



RESEARCH ARTICLE

SOME BREEDING PARAMETERS OF HIMALAYAN BULBUL (*Pycnonotus leucogenys*)
IN KUPWARA DISTRICT OF KASHMIR, INDIA

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ABSTRACT

The present study was carried out during two breeding seasons (April to August) of 2010 and 2011 in Kupwara district of Jammu and Kashmir (India). The nests were made in the months April- July with May as the peak nesting month. Most of the nests were made in the bushes but some in low willows, bags and baskets hanging on walls. Both sexes took part in nest making. Nests were cup shaped with mean outer diameter of 15.22 ± 0.82 cm, inner diameter of 7.68 ± 0.82 cm and the depth of nest depression 4.61 ± 0.29 cm. The average clutch size was 3.25 ± 0.43 . The eggs are dull white with red spots with average dimensions 22.67 ± 0.2 mm X 16.58 ± 0.16 mm. Both sexes took part in incubation. The average incubation period was 12.1 ± 0.76 days. Hatchlings were nidicolous and hatching success was 80.16%. Egg survival during incubation was 0.69. The fledging success was 86.37% and average nestling period was 13.95 ± 0.67 days. Nestling survival during nestling period was 0.75 and overall breeding success was 69.23%.

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INTRODUCTION

Himalayan bulbul a member of the family Pycnonotidae of the order Passeriformes is a resident bird of Kashmir and is also found in adjoining northern areas of the Indian Subcontinent. The members of the Pycnonotidae are wide spread in South Asia, Africa, Madagascar and Islands of western Indian Ocean (Sibley and Monroe, 1990; Fishpool and Tobias, 2005; Woxwold et al., 2009). There is a fair amount of information available on the breeding of wide spread and low lying Pycnonotids (Liversidge, 1970; Vijayan, 1975, 1980; Walting, 1983; Ali and Ripley, 1987; Hsu and Lin, 1997; Kruger, 2004; Fishpool and Tobias, 2005 and Balakrishnan P., 2007, 2009, 2010, 2011) but the information on incubation and nestling periods is scanty, which this manuscript provides. Though it is a bird of least concern as per red data book of IUCN (Birdlife International, 2012) because of its wide distribution but in the absence of any population data of this bird species, it is a common experience of the authors as well as the general masses that this bird has shown a decline in its numbers over the last 15 years and the sightings of the bird are now less common compared to what they used to be two decades ago. As the studies on the breeding of this bird in Kashmir are lacking so an attempt was made during the present study to have an appraisal of its various breeding parameters in Kashmir.

MATERIALS AND METHODS

The present study was carried out during two breeding seasons (April to August) of 2010 and 2011 in Kupwara district of Jammu and Kashmir. The nests were located by generally following the birds during breeding season usually with the nesting material or food or other cues (Balakrishnan, 2010). A nest was defined as any depression in which the bird laid one or more eggs (Miller and Johnson, 1978). Once found nest was visited every alternate day. The various nest parameters (Outer diameter, inner diameter and depth of nest depression), nesting material and nesting habitat were thoroughly studied. Studies on egg laying, clutch size, egg laying intervals and

incubation behavior and period were also conducted. The newly laid eggs were measured with Vernier Calipers. Clutch initiation dates were determined either by direct observation or by back dating (hatching dates minus mean incubation period). Care was taken to avoid the disturbance of the bird or nest during monitoring and to expose the nests to predation (Martin and Geupel, 1993). Nests that produced at least one young were considered successful. Hatching, nestling and breeding success were defined as the probability that eggs laid would hatch, the probability that hatchlings would fledge and the probability that eggs laid would survive from laying to fledging. These calculations were done as per Mayfield (1961).

