

UNUSUAL BEHAVIOUR OF A FEMALE ZEBRA FINCH: POSSIBLE EGG DUMPING

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Recently, there has been much interest in multiple parentage of clutches in so called monogamous species of birds. The evidence mostly consists of observations of extra pair copulations (EPCs) (Birkhead *et al.* 1987; Westneat 1987; Møller 1987), but multiple parentage may also arise from intra-specific brood parasitism (IBP), also known as conspecific nest parasitism, or egg dumping. Intra-specific brood parasitism (IBP), is much more difficult to detect and has been identified in very few passerines (Yom-Tov 1980; Andersson 1984; Rohwer and Freeman 1989; Romagnano *et al.* 1990).

Of the few reported cases of IBP in passerines, most have only observed this behaviour through secondary observations such as abnormal changes in the laying sequence (Lombardo 1988; Picman and Belles-Isles 1988), abnormal clutch sizes (Yom-Tov *et al.* 1974), or electrophoretic analysis of relatedness between offspring and parents (Brown and Brown 1988a). Direct observations in which the dumper is identified are extremely rare (Yom-Tov 1980; Rohwer and Freeman 1989; Brown and Brown 1988b).

Zebra finches *Taeniopygia guttata* are a monogamous species that have a very strong pair bond and appear to pair for life (Immelmann 1965; Butterfield 1970). EPCs have been observed on many occasions in Zebra Finches both in the wild (Birkhead *et al.* 1988a) and in the laboratory (Birkhead *et al.* 1988b) and until recently EPCs would have been considered to be the most common mechanism contributing to multiple parentage of clutches in Zebra Finches. Recent work, however, by Birkhead *et al.* (1990) revealed a high incidence of IBP in Zebra Finch clutches (in 30% of clutches), using DNA fingerprinting techniques. Previously, IBP had not been recorded for Zebra Finches.

As part of a project on the song of Zebra Finches in the wild I have watched over 40 nests at the egg laying stage over the past four breeding seasons (1986/87 to 1989/90 seasons). Over that period there has been only one occasion in which I have observed a female suspected of dumping an egg in a nest which was not her own. Nests were watched for 1.5 to 3 hours from dawn, for each day of the laying period. The field site is situated north of Shepparton in northern Victoria on a property with a population of Zebra Finches which are colour-banded for individual identification. The breeding season for this particular colony is between September and April of each year, reaching peak breeding activity usually around October/November.

On 10 November 1988, I observed a possible IBP incident while watching a nest. The nest was owned by a banded male (RMOW) and female (WMOR) and, before starting to watch the nest (at 0708 edt), I checked the number of eggs and found that there were three in the nest. During the watch (at 0751 edt) the owners of this nest flew away, presumably to feed, but about one minute later a second female (ORMU), owning a different nearby nest, approached the nest silently from the side concealed mainly by foliage, and entered it. This female sat in the nest for a little more than two minutes before leaving as quietly as she had entered. The male owner of the nest was back in the bush less than a minute after ORMU had left and appeared not to have noticed the intrusion. The female WMOR had been in the nest both before and after I observed ORMU entering the nest.

At the end of the watch on this nest (0845 edt) I checked the nest again and found that it now had four eggs. Zebra Finches normally lay one

egg each day, usually in the morning (Immelmann 1962). Unfortunately, I did not realize the significance of this observation at the time and did not check the nest on the following day to confirm whether the egg laid during the observation was dumped. I had checked the nest on the previous three days and the laying sequence on those days was 0, 1, and 3 eggs which points to an IBP incident on 9 November 1988 and not necessarily on 10 November 1988. The final size of the clutch was seven eggs which is a large clutch size for these birds. The mean clutch size (\pm SD) of nests in this particular colony was 5.02 ± 1.02 ($n = 303$) (R. Zann, unpubl. data). The nest owned by the 'parasitic' female was located in the same bush as the focal nest, less than 1.5 m away. On 7 November 1988, this nest had three eggs and reached a final clutch size of five eggs. The nests of both pairs involved in this incident were unsuccessful, possibly due to predation.

Usually Zebra Finches strongly defend the area around the nest during the egg laying period (Immelmann 1962, pers. obs.). It is unusual to see any birds other than the pair enter the nest but, occasionally, a pair searching for a nest may briefly enter an existing nest if the owners are absent. Nest searching pairs, however, are easily recognized as they always arrive together and make characteristic nest calls while inspecting the nest (Immelmann 1962).

