

Egg Consumption by a Little Bronze-Cuckoo

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One morning in October 2016, at a patch along the coast in Tawau, Sabah, Malaysia, Stanley was on the lookout for the migrant Horsfield's Bronze-Cuckoo *Chalcites basalis*. While watching, he spotted a resident female Little Bronze-Cuckoo *Chalcites minutillus* moving around some mangrove trees. It was skulking through the thick mangrove canopy, presumably looking for food. As Stanley tracked the cuckoo from a distance, it suddenly appeared in the open along the fringes. Stanley noticed it had grabbed a large, white object in its beak. His immediate thought was that this was odd-behaviour, so he quickly pointed his lens to document what was happening. To his surprise, the object was an egg (Plate 1). The cuckoo tossed and positioned it, before swallowing the egg entirely without crushing the shell.



Plate 1: Female Little Bronze-Cuckoo feeding on an egg. Tawau, Sabah, Malaysia, Oct 2016.

All the time, Stanley had not noticed any other birds nearby responding in defence or any nest in the immediate area. Hence, he was unable to determine the bird species the egg belonged to.

Discussion: Host Egg Consumption by Cuckoos

The removal of egg(s) from the nest during parasitism by some adult female cuckoos is well established (Payne 2005; Erritzøe et al. 2012). However, although a number of articles quote that cuckoos eat the eggs of the host (Wang et al. 2020), there are only a few documented accounts. Most report cuckoo species removing or damaging host eggs at the time the cuckoo is laying its own egg, with no mention of consumption (Payne 2005; Erritzøe et al. 2012).

Moksnes and colleagues (2000) describe the Common Cuckoo *Cuculus canorus* visiting "parasitized nests to eat eggs prior to laying"; the species is also noted to prey on the eggs

and nestlings of small birds (Payne 2005; Payne et al. 2020). The Channel-billed Cuckoo *Scythrops novaehollandiae* has "*been observed to prey on the nest contents*" (Brooker & Brooker 1989; Payne 2005). The Indian Cuckoo *Cuculus micropterus* "*female removes and eats an egg from the host nest*" (Payne 2005). For the Klaas's Cuckoo *Chrysococcyx klaas* the host egg is said to be usually removed before the cuckoo lays, and that the removed egg is sometimes eaten (Erritzøe et al. 2012). The Dideric Cuckoo *Chrysococcyx caprius* is described as taking the host egg, eating it, before returning to lay her own (Payne 2005). The Thick-billed Cuckoo *Pachycoccyx audeberti* removes host eggs from the nest and eats them (Payne 2005). Erritzøe and colleagues (2012), when reviewing the literature on the Dideric Cuckoo, state that some sources say that the female removes and eats one egg from the host nest but another source claims no host egg is eaten or removed.

For the genus *Chalcites* (bronze-cuckoos) there is limited evidence of host egg eating by the species (Brooker & Brooker 1989; Payne 2005; Erritzøe et al. 2012). Brooker and Brooker (1989) in a detailed review of cuckoo hosts in Australia only report that the Shining Bronze-Cuckoo *Chalcites lucidus* "*have twice been observed robbing a host nest and either destroying or eating the nest contents*".

There are no reports of the Little Bronze-Cuckoo feeding on eggs or on host eggs (Brooker & Brooker 1989; Johnsgard 1997; Smythies 1999; Wells 1999; Payne 2005; Wells 2007; Erritzøe et al. 2012; Kirwan & Payne 2024).

The behaviour reported here - a Little Bronze-Cuckoo manipulating and then swallowing an entire egg with the shell intact - represents an apparent instance of egg consumption by a brood-parasitic cuckoo. Two features of the observation warrant emphasis. First, the egg was swallowed whole, without the shell being punctured or crushed, indicating outright ingestion rather than the more commonly reported removal-and-discard. Second, the bird was foraging actively through the mangrove canopy when the egg was taken, and no host pair was seen defending a nearby nest, so the event cannot be confidently attributed to a parasitism (egg-laying) visit.

However, there are some features that point towards consumption of a brood-host's egg.

Firstly, the bird seen was an adult female Little Bronze-Cuckoo. Females are the ones that remove host eggs as they lay their own.

Secondly, the nature and size of the egg in the images (Plate 2) helps point to the brood-host identity. There are many brood-hosts identified for the Little Bronze-Cuckoo (Erritzøe et al. 2012; Kirwan & Payne 2024), often small passerines with enclosed nests. However, the only proven brood-hosts of Little Bronze-Cuckoo are the Golden-bellied Gerygone *Gerygone sulphurea* in Peninsular Malaysia (Wells 1999; Wells 2007; Jeyarajasingam 2012) and the Ornate Sunbird *Cinnyris ornatus* in Singapore (Erritzøe et al. 2012). In Borneo, Phillipps & Phillipps (2014) state that hosts are "*gerygones and sunbirds*". Wells (2007) describes the eggs of the Golden-bellied Gerygone as "*glossless, white to faintly pink, with small, pink brown speckles generally sparse but more concentrated over the broad end, which also shows fine blackish*

scribbles". The shape is said to be ovate and rather pointed and an average size of 15.4 × 11.0 mm (Wells 2007).

