



Observation of Nestling Development of Red Whiskered Bulbul (*Pycnonotus jocosus* Linnaeus, 1758) in Barabanki District of Uttar Pradesh, India

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Abstract

The breeding success of an avian species depends on its ability to select a secure nesting site and an appropriate breeding season. This study attempted to monitor the nestling development behavior of Red-Whiskered Bulbul in the rural area of Barabanki district, Uttar Pradesh, India, from April to June 2024. In the study area, the nestling development began in April following egg hatching, and the fledgling period lasted 12 days. The nest was located near a human settlement, built in the iron frame of the kitchen door approx. 6.5 feet above the ground. Nesting materials included grasses, plant fibers, paper, and small twigs. Hatching success was recorded at 100%, while both breeding and fledging success rates were 66.66%.

Keywords: Nestling Development, Nest, Nest, Material Red-whiskered Bulbul.

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Introduction

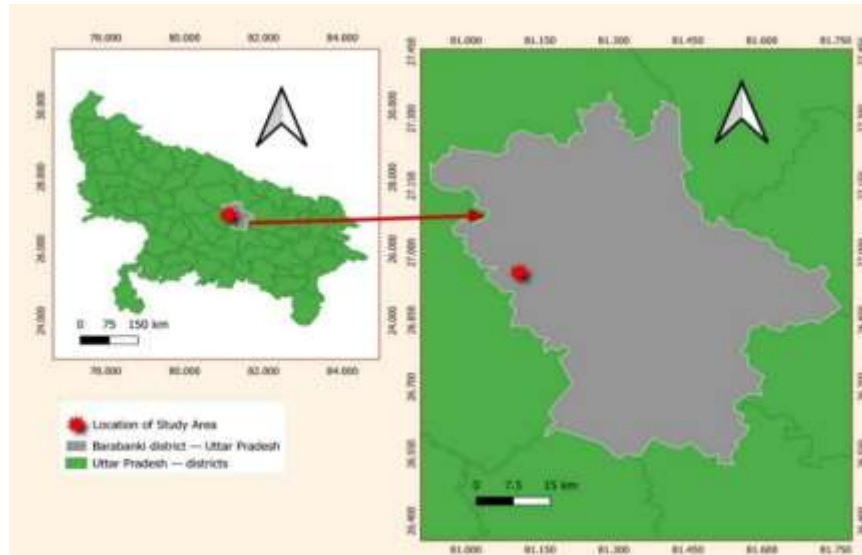
The Red-whiskered Bulbul (*Pycnonotus jocosus*), a member of the Pycnonotidae family, is widely distributed across Southeast Asia and the Indian Subcontinent. The species commonly inhabits shrubs, parks, and urban gardens near human settlements. Its diet primarily consists of fruits like berries, figs, and flower buds, along with small quantities of invertebrates like spiders, ants, and caterpillars. As an insectivorous bird and an effective seed disperser, it plays an important ecological role in tropical Asia (Corlett, 1998).

Both parents generally participate in nest building, forming a cup-shaped structure by arranging the nesting materials in a crisscross pattern with their beak and shaping it with their breast and belly (Khan, & Naher, 2020). Studies indicate that habitat and landscape features influence nesting and breeding characteristics such as nest position on plants, nest construction, hatching rate, and fledgling success. While some studies report that nest-building and incubation were solely carried out by the female (Xiaohua 1992), others describe shared nesting responsibilities between both partners (Ali and Ripley 1983). The nestling period is defined as the interval from the first egg hatching to the fledging of the last chick (Li et al., 2015). Males and females could not be individually distinguished, the approach allowed assessment of whether adult males and females contributed equally to nestling care, including brooding behavior following feeding visits, feeding frequency, and the relative contribution of invertebrate and plant-based food (Adler & Ritchison, 2011). Hatching success refers to the total number of hatchlings out of the total number of laid eggs, fledging success as the total number of fledglings from the total number of hatchlings, and nesting success as the total number of fledglings from the total number of laid eggs (Buij et al., 2013; Bensouilah et al., 2014). The female lays eggs in 2-3 days. The combined incubation and nestling periods typically total around 22 days, after which fledglings may continue receiving parental care for up to 34 days (Fishpool & Tobias, 2005).

