

## Observations on breeding of Coppersmith Barbet in Rajkot

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The Coppersmith Barbet (*Megalaima haemacephala*) breeds in a Mulberry Tree (*Morus* sp.), locally known as *setur*, exactly in front of my house since the last four years, from 2015 to 2018. This tree is 15 years old and some branches have become dried or dead, and so it is easy for birds to dig/excavate a hole in the tree. I present here observations on the breeding biology of the species. My observations were not the result of a special study, but are the outcome of my routine while passing by the tree. Sometimes, the different calls of the birds attracted me to come outside and observe it. I have taken all the photographs from my house or from the street.

### Observations

#### Nesting hole

The Coppersmith Barbet usually selects a place for digging a hole where the wood has become dead and soft. It never uses the same hole in the next season, though it used the same tree from 2015 to 2018. However, the same hole is used for the second brood. Every year, it chooses a new place and starts digging. The month in which it starts digging is variable. In 2015, I observed it in mid-February. The digging continued till the first week of May. Such a long duration of digging might be due to the hardness of wood. In another year, digging started in October and was completed in around 20 days. During initial digging, it sometimes changes the location too. After completion, breeding activities do not start. Rather, the hole is used to roost at night. Most of the time pair appears to have been formed before making of the nest. I often see one bird sitting nearby when the other is digging in the wood. We can assume, both the birds are taking turns in the process.

Breeding activity starts in March-April, when one bird calls from the top of the tree continuously while another bird gives final touches to the nest hole. The entry if oblong, need not be horizontal and is sometimes slanted. While nest hole is prepared by one bird, the other bird constantly gives a territorial call.

#### Courtship

The pair calls simultaneously in the tree. Then, as a part of courtship ritual, the male flutters wings with a sharp call, and with a fruit in its bill, goes near to the female to attract her. This happens in the tree or on the electric wire. This may be repeated 2-3 times before mating. In case of the second brood, the female sits in the nest hole while the male approaches with fruit, flutters wings and peeps in the nest hole and offers food to the female. I have observed that it flutters wings, peeps but does not give fruit to the female. It goes on the wire and calls, where the female comes and then copulates. I have observed another type of courtship behavior, of bill locking and stretching one another in the nest hole, the details of which have been given earlier (Mashru 2017). In May 2016 I saw that one chick had come out of the nest and the parent was feeding it on the wire while another chick was in the nest hole. During this, I saw courtship behavior and mating. This behavior might be primarily because I saw courtship behavior and nesting for the second brood in the same nest hole, which was successful each time. In another observation during the second brood, one bird went inside and the sound of digging was heard. I observed this 2 to 3 times. Since the nest was ready and digging was not required, I assumed that this was not digging but it might have been a tapping sound made for communication, just like what is observed in some woodpecker sp. But, this requires further study.

#### Incubation

Mostly the Coppersmith Barbet lays a clutch of two eggs. When incubation starts, one bird incubates constantly while the other bird calls frequently, perching on a higher branch of the tree or on an electric wire. Both parents perform incubation duties one after the other. But, at night, one bird remains in the nest while the other roosts in a nearby tree. The incubation period is around 20 days.

#### Feeding of chicks

I have observed that the calling stops as soon as the eggs hatch. Both the male and female feed the chicks constantly. Initially, I observed, once or twice, small larvae were fed but mostly, they feed figs (fruits of *Ficus* sp. – preferably of *pipar* tree, *Ficus tseila*). I have not observed them feeding any

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Mulberry fruit (*setur*), even though it is readily available in the nesting tree. The reason for the selection of only *pipar* fruit might be because the fruit possibly contains insects in it, which is helpful for fulfilling the protein requirements of the chicks. Usually, the birds fill up their bills with 3 to 4 fruits at a time. They perch in the upper part of the tree and call, look around for any predators, and then go inside the nest for feeding. When the chick grows, it peeps outside the nest hole and seizes food. I observed a few times that the parent birds fed the peeping chicks by hovering. Sometimes, the parents take loose excreta in their bills while going to fetch food while sometimes, specially visit for it. The parents always fly away with the excreta and never drop it near the nest hole. When the chicks grow, they start to utter a constant and faint call from inside the nest. Further, the chick keeps its bill and face outside the nest hole, and remains vigilant. After about one month of feeding, the chicks grow and are ready to leave the nest. When chicks leave the nest and take short flights, they usually perch on the tree or on the wire nearby. The chicks call continuously and are still fed by the parents outside the nest.



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### Nest protection

During the incubation and fledgling period, one bird remains in the vicinity of the nest to provide protection from Five-striped Palm Squirrel (*Funambulus pennantii*) and other birds like House Sparrow (*Passer domesticus*) and Red-vented Bulbul (*Pycnonotus cafer*). I have observed that when a squirrel approaches for eating the ripened *setur* fruits, the barbet attacks it with sharp 'zzz...' call and speed. The battle may continue for some time as the squirrel ignores its attack while eating the fruits. But ultimately, it leaves the tree. I have observed Coppersmith Barbet attacking a squirrel in the month of August, even after the nesting was completed. This might

be due to the bird protecting its territory. Another interesting observation was of a Red-vented Bulbul, which had built its nest in the adjoining tree; when the Coppersmith Barbet came with food in its bill to feed the chicks, the Red-vented Bulbul attacked it. But, the barbet used to raise its feathers and adopt an aggressive posture. This happened many times. Once, I observed that the Red-vented Bulbul took a piece of fruit from the barbet's bill.

