Red-vented Bulbul breeding in Chennai: a case study

The Red-vented Bulbul *Pycnonotus cafer* (Linnaeus, 1766) is a gregarious frugivorous bird (Brooks 2013), native to tropical southern Asia and is widely distributed throughout the Indian subcontinent, tropical China, and Vietnam. It was introduced into Fiji, New Caledonia, Oman, UAE, US, and Tonga (BirdLife International 2018). *Pycnonotus cafer* prefer shrubs and trees (Kumar & Bhatt 2000), thatched houses (Dixit 1963), mud banks (Lamba 1976), and random locations such as transport buses (Urfi & Jethua 1998) for nest building. It breeds almost throughout the year, January–October (Berger 1981) with three broods per season (Long 1981). *Pycnonotus cafer* construct small, cup-shaped nests using short, dry twigs. In India, only a few studies clarify the breeding aspects of *P. cafer* (Ali 1930; Dixit 1963; Vijayan 1980). No literature on the breeding of this bird in urban Chennai exists, which justifies the present study.

Chennai city is situated along the coast of the Bay of Bengal with a human population of c. 7 million. The city experiences a maximum temperature of 35–40^{0}C in May–June and a minimum of 14^{0}C in December–January. Most of the rainfall is due to the north-east monsoon in October–December. The study site was a two-storeyed concrete house in Bharathi Street, Korattur (13.118 N & 80.193 E) within Chennai city. I located and monitored a nest of *P. cafer* during four breeding seasons from March 2016 to August 2019. In this study, I sought answers to the following questions relating to the breeding biology of Red-vented Bulbul (RVB) and its interspecific competition: (1) what is the nesting and breeding habitat of RVB in a thickly populated urban area and (2) how it interacts with another native bird House Sparrow *Passer domesticus.*

A pair of RVBs had constructed a nest in the ground floor of a two-storey concrete house at the above address since 2016. Every year a pair began arriving at the study site and built a nest between the aluminum clamps of an ornamental lamp suspended from the ceiling at 4m height from the floor. I was unable to ascertain whether the same pair was coming again and again. A staircase occurs at 2m distance from the nest and from where the nest was observed visually, supplemented by photography and videography. Every year the nest was built on the same lamp clamp. In 2019, a pair arrived in the 3rd week of March and started building a nest at the same site using dry twigs. They struggled for a week to create a base for nest in the aluminum lamp clamps. In 2019, after one week they succeeded in constructing a base on the clamp and completed the nest in five days. They reached the nest through windows and door. Between 30 March and 2 April 2019, they laid three eggs (Image 1d). Both adults

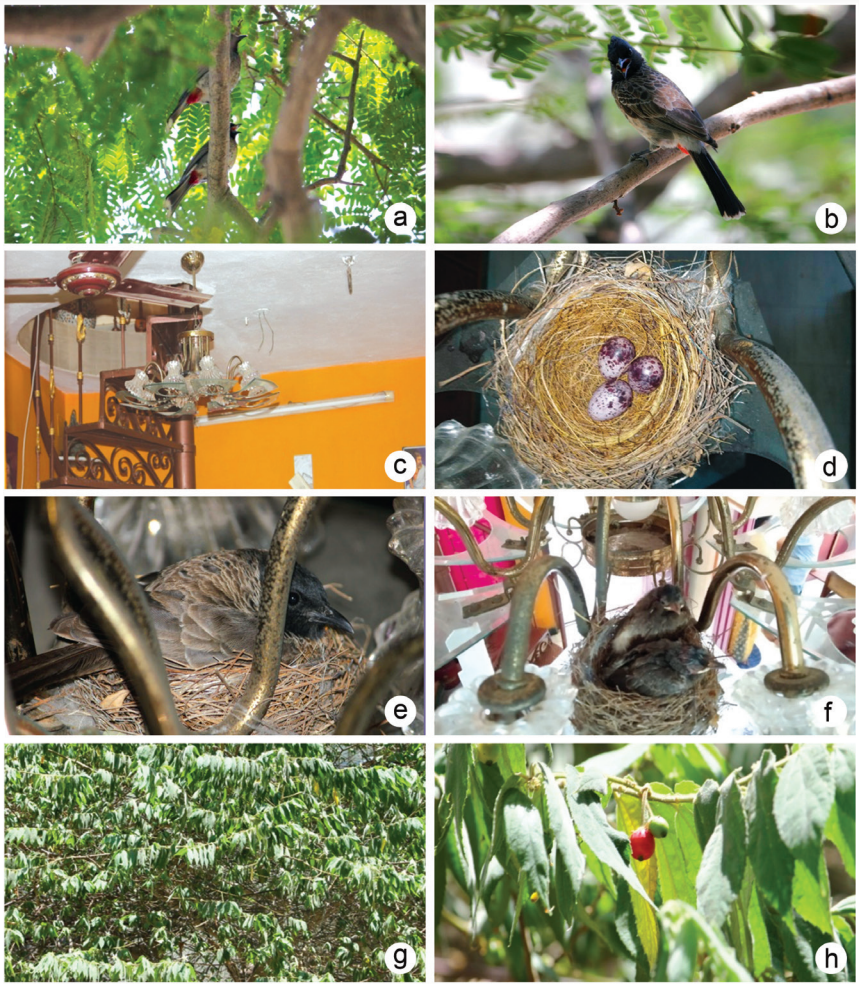

Image 1. (a) a pair of Red-vented Bulbul roost on *Peltophorum pterocarpum* tree | (b) adult individual roosts on the tree | (c) nest of Red-vented Bulbul on lamp | (d) nest containing three eggs | (e) adult bird incubating the eggs | (f) two fledgling in nest | (g) *Muntingia calabura* tree | (h) fruit of *M. calabura*.

