that they are mainly chocolate or olive-brown, of mean dimensions 23.2 x 18.1 mm. However, he also mentions cases of olive green, pale green, blue-green and pale blue eggs, sometimes with pinkish-brown freckling and blotching. In East Africa, Friedmann (1948) considered brown eggs to be more common than "pure unmarked blue" and all the eggs seen by van Someren (1956) in 12 cases at Ngong, were of the olive-brown type. Hughes (1949) reported a plain olive-green egg, apparently similar to those found in my garden, and Pitman (1964) reports a case at Baragoi of a light blue egg densely freckled with brown. The blue-green eggs do not mimic the colouring of those of the Robin Chat which, in my experience, have been greyish white to pale fawn with chocolate-brown flecking. However, these may not be typical, as Mackworth-Praed & Grant (1960) record Robin Chat eggs as blueish or greenish, densely speckled with dull brown.

Incubation time For the first nest the incubation time was 14 d. As might be expected, this is generally shorter than the incubation time for Robin Chat eggs, which is stated by McLachlan & Liversidge (1958) to be in the range 13-19 d. In the only case of normal breeding by the Robin Chat in the garden, for which I have precise dates, the incubation time was 17 d.

Ejection behaviour by the young cuckoo In nest No.1 the Robin Chat egg was punctured and ejected within one day. Ejection behaviour has also been reported by Reed (1969) and Liversidge (1955) who found that if the egg was replaced, ejection was repeated, but that the desire to do this apparently faded after 3-4 d. Hughes (1949) reports the ejection in less than 1 d of a Robin Chat chick which had hatched simultaneously with the cuckoo chick. However, ejection is not always practised as was the case in nest No.3, where the Robin Chat egg remained until the cuckoo was at least 7 d old. Van Someren (1916) has also reported that he twice found nests of the Dark-capped Bulbul *Pycnonotus barbatus* containing one Red-chested Cuckoo chick and two young bulbuls.

The fledging period This was measured as 21 d for the first nest and estimated at 20 ± 1 d for the third, assuming that the chick was 4 ± 1 d old when the nest was found. Jensen & Jensen (1969) give 17-20 d based on Liversidge (1955), Reed (1969) and South African nest record cards, and in the nest recorded by Hughes (1949) the chick was taken by a predator on the 20th day. For comparison, the normal fledging period for Robin Chat chicks has been in the range 14-18 d for three cases in my garden. I did not make detailed observations of the plumage changes and rate of growth of the cuckoo chicks because I wished to avoid too much disturbance to the nest. Liversidge (1955) has given very detailed descriptions, including many photographs, of the development of a Red-chested Cuckoo chick in the nest, and Friedmann (1959) has summarized the available information in his review paper.

The post-fledging period For nest No.1 this lasted 25 d and for nest No.4 at least 20 d. In each case the Robin Chats stopped feeding the cuckoo at this stage although it remained in the garden begging for food for about one further day before disappearing. Reed (1969) has given periods of 28-32 d and 25-26 d in two cases observed in southern Africa.

On leaving the nest, the cuckoo initially went up into the highest canopy of trees in the garden, about 15 m above ground level, and the Robin Chats were thus obliged to take food up to a level to which they rarely venture normally. During the next few days they were able to entice the cuckoo down to about 3-4 m above ground level and to within a few metres of the house where food is regularly put out for song-birds. The begging call was a continuously repeated *cheep-cheep-cheep* which speeded up on the approach of a Robin Chat with food. The cuckoo did not attempt to solicit food from other species, nor did it make any attempt to feed itself, although food was available, until the Robin Chats finally gave up feeding it.

Unresolved points It has been reported by Reed (1969) that the female Red-chested Cuckoo removes one of the host's eggs at the time of laying her egg. I have no direct evidence on this but my observations do tend to support Reed's statement. In nests Nos.1 and 3 only one Robin Chat egg was found with the cuckoo egg, although the normal clutch for the Robin Chat is two eggs. Furthermore, in the case of nest No.2, where no Robin Chat egg was found, it seems unlikely that the cuckoo would have laid

her egg into a completely empty nest. Both these points suggest therefore that the cuckoo did remove one Robin Chat egg at the time of laying her egg.

A more speculative suggestion, for which there is no proof whatsoever, is that the same cuckoo might have been responsible for all four cases of parasitism reported here. This suggestion is based only on the observed pattern of events whereby a period of at least four undisturbed breeding years for the Robin Chats has been followed by four consecutive attempts to breed within one year, all of which were parasitized. It would be interesting, in this connexion, to know what proportion of nesting attempts are parasitized in East Africa. In southern Africa it has been found that in the case of *Cossypha caffra* the proportion is as high as about 16 per cent. (Payne & Payne 1967, Oatley 1970).

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