

INTRASPECIFIC NEST PARASITISM IN THE WHITE-THROATED MUNIA

By MANJIT S. DHINDSA

ABSTRACT

Evidence is described indicating intraspecific nest parasitism in the White-throated Munia (*Lonchura malabarica*). The munias seem to prefer breeding in abandoned nests of weaverbirds (*Ploceus* spp.) and have little tendency to make their nests in the open. The scarcity of deserted weaverbird nests suitable for occupation by munias seems to be the main reason for the development of this intraspecific nest parasitism. The possibility of the White-throated Munia becoming a nest parasite of weaverbirds is also discussed.

INTRODUCTION

Yom-Tov (1980) defined intraspecific nest parasitism as "the laying of eggs in a conspecific nest without taking part in the process of incubation and/or caring for the hatchlings." He listed 53 species of birds in which the phenomenon has been reported. I have added two more species to this list (Dhindsa 1983), and this paper gives evidence to add a third, the White-throated Munia (*Lonchura malabarica*, subfamily Estrilinae, family Ploceidae).

The White-throated Munia (Fig. 1) is a common resident species throughout India and is also found in Bangladesh, Nepal, Pakistan and Sri Lanka. It extends westwards to southern Arabia and to Africa, where it is present south to Tanzania. These munias generally inhabit cultivated lands, grass lands, *babul* (*Acacia* spp.) jungles, sparsely scrubbed country as well as light secondary jungles (Ali & Ripley 1974). They are usually seen in flocks of a few to more than 50 birds feeding on the ground, on standing crops of pearl millet (*Pennisetum typhoideum*), *Sorghum* sp., cultivated fodder grasses, etc., and also at grain stores. Their breeding continues almost throughout the year. The nest they make is an untidy ball of grass (lined with feathers, cotton, etc.) with a lateral entrance hole and is placed in thorny bushes. Empty nests of weaverbirds (*Ploceus* spp., subfamily Ploceinae, family Ploceidae) are also habitually used by these munias for breeding (Fig. 2 & 3) and roosting (Ali 1931, Ali & Ambedkar 1956, Ambedkar 1964, Ali & Ripley 1974, Dhindsa 1980). Incubation and brooding are probably shared by both sexes and both members of the pair occupy the nest at night. After the breeding is over, the same nests are generally used as dormitories where family parties of five or six birds sleep huddled together.



FIGURE 1 — White-throated Munia with grass inflorescence in its beak to be carried to its nest

I made the following observations from April 1979 to April 1980 while surveying the old and abandoned nests of weaverbirds to determine their use by other animals in Jullundur district (30°58' to 31°37' N, 75°03' to 76°15' E and c. 237 m above sea level) of the Punjab, India. The disused weaverbird nests are available to the White-throated Munias for breeding during the non-breeding season of weaverbirds (late October to early April). During the weaverbird breeding season (April to October) also some isolated, fully formed and deserted nests of weaverbirds are occupied by munias, which build their own nests inside. Thus the White-throated Munias were recorded breeding throughout the year in the old nests of three weaverbird species, Baya Weaverbird (*Ploceus philippinus*), Black-throated Weaverbird (*P. benghalensis*) and Streaked Weaverbird (*P. manyar*).

EVIDENCE OF INTRASPECIFIC NEST PARASITISM

I monitored 14 clutches of the White-throated Munia in weaverbird nests. Of these, 11 were without parasitic eggs as the egg-laying sequence or clutch size was normal. These clutches had 3 to 6 eggs laid at 1-day intervals, and the average clutch size was 4.27 ± 1.10 (mean \pm s.d.). I have the following circumstantial evidence of intraspecific nest parasitism in the other three clutches.

Clutch 1, new eggs laid after hatching of the young: When discovered on 22 April, this clutch had 7 nestlings (about 1-6 days old) and 5 eggs. The eggs were dirty white and had been joined together by the dried droppings of the nestlings, which suggested that they had been laid a few days earlier. Another fresh egg appeared in the

nest on 23 April. In most passerine birds the eggs are laid at 1-day intervals until the clutch is completed and incubation begins with the laying of the last egg. Therefore, the eggs that are laid later in a clutch do not belong to the incubating female because the ovary and related reproductive organs regress soon after the clutch is completed (Bullough 1942, Yom-Tov 1980). Furthermore, the total number of nestlings plus eggs ($7 + 6 = 13$) was almost triple the average clutch size. Therefore, it is reasonable to assume that this clutch was the product of more than one female munia.



FIGURE 2 — White-throated Munia clinging to a weaverbird nest just before entering it



FIGURE 3 — A weaverbird nest cut open to show a nest of White-throated Munia in the brood pouch. Feathers, cotton, etc. were stuffed by munias into the nest.

Clutch 2, irregular laying: In this clutch the first five eggs were laid on 25, 26, 27, 28 and 29 June. The sixth, seventh and eighth eggs appeared in the clutch on 3, 4, and 5 July, that is, 5, 6 and 7 days after the laying of the fifth egg. These extra eggs, therefore, were laid by some female other than the nest owner. The total number of eggs was almost double the average clutch size.

Clutch 3, two eggs laid on the same day: The first four eggs of this clutch were laid at normal 1-day intervals on 29, 30, 31 October and 1 November. However, two more eggs appeared simultaneously on 2 November. As a female normally lays one egg per day, more than one female was probably involved.