were involved in incubating the eggs. When one bird was incubating the egg, the other bird roosted on either the lamp or window bars or on trees 100 m away from the nest. On 17 April (i.e., after the 15th day) two eggs hatched and food delivery to nestlings commenced on the next day. The fate of another egg was not known. It neither hatched nor fell down from the nest. The infertile egg was probably removed by the parents. The breeding period, eggs, hatching and fledgling details of this bird for four years is given in Table 1.

Four well-grown trees of *Muntingia calabura* (Muntingiaceae) occur within 100m radius from nesting site. Fruiting time of *M. calabura* coincides with the reproduction time of RVB. Adult birds pick up ripe red berries of *M. calabura* to feed their nestlings (Image 1g, h). Apart from fruits they occasionally feed the young ones with insects and worms. On the 9th day, both the chicks had grown well and space became a constraint. On the 13th day (30 April 2019) both the chicks flew out of the nest and moved to adjacent bushes. On 15th day one of them was dead under the bush and crows were feeding on the carcass. Another chick was not noticed in the vicinity.

On 12 June 2019, probably the same pair of RVB, came to the same nest, repaired the nest using new twigs, and reused the nest for second breeding in the same year. No other individual of *P. cafer* was noticed in the vicinity of the study sight and only two adults of RVB were found roosting on the window bars and nearby bushes. Hence I think that the same pair came again for the next round of nesting. Between 17th and

Table 1. Details of breeding of Red-vented Bulbul for four years in urban Chennai.

Year	Nesting period	No. of nesting attempts (per year)	No. of eggs laid	Incubation (in days)	No. of eggs hatched	Fledeling growth (in days)	Fledgling success
2016	March - April	1	3	15	3	14	Successfully flew
2017	March - April	1	3	15	3	14	Successfully flew
2018	March - April	1	3	15	3	14	Successfully flew
2019	March - July	1	3	15	2	13	Successfully flew but one found dead
2019	June - July	1	3	34	0	0	Breeding not successful as eggs were not hatched

19th June, they started incubating the clutch of three eggs. Incubation occurs usually for about 14 days. But residents of that house had gone out for the period between 28 and 30 June, closing the door and the windows, preventing movement of the birds to the nest. The birds attempted to enter the house through door and windows but their attempts were in vain. Again the birds resumed incubation from the 12th day, i.e., from 1 July, after a gap of three days. In view of discontinuation of incubation for three days from the 9th to the 11th days of incubation, the eggs had rotted in the nest. However, the birds continued their incubation till 23 July 2019 expecting the eggs to hatch. Finally, they abandoned the nest on the morning of 25 July 2019. The adults had incubated eggs for 34 days, except for three days, against the usual expected period of 14 days (Ali & Ripley 1996). In the present study between 2016 and 2019, the eggs hatched in 14–15 days. But during the second breeding in 2019, the birds had exhibited an unusual behaviour of incubating eggs for 34 days (Table 1).

The present observation supports the findings of Long (1981) on multiple breeding in a year. In the present study two breeding events occurred between March and July.

Interspecific Competition

Individuals of House Sparrow (HS) occurred in the vicinity of the study area. In January 2019 in order to facilitate their nesting, three artificial nest boxes were placed in and around the study area. Three pairs of HS started nest building in the third week of March 2019. At that time, a pair of RVB visited the study site and chose the nesting site on the ornamental lamp within the house attempting nest construction. Immediately after the selection of the nesting site, RVB started to chase away HS from the vicinity of former's nest. Finally, the bulbuls succeeded, and all the three pairs of sparrows fled the

nesting site and never returned to their half-built nests.

Thibault et al. (2018) had observed that the occurrence of HS was not affected by the presence of RVB in New Caledonia. But the present study suggests that inter-specific competition occurs between RVB and HS affects the HS negatively.

Conclusion

Breeding of RVB took place in the urban human residences between March and July with two breeding events. Their breeding period coincides with the fruiting season of *M. calabura* trees because these birds are frugivorous. Usually, incubation period was for 13–15 day. Unusually in 2019, there was extended incubation for 34 days as the eggs did not hatch during the normal incubation period. Inter-specific competition exists between the RVB and HS, although it needs to be verified on larger populations. Survey has to be conducted in urban Chennai to assess the exact population status of this bird.

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Acknowledgements: I thank Oviya Arivarasu, M. Punniyakotti, A. Giridharan and Frank Sadrack for data collection and photography and Dr. Azad Rahmani for pre-final editing of the draft.

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Citation: Pandian, M. (2020). Red-vented Bulbul breeding in Chennai: a case study. Bird-o-soar #55, In: *Zoo's Print* 35(10): 34–37.