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## Nest sharing by two Blackbird *Turdus merula* females

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**Abstract.** Two cases of nest sharing by two Blackbird pairs each were recorded during a long-term urban study. In the first case, two females simultaneously incubated eggs in the same nest. The nestlings were later seen to be fed by the two pairs of adult birds. In the second case, a nest containing 4 eggs laid by one female was taken over by another which, having chased the nest owner away, laid 5 eggs of her own. The likely cause of nest sharing in the first case was the loss of eggs at an early stage of laying by the second female. In the second case, nest sharing seems to have been caused by nest competition. The details of the parents and siblings of the females involved in the first case permits the conclusion that the absence of competition between the females (and even their co-operation in feeding the young) was not caused by their genetic affinity.

**Key words:** European Blackbird, *Turdus merula*, breeding strategies, nest sharing

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### INTRODUCTION

The Blackbird *Turdus merula* belongs to the species of well-known pair-bonding pattern (see Stephan 1985 for a review). Available data show a high proportion (even 99%) of monogamous pairs in population, while bigamy, sequential polyandry, sequential polygyny, and polyandry was revealed in 0.1–0.5% of cases (e.g. Stephan 1985, D. Wysocki unpubl.). However, such data fail to fully reflect breeding behaviours of a species. The literature (see Stephan 1985 for a review) contains a number of reports on non-typical breeding behaviours of the Blackbird. One of the rarest manifestations involves laying part or the entire clutch in another female's nest or in a nest of other bird species. As such behaviour is extremely rare, its causes have yet not to be explained. This paper describes two cases of such behaviour collected at two intensively studied city parks: one in Szczecin, NW Poland (case 1) and the other in Cracow, S Poland (case 2), and provides a likely explanation for its events.

### CASE 1

In Szczecin, the study had been carried out since 1997 in the inner-city Żeromski Park (24 ha; Blackbird density of 0.95–2.5 pairs/ha). In total 70–90% of the breeding individuals were colour ringed. Blackbird behaviours were observed at least every other day from March until the end of the breeding season, for 4–8 hours a day.

In 16 June–9 July 2003, two Blackbird pairs were seen to breed in the same nest. At that time, the territory was occupied by two females (F) and two males (M): F1, ringed in 2000 at a nestling stage; mate of male M1 since the beginning of the breeding season; M1, ringed as a nestling in 2001, regularly observed in the territory; F2 – ringed, as a young female, in 2001, widowed at the beginning of the breeding season 2003, subsequently associated with another male, since 9 May without a partner; M2, ringed as a nestling in 2001, widowed since 14 May 2003, spotted in the territory only during feeding the young, not seen earlier with any of the females described above.

On 5 June 2003, F1 — guarded by M1 — was building a nest. The first egg was laid on about 7 June 2003. On 14, 17, and 20 June 2003, F2 was observed to stay by the nest with the incubating F1. When F1 left the nest, F2 entered it; immediately left the nest after the F1 return. F2 returned 15 minutes later and sat next to the nest, over several minutes moving gradually towards the incubating F1, whereupon she sat on the nest edge. The time F1 spent feeding and incubating was very similar to the average found in other females (D. Wysocki unpubl), while F2 fed for a longer and incubated for a shorter time than the average. After hatching all the four birds fed the nestlings at a similar frequency, M1 and F2 being the major food providers during the first three days. F1 left the nest much more often (every 15–20 minutes) and stayed outside of it longer (7–15 minutes) than did, on the average, other pairs observed which left their nest every 30–60 minutes to stay outside for 3–10 minutes (D. Wysocki unpubl). Starting from the day 4<sup>th</sup>, the nestlings were observed to be regularly fed by M2. The nest was left by 4 fledglings. No aggressive behaviour between the adults was ever observed.

## CASE 2

In Cracow, the Blackbirds had been observed since 2000 in Dr H. Jordan Park (21.3 ha; Blackbird density of about 1.9 pairs/ha). About a half of all the territorial individuals were colour ringed. The birds were observed daily, for 2–8 hours, from March until the end of the breeding season.

From 31 March to 8 May 2002, two females were seen breeding in the same nest. The territory was occupied by a male in his second calendar year of life. The two females, were most probably in their second calendar year of life, too.