### Roosting

During the nesting season, after preparing the nest hole, one of the birds may roost inside at night. After chicks fly off from the nest, one bird continues to roost in the nest hole for many days. Mostly, evening roosting time is fixed. I have observed that it comes at around dusk time, after sunset on the wire above, calls in a low voice and goes inside the nest hole.



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### Special observation

On 14 March 2018, the parents started feeding the chicks. On 23 March 2018, I saw one bird going in the nest with food in its bill in the evening. On the morning of 24 March 2018, I saw that one chick was dead and hanging on the nest hole entrance. The parent bird was moving around, coming and going near the nest hole. I touched the dead chick and it fell down. After some time, the parent bird went inside the nest several times and pulled out a second dead chick up to the entrance of the nest hole. The parent bird came near the nest hole many times but did not perch there. After about an hour, I again touched the dead chick with a stick and it too fell down. I did not see any sign of attack on the chick as its body was intact, without any injuries. I could not judge the reason for the death of chicks in the nest. It seemed that the chicks were not predated upon but the reason for death could be poisoning or maybe some other cause. After a few hours, the

pair started calling from the tree continuously. After that, they had a second brood, which was successful.

### Discussion

The Coppersmith Barbet pair usually starts nesting in February, which continues up to June, excluding nest digging period. When it starts breeding, it does not get disturbed by other factors. It breeds successfully, with two clutches in same nesting hole each year. In my four years of observations, it was successful and fledged chicks in 7 out of 8 nesting attempts, for a success rate of 87.5%. The pair double brooded in all the four years, which is known for the species (Short *et al.* 2018). The Coppersmith Barbet is aggressive in protecting its nest and chicks, with the pair chasing away squirrels and other birds. Though observed only once, the stealing or attempted stealing of fruits from the barbets by Red-vented Bulbul is intriguing and is suggestive of kleptoparasitism by the bulbul and requires further study.



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It was observed that even though the nest hole was excavated much before the breeding period, it was used for roosting. Rasmussen & Anderton (2012) state that the species roosts in holes which are not used for nesting. But here, the same hole was used for roosting as well as nesting. In 2018, after the nesting period was over, two birds (probably the same pair) were seen roosting in two different holes, one of which was used for nesting this year and the other was used for nesting in the previous year. Thus, the birds do use the same holes for nesting as well as roosting.

Another interesting observation was that of the removal of dead chicks from the nest by the parents and then using the same nest hole again. Though the bird could not remove the

dead chicks completely from the nest hole, it did drag it from the hole till the entrance. It could not push it completely out of the hole, possibly since the position was such that it could not exert enough pull to get the chicks out. For both the chicks, it was observed that the parent bird dragged it up to the nest entrance. It was surprising that the parent birds used the same nest hole for the second brood and it was successful. The removal of dead chick(s) from the nest hole has been observed before in Southeast Asia in Singapore (Hung Bun 2007, Lim 2011), and from Malaysia (MWP 2015). In all these observations, the parent bird removed the dead chick(s) from the nest hole and took it away in its beak elsewhere. Here, the bird was not successful in completely removing the dead chicks from the nest, possibly because the chicks had grown up and were too heavy to be carried or the bird could not position itself to remove the dead chick successfully. Though this behaviour had been documented earlier, it has not been described in the reference texts. An interesting question here is why would the parent birds use the same nest when they were unsuccessful in the first attempt? But, it was noted that the second brood was successful in the same nest.

The details presented here offer new insights into the breeding biology of the Coppersmith Barbet. These indicate that the species usually double broods, and has a good breeding success rate here. The observations regarding interspecific competition between the Coppersmith Barbet and Red-vented Bulbul, removal of dead chicks from the nest hole, incubation and fledging period etc. require more study.

### References

- Hung Bun, T., 2007. <http://www.besgroup.org/2007/05/22/nesting-of-coppersmith-barbet/> [Accessed on 14 July 2018].
- Lim, M., 2011. <http://www.besgroup.org/2011/06/06/coppersmith-barbet-removing-dead-chick-from-nest/> [Accessed on 14 July 2018].
- Malaysian Wildlife Photography (MWP), 2015., [Accessed on 14 July 2018].
- Mashru, A., 2017. Bill locking behaviour in Coppersmith Barbet pair. *Flamingo*. 15 (3): 22
- Rasmussen, P. C. & Anderton, J. C. 2012. *Birds of South Asia: The Ripley Guide*. 2 vols. 2nd ed. Smithsonian Institution and Lynx Edicions, Washington D. C. and Barcelona.
- Short, L. L., Horne, J. F. M. & Kirwan, G. M. 2018. Coppersmith Barbet (*Psilopogon haemacephalus*). Handbook of the Birds of the World Alive. Lynx Edicions, Barcelona. (retrieved from <https://www.hbw.com/node/56054> on 11 July 2018). □