These three cases indicate that intraspecific nest parasitism occurs in the White-throated Munia. Earlier workers also recorded abnormally large clutches of this bird. Baker (1926) mentioned that normally there are 4-8 eggs per clutch but that one clutch of 15 eggs had been found. According to Ali & Ripley (1974), as many as 25 eggs have been found in a single nest and such abnormally large clutches are the products of several females.

REASONS FOR INTRASPECIFIC NEST PARASITISM

In my study area the White-throated Munias bred almost exclusively in abandoned weaverbird nests and seldom seemed to make their nests in the open. The eggs and nestlings of munias can be recorded in the disused weaverbird nests throughout the year. The weaverbirds desert all of their nests after completion of their breeding season and these fully formed nests remain intact for long periods, sometimes through to the beginning of next breeding season. The munias occupy these nests for roosting and breeding. All the deserted nests, however, are not available to the munias because other birds, rodents and insects also occupy them (Dhindsa 1980). The number of old weaverbird nests is highest at the end of the weaverbirds' breeding season. The number goes on decreasing, however, because of climatic wear and tear, and by the start of the next breeding season only a few nests remain intact. While founding their new colonies the weaverbirds cut down these old nests of the previous season.

During their breeding season, some weaverbirds desert their nests after having raised their first brood or when the nest contents are lost to some natural calamity. Such freshly deserted nests are usually cut down by the male weaverbirds to clear the sites for new nests, but some of the new nests are built elsewhere and so the abandoned nests are not cut down. Nevertheless, the empty nests available for the munias are much fewer than in the non-breeding season of the weaverbirds. The munias seem to prefer making their nests in the deserted weaverbird nests rather than in the open, even during the breeding season of weaverbirds, perhaps because weaverbird nests are usually sited in inaccessible sites that provide protection from predators. In addition, the nests are oriented in such a way that few contents are lost because of strong winds (Davis 1971, Dhindsa 1980).

I collected five complete nests of the Baya Weaverbird from below a colony and secured them with thread to the branches of a tree. To my surprise, I found an egg of the White-throated Munia in one of these nests on the second day. The munias that occupied this

nest were stuffing nesting material into the brood pouch of the nest, and so the female may have already mated and as soon as it found the empty weaverbird nest could start egg laying. Two more of these five nests were occupied by munias within one week.

From these observations I assume that the number of mated female munias may be more than the available deserted weaverbird nests suitable for them and that this scarcity of preferred nesting sites may be responsible for intraspecific nest parasitism. When mated females are unable to find an empty weaverbird nest, they may prefer to lay in a nest that already has a conspecific clutch.

POSSIBILITY OF WHITE-THROATED MUNIA BECOMING A NEST PARASITE OF WEAVERBIRDS

One or more pairs of the White-throated Munias are often seen in the active breeding colonies of weaverbirds apparently trying to enter and examine their nests. The eggs of these munias are pure white like those of weaverbirds but are smaller and weigh less. So far, no one has found munia eggs in the clutches of weaverbirds, but the general resemblance of their eggs and the habits of munias may well lead to White-throated Munias becoming nest parasites of weaverbirds. Ali (1931) was the first to observe White-throated Munias trying to enter occupied nests of the Baya Weaverbirds and to point out the possibility of parasitism. A White-throated Munia egg has been recorded in a clutch of the House Sparrow (*Passer domesticus*) (Ali & Ripley 1974).

ACKNOWLEDGEMENTS

I wish to thank H. S. Toor (Professor of Zoology) and P. S. Sandhu (Assistant Ornithologist) for their constructive criticism of the manuscript.

LITERATURE CITED

- ALI, S. A. 1931. The nesting habits of the Baya (*Ploceus philippinus*) — A new interpretation to their domestic relations. J. Bombay Nat. Hist. Soc. 34: 904-964.
- ALI, S.; AMBEDKAR, V. C. 1956. Notes on the Baya Weaver bird, *Ploceus philippinus* Linn. J. Bombay Nat. Hist. Soc. 53: 381-389.
- ALI, S.; RIPLEY, S. D. 1974. Handbook of the birds of India and Pakistan. Vol. 10. Oxford University Press.
- AMBEDKAR, V. C. 1964. Some Indian weaver-birds: A contribution to their breeding biology. University of Bombay.
- BAKER, E. C. S. 1926. The fauna of British India including Ceylon and Burma. Birds Vol. 3. London: Taylor & Francis.
- BULLOUGH, W. S. 1942. The reproductive cycle of the British and Continental races of the Starling *Sturnus vulgaris*. Trans. Roy. Soc. Lond. B. 231: 165-246.
- DAVIS, T. A. 1971. Variation in nest-structure of the Common Weaverbird *Ploceus philippinus* (L.) of India. Forma et functio 4: 225-239.
- DHINDSA, M. S. 1980. Ecological studies on the weaver birds of the Punjab and their control. PhD thesis, Punjab Agricultural University, Ludhiana.
- DHINDSA, M. S. 1983. Intraspecific nest parasitism in two species of Indian weaverbirds *Ploceus benghalensis* and *P. manyar*. Ibis 125 (in press).
- YOM-TOV, Y. 1980. Intraspecific nest parasitism in birds. Biological Reviews 55: 93-108.

MANJIT S. DHINDSA, *Department of Forestry & Natural Resources, Punjab Agricultural University, Ludhiana - 141 004, (Punjab), India*