

Nesting of the Black-headed Bulbul *Brachypodius atriceps*

Amar-Singh HSS & Sein-Chiong Chiu

On 17th March 2022, a nest of the Black-headed Bulbuls *Brachypodius atriceps* was observed at Kledang Saiong Forest Reserve, Ipoh, Perak, Malaysia. As information on nesting, diet for nestlings and fledging periods for this species is limited (Wells 2007; Fishpool & Tobias 2021), it was considered valuable to observe the nesting as often as possible.

Disclosure on Nest Observations

At any one visit to the nesting site, there were only one or two observers. Observers stayed at a distance of approximately 7 meters from the nest and used videography and long lens equipment to observe behaviour. The adults appeared to be comfortable with being observed at this distance and did not show any alarm. Adults fed chicks frequently and with no alarm calls while being observed. There were occasional short gaps in observation to provide birds a break from being watched continually.

Nest Location and Structure

The nest was built approximately 3 meters up in the branch-fork of an open tree (species unknown). Wells (2007) reports that nesting heights are usually 1.8 – 6 m up. The nest was overhanging a road into a forest reserve; this location comprised mixed primary and secondary forest (see Plate 1). The nest was a simple platform consisting of dried vegetation comprising twigs, dried leaves and plant fibre (see Plate 2). Nests have been described as "flimsy to well-built" of "grass, creepers stems, plant fibres, and much dead leaf material ..." (Wells 2007),

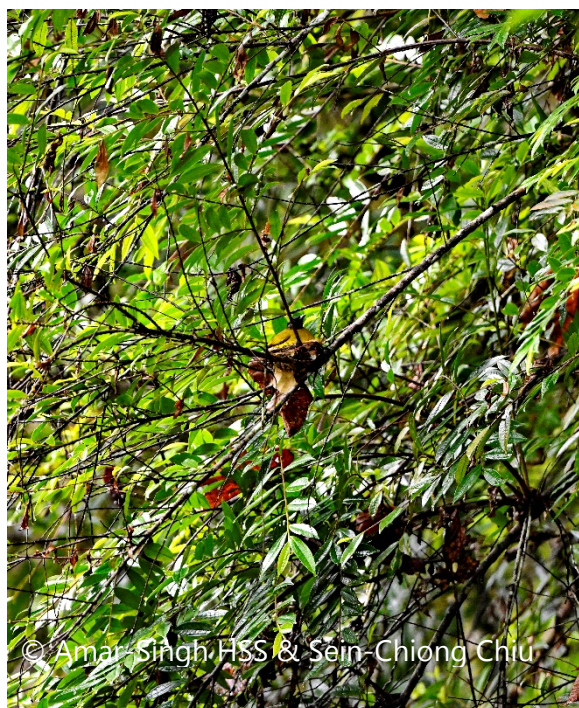


Plate 1: Overview of nesting location

Timelines of Nesting Observations and Outcome

- | | |
|---------------|--|
| 17 March 2022 | The nest was first spotted with an adult incubating eggs. It is uncertain if both adults shared incubation responsibilities. |
| 21 March 2022 | Two very young nestlings were observed being fed by both adults. The nestlings looked to be 2-3 days old. |
| 24 March 2022 | Two very young nestlings being fed; estimated age 5-6 days old. |
| 25 March 2022 | Fledgling occurred; estimated age 6-7 days old. |

Note that most observations were conducted in the morning, occasionally interrupted by rain.



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Plate 2: Adult Black-headed Bulbul at nest, incubating

Incubation and Fledging Periods

We were not able to ascertain the incubation period. The time from hatching to fledging is short and less than 8 days; possibly as short as 6-7 days (Wells 2007). Wells (*ibid*) comments that "*chicks leave the nest precociously*".

Parental Responsibilities

It was not possible to determine if both adults shared incubation responsibilities. Both adults tended to nestlings and fledglings. Often the adults sat on the nest for 5-10 minutes to keep nestlings warm in between feeding. When older, nestlings were unattended between feeds.

Faecal Sacs and Removal

Numerous episodes of faecal sac production and removal were observed. The adult would wait expectantly after feeding and the nestling would present the rear end to discharge the faecal sac (see Plate 3). At times both nestlings produced faecal sacs at the same time. Mean frequency of faecal sac production was 7.7 minutes (range 3-15 minutes). All faecal sacs produced were consumed by the adults at the nest. Once the nestlings had fledged, faecal sacs were discarded to the ground by the juveniles.



Plate 3: Faecal sac removal and consumption by adult Black-headed Bulbul at nest

Feeding Behaviour, Frequency and Food Items

55 feeding episodes were documented over the 3 days that the nestlings were observed (see Plate 4). The table below summarises the feeding observations.

