

The Yellow-breasted Sunbird as a Host to the Rufous-breasted Bronze-Cuckoo

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The Rufous-breasted Bronze-Cuckoo (*Chalcites russatus*) and one of its hosts, the Yellow-breasted Sunbird (*Cyrto-stomus frenatus*), remain in the Cairns area throughout the year. The distribution of both species is much the same, the cuckoo being found in the Moluccas, New Guinea and north-eastern Queensland to as far south as the Dawson River, and the sunbird ranging from the Celebes, New Guinea, Admiralty Islands, Solomon Islands and north-eastern Queensland south to Yeppoon near Rockhampton. In all probability, the Yellow-breasted Sunbird is a host to the Rufous-breasted Bronze-Cuckoo wherever the two species occur in the same locality.

In May 1954 a pair of sunbirds began building their nest on a piece of electrician's flex hanging from the eaves of our house and within six inches of the kitchen window. They brooded in this position twice a year, in autumn and late spring, with varying success, until 1959. In November 1959 it was noticed that the nestling kept up a continuous peeping call. Previously, I had found nesting sunbirds to be very quiet, and thus my suspicions were aroused and I felt that matters in the nest were not as they should be.

On investigation it was found that the sunbirds were, in fact, harbouring a cuckoo, which could be differentiated from their own young by the markings on the throat and the short bill. In the young sunbird the throat is pale lemon, like that of the mother, and the bill is quite long, whereas the young cuckoo had dark striations on a light throat, though the colour of the upper surface was somewhat similar to that of the young sunbird. As the cuckoo grew it filled the nesting cavity to such an extent that the side of the nest burst and had to be tied together with mosquito netting. The cuckoo left the nest in the plumage as described and the species was not identified.

I now became very interested in the association of these two species and I determined to try and see the adult cuckoo actually deposit its egg in the nest of the sunbird. Because of the small size of the nesting chamber and the shape of the nest it seemed impossible that any cuckoo, even the smallest of the bronze group, could enter and actually lay an egg in the nest.

A nest of the sunbird was described by me in the *North Queensland Naturalist* (1955, 33: 4-6); that account is quoted below so that an idea may be gained of the problems facing a cuckoo intending to lay in such a nest.

"The foundations consisted of a piece of electrician's hooked flex hanging from the eaves of our house. To this was

fastened a loop greatly strengthened with plenty of spiders' cobweb, mixed with pieces of bark and measuring when straightened out some two inches in length. From this loop a tapering stem some eight inches long widening to three inches in circumference was avifabricated. Beneath this it expanded into the shape of a hollow pear about six inches deep and nine inches in circumference at the base, having an aperture at the side of two inches deep and an inch and a half across. From the lowermost part was suspended an eight-inch tapering pennant, quite distinct from the nesting chamber, some three inches across at the base of the nest and strongly attached by an abundance of cobwebs. The whole suspended structure is twenty-two inches from the point of attachment to the lowermost tip. The next performance was the making of a small hood projecting from the top of the doorway. This is built with stiff bark fibre, completely changing the appearance of the front of the nest, although the back and sides remained pear-shaped."

The sunbird enters its nest foremost, turns completely round, and settles down looking out from the entrance. The sunbird is only about $4\frac{1}{2}$ inches in length, including a bill about 1 inch long, while the Rufous-breasted Bronze-Cuckoo is almost 6 inches long, with a short bill and a plump body. It is obvious, therefore, that the cuckoo would have considerable difficulty in entering the small nesting cavity, which is about 2 inches deep, with a side-entrance less than $1\frac{1}{2}$ inches in diameter.

The sunbirds nested in the same position in 1960 without interference from cuckoos. In March 1961 they changed their nesting site to the front interior of the garage, some 40 feet from the old site. When this nest was near completion a pair of Rufous-breasted Bronze-Cuckoos took up a position, early each morning for more than a week, in a frangipanni tree some 14 feet from the sunbirds' nest, and in full view whenever the closely-slatted doors of the garage were opened. The sunbirds carried on with the building of their nest and completely ignored the watching cuckoos.

From now onward I watched the cuckoos and the nest very closely, especially in the early mornings immediately after the garage doors were opened. My patience was partly rewarded when I saw a cuckoo, which appeared to have an egg in its bill, enter the garage, though I did not see it at the sunbirds' nest. I went to the nest immediately and found that it contained an egg. It was not a sunbird's egg, which is pale greenish-grey, freckled and mottled with umber; the strange egg was buffy-olive, freckled with dark brown, and about the same size as a sunbird's egg.

The cuckoo's egg was ignored by the sunbirds, who went on building. On the afternoon of the same day it was taken from the nest by a small goanna some 18 inches in length. I saw the reptile leaving the nest and gave chase until it dropped the egg, which was found to be indented and slightly

chipped in one place, as though caused by a tooth of the goanna. I did not replace the egg in the nest.

The sunbirds continued with their building for six days, and each morning, for a time, the cuckoos were present in the same tree. During this period, when my husband opened the front door of the garage, I would open the back door and stand by it in anticipation. The female sunbird had shown signs of being ready to lay, as indicated by her entering and sitting in the nest for short periods, and it appeared that if the cuckoo was going to deposit an egg, the occasion was now imminent.

On the seventh day, at 6.30 a.m., soon after the garage had been opened, I saw one of the Rufous-breasted Bronze-Cuckoos fly to the nest carrying an egg in its bill; it clung to the side of the nest and, placing its head in the aperture, deposited the egg in the nest chamber. I rushed to the nest and on examination found the egg, which was still warm, coloured and freckled like the egg previously deposited. After the cuckoo left the nest it rejoined its mate in the frangipanni tree and both birds soon disappeared. I did not see where the cuckoo laid the egg, nor did I ascertain whether the female or the male cuckoo deposited it in the nest.

During these happenings the sunbirds were absent, apparently feeding, and it must be stressed that at no time up to this point had they been disturbed by, or shown any interest in, the cuckoos. However, when the female returned she discovered the egg and her cries brought the male to the nest. After much chattering the birds deserted their nest and then began building another in the old position near the kitchen window, where, later, the female brooded, but without success. Perhaps the eggs were taken by a snake, which was known to have attempted to steal the eggs from an earlier nest.

Flocking of White-backed Magpies.—Although occasional flocking is known to occur among White-backed Magpies (*Gymnorhina hypoleuca*) in South Australia, there is as yet no evidence that such flocking has a social significance similar to that recorded for the Western Magpie (*G. dorsalis*). It seems probable, however, that flocking does occur much more frequently in White-backed Magpies than has been suspected, and that it may indeed take place regularly and fill a definite rôle in the biology of the species.

My observations during the past two years have revealed that flocking takes place in the central region of the State in various seasons of the year, and that it involves from eight to twenty-odd birds. However, the function of flocking in the White-backed Magpie remains to be determined by investigation.—E. F. BOEHM, Sutherlands, S.A., 27/5/62.