The egg in the observation was oval, pink with darker red-brown markings concentrated at the larger end. Using the bill size of the female Little Bronze-Cuckoo of 16.6-18.2 mm* (Kirwan & Payne 2024) as a guide, the egg size appears to be ~15-16 mm by 10-12 mm (Plate 2). The egg seen looks very much like that described for the Golden-bellied Gerygone, the primary brood-host for the Little Bronze-Cuckoo in the region. This view is supported by David Wells "*It is highly probable that the consumed egg was taken from a gerygone rather than a sunbird nest*" (pers. comm.).

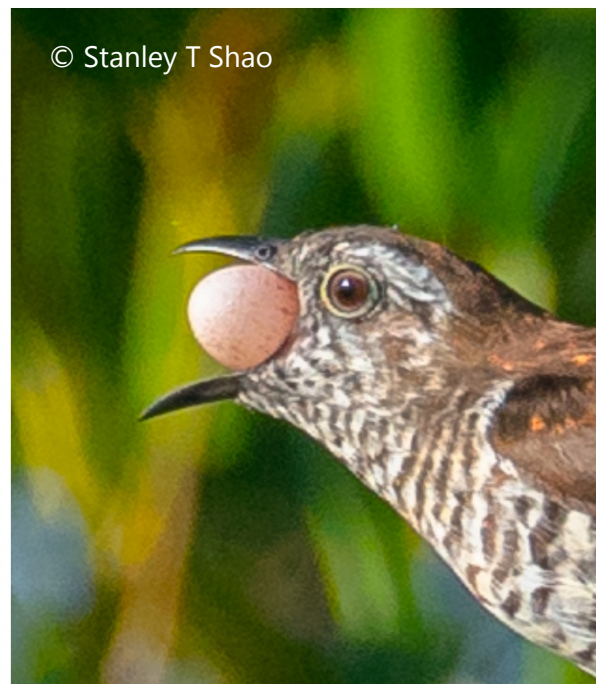
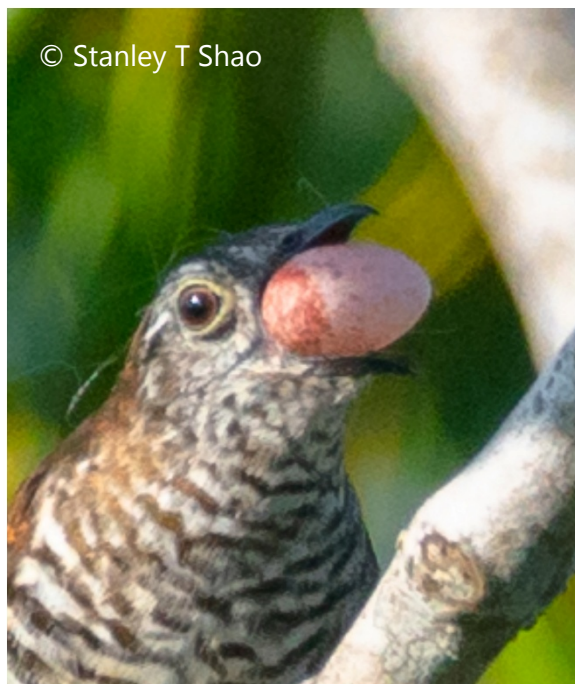


Plate 2: Female Little Bronze-Cuckoo feeding on an egg – close up images used to approximate egg dimensions. Tawau, Sabah, Malaysia, Oct 2016. *Note that nominate Australian subspecies bill length was used as approximate guide; the Bornean subspecies bill length may vary

The present observation appears to be among the first direct record of whole-egg ingestion by a Little Bronze-Cuckoo. It provides behavioural confirmation of an act, that has until now, been assumed for the species largely on the strength of six or seven species, of predominantly African and larger cuckoo species.

Several caveats apply. The egg may have belonged to a host, but it could equally have been the egg of a competing cuckoo, the selective removal of which is the very behaviour invoked to explain egg crypsis in this species (Gloag et al. 2014). Furthermore, because the bird was foraging and no active host nest was evident, the event may represent opportunistic nest predation rather than the clutch reduction that accompanies parasitism - a distinction the existing literature, framed almost entirely around egg removal at laying, does not address.

What impact would closed-over nests such as those of sunbirds and gerygones (where robbing would likely be more by cuckoo touch than sight) have on the idea that parasite mimicking of host eggs is mainly a defence against rival robbers? Surely someone has raised that?

Studies suggest that despite the closed-over nests of gerygones, there is sufficient light to see bright vs dark eggs. Bronze-cuckoos appear to lay eggs with a dark pigment (cryptic) instead of matching the host's egg (mimetic) - the data suggest cryptic eggs are often not hiding from the host bird - but rather from competing cuckoos (Gloag et al. 2014; Thorogood et al. 2017).

Additional observations, ideally with both the egg's origin and the cuckoo's breeding status determined, would help establish whether whole-egg ingestion in Little Bronze-Cuckoo is a regular component of parasitic egg removal, an opportunistic foraging behaviour, or both.

Acknowledgements

We would like to thank David Wells and Kim-Chye Lim for reviewing the manuscript and offering useful comments.

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Citation: Stanley T Shao & Amar-Singh HSS (2026). Egg Consumption by a Little Bronze-Cuckoo. *Malaysian Bird Report*. Volume 3/2026, Sept 2026: pg. 55-59.