THE STARLING: A POTENTIAL BROOD PARASITE?

On 15 December 1977, in an orchard at Havelock North I found in a Myna nest box three Myna nestlings which from their primary feather length and general development I estimated to be 15-17 days old, together with one Starling nestling approximately 18-19 days old. All were healthy, and only adult Mynas carrying food visited the nest — no Starlings were seen.

At 0045 hrs on 17 December 1977 I saw the brooding female Myna leaving the nest box, and at this time the Starling and all three Myna nestlings were still present. When D. G. Cooper checked the nest box again after dark on 19 December 1977, only the three Myna nestlings remained. The next day (20 December) a fledgling Starling was seen a few metres from the nest box and an adult Myna was nearby, but nothing in their behaviour indicated a parent/fledgling bond; there were no other Starlings nearby. The Myna nestlings fledged between 21 and 25 December, and were observed with their parents several times over the next few days, but the Starling fledgling was not seen again.

The Starling nestling may have fledged from a nest nearby, and then entered the Myna nest, as frequently happens between Starling broods (Johnson & Cowan 1974). However, although some Starlings would be capable of flight at 18-19 days old, in New Zealand undisturbed nestlings usually leave at about 23 (19-26) days (J. E. C. Flux, pers. comm.). A more likely explanation in my opinion is that the nestling had been reared from a Starling egg laid in the Myna nest and incubated along with the Myna's clutch. Dumping of eggs in another pair's nest is not unknown in Mynas (pers. obs.) and quite common in Starlings (Yom-Tov *et al.* 1974). Judging by the age of the nestlings, incubation of both the Myna eggs and the Starling egg would have begun together, and, as Starlings incubate for 12 days and Mynas for 14 (Wilson, 1975) the Starling chick would have hatched first.

During a 7-year study of Myna breeding biology in Hawkes Bay (Wilson 1973, and unpubl.), over 400 clutches of Myna eggs were observed. None contained Starling eggs and no Starling nestling was found with a Myna brood. Clearly any laying by a Starling in a Myna nest is a rare event, but one with interesting evolutionary possibilities.

Both the Myna and the Starling are introduced to New Zealand and their ranges overlap north of 40°S. The feeding niches of both overlap (pers. obs. and Moeed 1975). Both take insects on the surface, though Starlings also probe for subterranean invertebrates and Mynas feed more fruit to their young. Both are hole nesters and lay very similar eggs; the breeding seasons overlap considerably; and the larger Myna can reduce Starling breeding success to very low levels by destroying eggs or nestlings in accessible nests. At inaccessible nests they even kill Starling nestlings by calling them to beg at the entrance (Wilson, 1973).

Brood parasitism will evolve only in species where it results in more offspring than would have been produced by ordinary breeding (Hamilton & Orians 1965), and is rare in birds as there are only seven families or sub-families where it is practised and only one of these contains more than a dozen species (Lack 1968). It follows that there must be unusual and special reasons for its evolution, and it is possible that the severe effect of Mynas on Starling breeding success could be sufficient. Certainly the incubation period of the Starling, being 2 days shorter, would give the Starling an advantage in brood parasitism.

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WHITE-NECKED HERON NEAR MATAMATA

On 12 July 1978, while motoring south of Matamata, eastern Waikato, near the junction of highways 27 and 29 at about 0915 hrs, I noticed an unusual heron in flight. At first I thought it to be a White-faced Heron *(Ardea novaehollandiae)* but as I approached, I realised it was much larger, with a full white neck and darkish beak. It was flying higher than is usual for the White-faced.

The wings and upper parts of the body looked a darkish grey-blue, perhaps navy blue, and the body a lighter dull grey below. The wing beats were powerful, deep and slower than those of the White-faced.

As I turned into highway 29, the bird had passed me, flying south towards Tirau but, by the time I had turned back on to highway 27, it had swung west. It finally disappeared from view westward across open farm land. By its size and the whiteness of its neck, the bird could only have been a White-necked Heron *(A. pacifica)*, which is widespread in Australia but has been recorded in New Zealand only once before, near Methven in April-July 1952 (Stidolph 1952, *Notornis* 5: 38).

In the frantic confusion of the occasion, I did not see more detail, particularly the white at the angle of the wing. A further search on the following days was unsuccessful.

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