Estimated Age of Nestlings	Duration of Observation	Number of Feeding Episodes Observed	Frequency of Feeding (minutes)	Summary of Food Items (details below)
2-3 days	175 minutes	25	Mean 4.8, Mode 1, Range 1-16	10 fruit items, 8 insect prey, 7 unknown
5-6 days	130 minutes	21	Mean 5.5, Mode 5, Range 1-11	13 fruit items, 4 insect prey, 4 unknown
6-7 days	150 minutes	9*	Mean 5.3, Range 1-13	5 fruit items, 3 insect prey, 1 unknown

*Feeding frequency affected by fledging

Of the identified **fruit** items brought to juveniles:

- 17 were *Ficus* fruits of different types - often 2-3, uncrushed, *Ficus* fruits were brought and regurgitated to feed nestlings. Occasionally neither of the nestlings were able to swallow the fruit whole. Adults then squeezed the *Ficus* fruit before feeding the dominant nestling.
- 6 were *Bridelia tomentosa* fruit - often 3-4 berries were brought and regurgitated to feed young.
- 1 *Melastoma malabathricum* (Straits Rhododendron).

- 5 unidentified small berries and other fruit.

Of the **insect** prey brought to nestlings:

- 4 dragonfly prey – it was surprising that such a large prey was fed to such small nestlings.
- 1 spider.
- 1 grasshopper.
- 1 cicada-like insect.
- 1 wasp-like small insect.
- 2 winged insects.
- 1 worm or caterpillar.
- 4 unknown insects.



Plate 4: A variety of food items brought by adults to feed nestlings

In the early part of the feeding, insect prey was brought with wings removed. Later nestlings were fed insect prey with wings on. Both parents fed nestlings actively, at times arriving one after the other, waiting their turn at the nest. Adults deployed the nictitating membrane when feeding nestlings. Adults were generally silent at the nest but sometimes gave a single chirp if they felt the nest approach was unsafe.

One of the nestlings, the dominant and larger one, was fed more often and with larger animal prey. The difference in size between the nestlings was appreciable (see Plate 5). At times a large prey, e.g. dragonfly with wings attached, was offered to the smaller nestling. When it was not able to feed on it, the prey was then offered and fed to the larger nestling. Some occasional rivalry between the nestlings, with pecking, was observed. Nestlings 'hid' in the nest when parents were not around. There were no calls from the nestlings even when feeding.



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Plate 5: Nestlings in the nest on the day before fledging (5-6 days of age)

Fledging Observations

On 25 March 2022 at 0945 the dominant nestling was observed actively preening, stretching and flapping wings in the nest. At 1005 the dominant nestling walked out of the nest onto a branch supporting the nest; it continued to preen, stretch and flap its wings (see Plate 6). At 1018 the dominant nestling took its maiden flight, flying approximately 0.75 meters. At this point the adults focused more on the fledged chick. By 1033 the fledged chick was approximately 3 meters from the nest.

After this the adult fed the second nestling in the nest once at 1047. Thereafter adults came back to the nest or to a nearby supporting branch a total of 8 times without any food for the second nestling. Occasionally the adults called out to the nestling in the nest, appearing to urge it to fledge. The second nestling began to preen, stretch and flap its wings in the nest.

Observations were halted at 1200, at which time the second nestling had still not been given any feeds. The fledged chick remained some distance from the nest. A return to the site the next morning showed an empty nest and the fledged chicks could not be found.

Fledglings had olive upperparts, olive-yellow underparts with bright yellow at the vent. The feet and bill were flesh-pink in colour. The iris was a pale grey-blue. The skin around the orbital region was pale grey. The head and neck were a dark olive. Unlike the adults, there was no black on the head and neck.



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Plate 6: Dominant nestling fledged at nest with adult and second nestling

Interaction with Other Birds

The adults were generally not disturbed by other birds coming near the nest. A Yellow-vented Bulbul *Pycnonotus goiavier* that foraged at 5 meters, two Pin-striped Tit-Babblers *Mixornis gularis* that foraged at 5-6 meters and an Olive-winged Bulbul *P. plumosus* that perched to sing at 10 meters were tolerated. The adults did become agitated when an Ashy Minivet *Pericrocotus divaricatus* foraged at 2 meters distance. They also chased away another Black-headed Bulbul that came into the nest vicinity.

Discussion

Although a few nests have been described, nesting has not been described in detail (Wells 2007; Fishpool & Tobias 2021). Tan *et al.* (2014) gave a pictorial account of the nesting habits and hatchlings development of 2 nests, in May and June 2009, at the Tasek Bera Ramsar Site, Pahang, Malaysia but provided limited details. Their nests were located 0.3 and 1.5 meters up and constructed as woven baskets/cups. They stated that both adults were involved in incubation and that the period from "*hatchling to able for flying*" was 16 days. This was unlike our observation and Wells' (2007) comments.

Another nest posted by MikeBirder online showed a nest with 2 eggs at Hulu Langat, Selangor, Malaysia in June 2012. The nest was again an open cup of grass and was built "*almost at ground level*". He notes that both adults "*took turns to incubate*"; the nest was subsequently abandoned.

It is interesting that the nests constructed by Black-headed Bulbuls may vary in structure (Wells 2007). It is clear from all available observations, that both pair-members incubate, tend nestlings and fledglings. Nestlings appear to fledge early but more nest observations would be useful.

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