

# Courtship feeding in the Channel-billed Cuckoo in the Hunter Region, New South Wales

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## INTRODUCTION

The Channel-billed Cuckoo *Scythrops novaehollandiae novaehollandiae* is a large, grey cuckoo with a long, barred tail and heavy decurved bill. It has a distinctive cruciform flight silhouette and a raucous call. It is found in forests, woodlands and grasslands, and eats mostly fruits, especially figs *Ficus* spp., as well as some insects, eggs and young birds (BirdLife Australia 2024; Higgins 1999).

The Australian Channel-billed Cuckoo (subspecies *novaehollandiae*) arrives in northern and eastern Australia to breed between August and September and leaves for New Guinea and Indonesia between January and April (BirdLife Australia 2024; Higgins 1999). During the breeding season, it appears to form pair bonds (Higgins 1999) and participate in courtship behaviour (Merrett 2014). The Channel-billed Cuckoo is an obligate brood parasite which lays eggs in the nests of species such as the Australian Magpie *Gymnorhina tibicen*, Pied Currawong *Strepera graculina* and corvid spp. (BirdLife Australia 2024). Its young are raised by the host-parents.

Courtship feeding occurs when a male animal feeds a female animal during courtship and/or incubation (Ehrlich *et al.* 1988). It is more common in birds than other animals (Galván & Sanz 2011; Lack 1940). In birds, a male usually presents solid or regurgitated food to a soliciting female (Ehrlich *et al.* 1988). The provision of food depends on the male's health, the female's nutritional needs and the female's signals such as vocalisations (Cantarero *et al.* 2014; McCallum & Shaw 2023). Interestingly, courtship feeding is mostly found in bird species in which only the female builds the nest and incubates, and the male and female eat plant foods, face low predation risk (Galván & Sanz 2011) and care for the young (Lack 1940).

Many Australian parasitic cuckoos, including the Pallid Cuckoo *Cacomantis pallidus*, Brush Cuckoo *Cacomantis variolosus*, Fan-tailed Cuckoo

*Cacomantis flabelliformis*, Horsfield's Bronze-Cuckoo *Chrysococcyx basalis* and Shining Bronze-Cuckoo *Chrysococcyx lucidus* carry out courtship feeding (reviewed by Noske 1981). However, since the early 1950s, the Channel-billed Cuckoo has been documented carrying out courtship feeding only three times, with chewed leaves (Hindwood & McGill 1951), stick insects (Johnson 1983) and large insects (Goddard & Marchant 1983).

To photograph foraging Channel-billed Cuckoos, I visited a park that contains mature fig trees. This note describes one opportunistic observation of a male Channel-billed Cuckoo offering a female a mulberry during copulation at Morpeth in the Hunter Region.

## METHODS

On 8 October 2023, a search was made for Channel-billed Cuckoos at Morpeth (32°43'42"S, 151°38'15"E), New South Wales. The habitat was cultivated grassland with trees, including fruiting mature figs *Ficus* spp., understorey plants and ponds. The birds were photographed from a concealed location with a Canon 5D Mark IV camera with a Sigma 150-600 mm f/5-6.3 DG OS contemporary lens.

## RESULTS

A Channel-billed Cuckoo was observed feeding from a fruiting shrub, most likely Black Mulberry *Morus nigra*. It plucked a mulberry and flew ~80 m to a eucalypt that was ~30 m in height. It mounted a second Channel-billed Cuckoo (presumed female) that was perched on a branch. I assumed that copulation occurred because the male was on the female's back for 18 s (**Figure 1; Table 1**). The mulberry was passed to the female then taken back and eaten by the male (**Figure 2; Table 1**). The female was not heard vocalising before or during copulation.



**Figure 1.** Copulation evidenced by the: (a) male mounting the female; (b) male gripping the female; and (c) male lifting his tail and female crouching and lifting her wings.

## DISCUSSION

I observed Channel-billed Cuckoos using a previously unreported food type, a fruit, for courtship feeding during copulation in the Hunter Valley, New South Wales. This observation is contrary to previous comments that courtship feeding has evolved more often (but not only) in

bird species in which solely the female builds the nest and incubates, and both male and female care for the young (Lack 1940). The function of courtship feeding in parasitic cuckoos is yet to be elucidated.

Relationships between courtship feeding and reproductive success are complex and difficult to unravel. Courtship feeding may relate to a higher probability of egg laying, shorter courtship (Green & Krebs 1995) and incubation (Lyon & Montgomerie 1985; Nilsson & Smith 1988) periods, and greater egg mass, clutch size and hatching success (Helfenstein *et al.* 2003; Lyon & Montgomerie 1985; Nilsson & Smith 1988; Nisbet 1973). Thus, it may improve the reproductive success of both parents. Reproductive success largely depends on access to enough nutritious food (Martin 1987), and in parasitic cuckoos, the cuckoo pair forages during egg production and the host-species pair forages during incubation. Therefore, it is difficult to work out what proportion of overall reproductive success is due to food collection by each pair or individual.

It is also not known whether all male Channel-billed Cuckoos feed females during courtship or how often they do. Johnson (1983: 44) proposed that ‘... the capture and presentation of a large food item by the male is a prerequisite for mating in Channel-billed Cuckoos’, however, the paucity of documented reports on courtship feeding does not support this view. A male may choose whether to feed and how much to feed in response to a female’s nutritional needs, which may be communicated through begging signals (Cantarero *et al.* 2014). He may be more likely to feed a female that demands more food because she is experiencing disability or injury (Cantarero *et al.* 2014), foraging unsuccessfully or producing large eggs (McCallum & Shaw 2023).

## CONCLUSIONS

This observation of the Channel-billed Cuckoo has identified a new courtship food, a mulberry, and provided further evidence of courtship feeding. Additional investigations are needed to determine how common courtship feeding is for the Channel-billed Cuckoo, if it is closely associated with copulation, which foods are involved, and if they are usually eaten by the female.





**Figure 2** Courtship feeding showing the: (a) male on the female's back with a mulberry in his bill; (b) female reaching for the mulberry; (c) female taking the mulberry from the male; (d) male taking the mulberry back from the female; (e) male holding the mulberry; and (f) male swallowing the mulberry.



**Table 1.** Courtship feeding in a Channel-billed Cuckoo pair in the Hunter Valley in 2023

Time (pm) (h:min:s)	Observation	Figure
5:17:57	Male flew with a mulberry in his bill from a mulberry tree to a eucalypt in which the female was perched.	
5:18:13	Male mounted the female with flat feet on her neck	1a
5:18:16	Male gripped the female at the juncture of her body and wings	1b
5:18:18	Male raised and turned his tail; female crouched and lifted her wings	1c
5:18:20	Male remained in mating position with the mulberry in the tip of his bill	2a
5:18:23	Female stretched her bill towards the mulberry; both were in mating position	2b
5:18:24	Female took the mulberry from the male; the tips of their bills were together; both were in mating position	2c
5:18:31	Male took the mulberry back from the female; the tips of their bills were together; both were side by side on the branch	2d
5:18:32	Male held the mulberry in the tip of his bill; the tips of their bills were apart; female appeared to have a fragment of mulberry in the tip of her bill	2e
5:18:35	Male swallowed the mulberry	2f

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