Material and methods

Data collected through direct observations of hatching and nesting period, and nestling development. A Nikon Coolpix B500 digital camera was used to photograph and document bird activities. Nest materials used and feeding behavior were also recorded.

Study site: The study was conducted in a rural area of Barabanki) district (26°57'21''N 81°06'28''E, Uttar Pradesh, India (Figure 1). The nest was built by a Red-whiskered Bulbul in the iron frame of a kitchen door during the 2024 breeding season.



Source by Author

Figure 1: Location map of Red-Whiskered Bulbul nest in Barabanki, Uttar Pradesh, India.

Results and Discussion:

Red-whiskered bulbul formed pairs during the breeding season and displayed courtship behaviors, including the male bulbul gently pecking or “tickling” the female’s head. Both parents participated in selecting a suitable place for the nest. Nests were shallow and cup shaped; they chose small thorny bushes sometimes noticed in houses in the city. Nests were constructed using small dried sticks, grasses, leaves, dry paper, and threads. After the nest construction, the female laid three eggs, and began incubation immediately. Once the eggs hatched, the nestling development proceeded. Both parents contributed in feeding the nestlings until they could fly. The diet of the nestlings consisted primarily of fruits such as berries, figs, flower buds, etc. supplemented with small quantities of invertebrates like caterpillars, ants, and spiders. We documented nestling’s development throughout the 12-day nestling period, and monitored their growth. Upon hatching, the chicks emerged with hairless skin, closed eyes, and a pale reddish coloration (Figure 2). By the third day, the body color began to change, and initial wing development became evident (Figure 3). The body developed a shiny black feather covering (Figure 4). Once wing development was completed, the nestlings were capable of flight (Figure 5).



Figure 2. Nestling after hatching



Figure 3. Wings development in nestling



Figure 4. After wing developed



Figure 5. Nestling before fledging

Both male and female parents used to provide proper parental care, bringing food to the nest for the nestlings. One of the parents typically remained near the nest (Figure 6), providing protection and care while reducing exposure to potential threats. During the day, both parents shared food delivery, but at night, care was generally performed by a single parent.



Figure 6. Red whiskered bulbul sitting near the nest

The nest material used to construct the red-whiskered bulbul included a combination of natural materials like twigs, bark, grass, leaves, fine roots, and spider silk, and anthropogenic materials such as paper, plastic, wool, and string. The nest was situated 6.5 feet above ground on the iron frame of the kitchen door. Nest sites may be reused annually (Mazumdar and Kumar, 2007). However, according to some studies, females alone is responsible for nest construction and incubation in southern China (Liu, 2003), and females spend approximately half of daylight hours incubating, maintaining near-continuous incubation during the night (Mazumdar and Kumar, 2007; Li et al., 2015).

Table 1: Food Materials

S. N.	Food Materials	
	Fruits	Invertebrates
1	Berries	Caterpillars
2	Figs	Ants
3	Flower Buds	Spiders

Table 2: Nest Materials used

S. N.	Nest Materials	
	Natural Materials	Anthropogenic Materials
1	Twigs	Paper
2	Grass	Plastic
3	Leaves	Wool
4	Fine Roots	String

The following formula was used to calculate hatching, fledging, and breeding success:

Hatching success = (No. of eggs hatched / Total eggs laid) $\times$ 100

Fledging success = (No. of fledglings / Total No. of eggs hatched) $\times$ 100

Breeding success = (No. of fledglings / Total eggs laid) $\times$ 100



All three eggs of the red-whiskered bulbul hatched successfully (100% hatching success). Two of the three hatchlings fledged, resulting in 66.66% fledging and breeding success. One nestling fell from the nest during the fledging period. The breeding success found in this study was higher than that reported by Mazumdar, & Kumar (2007) in Lucknow. According to Arya et al. (2023) interestingly, the suburban habitats may show hatching success as high as 87.61%.

Recommendations:

Given the ecological importance of the Red Whiskered Bulbul in seed dispersal and as an insectivore, awareness programs should be conducted to promote its conservation and the protection of its habitat. Future research should focus and explore the behavioral, and ecological factors, affecting nestling development of Red-Whiskered Bulbul and survival across different landscapes.

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Conflict of Interest: The authors declare no conflict of interest.

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