Although it is uncertain whether or not the intruding female 'dumped' an egg on this occasion, the behaviour exhibited by the female was unusual and was the type of behaviour which has been described from the few direct observations of other species (Brown 1984; Emlen and Wrege 1986).

The speed with which the female entered and left the nest, and the manner in which the female approached the nest demonstrate why this behaviour is rarely observed. As a consequence, direct observation would not be a reliable alternative to secondary observations for determining the prevalence of IBP, but is necessary to identify the type of female likely to parasitize nests.

Møller (1989) found that female swallows *Hirundo rustica* were more likely to parasitize nests which were more distant from other nests than those that were positioned closely together,

as close nests were guarded to some extent by nearby nest owners. However, Møller (1989) also found that close nests suffered greater parasitism when synchronous with neighbours' nests. A similar situation may be occurring with Zebra Finches as my observations are consistent with this pattern. A female wishing to parasitize a nest would be able to observe better a nearby nest to determine if the neighbouring female is laying eggs and when the owners are absent, than a distant one. Some other intraspecific brood parasites are known to observe nests to determine when owners leave, before parasitizing them (Semel and Sherman 1986; Weller 1959).

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RECOVERY ROUND-UP

This section is prepared with the co-operation of the Secretary, Australian Bird and Bat Banding Schemes, Australian National Parks and Wildlife Service. The recoveries are only a selection of the thousands received each year; they are not a complete list and should not be analysed in full or part without prior consent of the banders concerned. Longevity and distance records refer to the ABBBS unless otherwise stated. The distance is the shortest distance in kilometres along the direct line joining the place of banding and recovery; the compass direction refers to the same direct line. (There is no implication regarding the distance flown or the route followed by the bird). Where available ABBBS age codes have been included in the banding data.

Recovery or longevity items may be submitted directly to me whereupon their merits for inclusion will be considered.

Hon. Editor.

The following abbreviations appear in this issue:

AWSG — Australian Wader Study Group.
 ECWG — East China Waterbird Group
 NPWLS SA — National Parks and Wildlife Service, South Australia
 NSWWSG — New South Wales Wader Study Group.
 VWSG — Victorian Wader Study Group.
 WAWSG — Western Australian Wader Study Group
 WWF — World Wildlife Fund for Nature

Australian Pelican *Pelecanus conspicillatus*

170407704. Nestling banded by M. H. Waterman on North Pelican Island, SA on 18 Jan. 89. Recovered, band only found, at Lake Urana, NSW on 21 May 91. 607 km E.

Cattle Egret *Ardeola ibis*

- (a) 100-73740. Nestling banded by J. T. Willows near Ballina, NSW (28°45'S, 153°31'E) on 14 Dec. 89. Colour marking sighted in field, (band number inferred) at Rangiriri, New Zealand (37°25'S, 175°06'E) on 26 June 90. 2 222 km ESE.
- (b) 100-60571. Nestling banded by D. H. G. Davidson near Murwillumbah, NSW on 5 Jan. 84. Recovered, dead, at Back Ma Ma Creek, Grantham, Qld on 25 Apr. 91, over 7 years 3 months after banding. 147 km WNW.
- (c) 100-62689. Nestling banded by N. G. McKilligan at Lowood, Qld on 8 Dec. 89. Colour marking sighted in field, (band number inferred) at Duckenfield near Maitland, NSW on 15 Apr. 91. 593 km S.

Eastern Reef Egret *Egretta sacra*

100-80016. Adult (1+) banded by R. A. Elvish on Heron Island, Qld on 7 Dec. 78. Recovered dead at banding place by P. Ogilvie on 19 Nov. 88, over 9 years 11 months after banding.

Straw-necked Ibis *Threskiornis spinicollis*

120-59514. Nestling banded by M. H. Waterman at Narrung, SA on 29 Oct. 66. Recovered dead at banding place on 19 Nov. 90, over 24 years after banding.

Royal Spoonbill *Platalea regia*

131-75939. Juvenile banded by J. W. Reside at Dowd Morass State Game Reserve, Vic. on 17 Dec. 90. Colour marking sighted in field, (band number inferred) at Seaham Swamp Nature Reserve, NSW on 2 Apr. 91. 650 km NE.