Female F1 began nest building on 31 March 2002 and laid 4 eggs (7–10 April). All of them were individually marked. On 9 April, one of the eggs disappeared from the nest; on the morning of 17 April, the eggs were found left unprotected. On 19 April, the nest contained 6 incubated eggs: 3 from the first brood and 3 new ones; next 2 eggs were added two days later. All were laid by F2. During incubation disappeared 2 eggs — one laid by F1, the second one laid by F2. At 28 April the egg laid by F1 hatched. F2 took care of the nestling as well as of two hatchlings of her own which she lost soon after hatch. It is not known why the two hatchlings died. The nest was left by

only a single fledgling that had hatched from an egg laid by F1.

## DISCUSSION

Three similar cases of combined Blackbird breeding in the same nest have been described so far. Two incubating females and one male were observed in Germany and in Switzerland (Merkel 1973, Appenzeller & Furrer 1976), two nest-sharing females being observed in England (Newland & Newland 1970). In the first two cases, one of the females did not have rectrices, which would be indicative of the females being attacked in their nest before all the eggs could be laid, so they dropped the egg (eggs) to a neighbour's nest.

The lack of safe nesting sites during the time of egg laying seems to be also a plausible explanation of combined breeding of the Blackbird, the Song Thrush *Turdus philomelos* (Blackett 1960, König 1964, Less 1968, Freemann & Batten 1970) and the Fieldfare *T. pilaris* (Vuolanto & Vuolanto 1965, Sandström 1970). The Blackbird is flexible when it select the nesting site. Under a strong predation pressure may occupy nests left by other *Turdus* species — Song Thrush (Cohen 1952) or Fieldfare (own observ.) or those already used in the same breeding season by another Blackbird pair (own observ.) According to Appenzeller & Furrer (1976), kinship between the nest-sharing females can be another cause underlying their staying in the same nest.

In the case 1, the genetic affinity between the females is rather unlikely; they certainly did not originate from the same brood (F1 and her siblings had been colour ringed at nestling stage). Thus the loss of F2's brood early during egg laying and dropping the subsequent eggs into F1's nest seems the most plausible explanation of the behaviour observed.

In the case 2, competition between the two females seems the most likely explanation, particularly in view of a full clutch of 5 eggs being added to the nest. Having found no suitable site to build her nest at, F2 strove to lay her eggs in F1's nest and/or to remove F1 from the nest altogether. The strong competition between males, observed each year in the territory, suggests that it was a particularly attractive one and that the females could have been competing, too. It seems that F1 was forced to leave her nest by F2. It is also probable that, even before she overtook the nest, she had been accepted by the male as an additional

female; once F1 was removed, F2 occupied the nest and laid her eggs there.

The cases described above resulted from exceptional situations that likelihood of which is the higher the stronger the predation pressure is in the area and the fewer sites that are suitable for Blackbird nesting it contains. Those facts, similarly to the variety of pairing behaviours, are evidence of an immense plasticity with which the Blackbird adapts to new conditions and demonstrate the species' high potential for changes in breeding strategies.

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#### STRESZCZENIE

#### [Użytkowanie tego samego gniazda przez dwie samice kosa]

W czasie wieloletnich badań biologii miejskiej populacji kosa stwierdzono dwa przypadki wspólnych lęgów w jednym gnieździe. W pierwszym przypadku dwie samice wspólnie wysiadywały jaja, a następnie dwie pary ptaków karmiły pisklęta w jednym gnieździe. W drugim przypadku gniazdo z czterema jajami zostało zawłaszczone przez drugą samicę, która przepędziła właścicielkę gniazda, a następnie do już złożonych czterech dołożyła pięć swoich jaj. Najbardziej prawdopodobną przyczyną wspólnych lęgów w pierwszym przypadku jest utrata lęgu drugiej samicy w czasie składania jaj. W drugim przypadku wspólny lęg jest efektem konkurencji o miejsce do gniazdowania. Dokładne informacje dotyczące rodziców i rodzeństwa jednej z samic w pierwszym z opisanych przypadków pozwalają wykluczyć hipotezę zakładającą, że brak konkurencji, a nawet współpraca samic w czasie karmienia piskląt jest efektem pokrewieństwa.