RESULTS AND DISCUSSION

The nests were made in the months April- July. 76 nests were located. Out of these 42 were detected in the building stage. May was the peak nesting month with 50% of nests built in this month. The earliest nest built was on 17 April and the latest 12 July. Bates and Lowther (1952) found the nesting months to be April, May and June. Ali and Ripley (1983) reported that precipitation and food may be the factors influencing initiation of breeding season. The nests were made in the bushes (*Rosa sp.*, *Euonymus japonica*, *Salix sp.*) low willows (*Salix alba*), *Cyperus sp.*, bags and baskets hanging on walls and under the ceilings of buildings. Most of the nests were made in the bushes. Similar observations were made by Bates and Lowther (1952) while Hsu and Lin (1997) reported majority of nests in dense vegetation. Both sexes take part in nest making. Nests were made up of dry soft twigs, dry herbs, dry lawn grass, cotton fiber, nylon fiber, some animal hairs and root hairs of plants. Internally the nests were lined by a thin lining of birds' down feathers and soft root hairs. Similar findings have been made by Bates and Lowther (1952), Balakrishnan (2010) for square-tailed black bulbul and Hsu and Lin (1997) for Styan's bulbul. Twigs were used on the outside at the start of the nest building, but as the nest building progressed, more and more soft material was used. Nest is cup shaped structure with an average outer diameter of $15.22 \text{cm} \pm 0.82$ (range 14 cm to 16.5 cm, n=30), inner diameter of $7.68 \text{cm} \pm 0.82$ (range 6.3 cm to 8.8 cm, n=30) and the

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Table 1. Month-wise nest building (n=42)

Month	April	May	June	July	Total
No. of nests built	5	21	12	4	42

Table 2. Nesting sites (n=76)

Nesting site	Bushes	Low willows	Cyperus plants	Hanging bags	Baskets	House ceilings
No. of nests built	41	11	6	5	4	9

Table 3. Various nest parameters

Parameter	Mean (cm)	SD	Range
Outer diameter	15.22	0.82	14-16.5
Inner diameter	7.68	0.82	6.3-8.8
Depth of nest depression	4.61	0.29	4.2-5

Table 4. Mayfield survival probability for different stages of Himalayan bulbul

	Exposure days	No. of eggs/nestlings	No. of eggs/nestlings failed	Daily survival	Success rate
Incubation	1729	247	49	0.97	0.69
Nestling	1188	198	27	0.98	0.75

average depth of nest depression $4.61\text{cm} \pm 0.29$ (range 4.2 to 5cm, $n=30$). Egg laying was initiated immediately after the nest building. One egg is laid every day usually in the morning till the completion of clutch. The average clutch size was 3.25 ± 0.43 (range 3-4, $n=76$). Bates and Lowther (1952) also reported the clutch of 3-4 with 5 on rare occasions. We did not find 5 eggs in any nest. Hsu and Lin (1997) reported average clutch size of 3.3 in Styan's bulbul with eggs laid in early morning and at 24 hour intervals. A total of 247 eggs were laid in 76 nests. In 57 nests 3 eggs were laid in each while in the remaining 19 nests 4 eggs were laid in each. The average length and breadth of eggs was $22.67\text{ mm} \pm 0.2$ and $16.58\text{ mm} \pm 0.16$ respectively. Eggs varied in size within and between clutches. Eggs are oval with a conical but blunt end. The eggs are dull white with red spots. Both sexes take part in incubation alternately. Most of the time the nest was attended by one or the other member of the incubating pair. However for short durations of half to one hour the nest was left unattended as both the birds fed and defecated. The average incubation period for various species of bulbuls ranges from 11-14 days (Brosset, 1981). The average incubation period in our study was $12.1\text{days} \pm 0.76$ (range 11-13 days, $n=30$). Hsu and Lin (1997) reported mean incubation period 11.4 days in Styan's bulbul. While Balakrishnan (2010) reported incubation period of 12-13 days in Square-tailed black bulbul. On the 5th day of incubation the wider side of the egg showed dark coloration and this dark coloration became more and darker with the passage of time. After the completion of incubation hatchlings coming out of the eggs were naked with closed eyes and wholly dependent on the parents for feeding etc (artificial). The shells of the eggs were thrown out by the parents to keep nest clean. Parents spent most of the time in the nest for providing warmth to the hatchlings and whenever an intruder approached the nest the parents came close to the intruder producing loud sounds watching carefully without going away from the nest but remaining in full guard. The average nestling period was $13.95\text{ days} \pm 0.67$ (range 13-15 days, $n=20$). Balakrishnan (2010) reported the nestling period to be 11-12 days in Square-tailed black bulbul. The overall incubation and nestling period together was 25.75 days. Of the 76 active nests studied fledging took place only in 85.53% (65 nests) while 11 nests failed completely (8 during incubation period and 3 during nestling period). The hatching success was 80.16% as only 198 eggs out of 247 produced hatchlings. Egg survival during incubation was 0.69. The fledging success was 86.37% (171 fledged out of 198 hatched). Nestling survival during nestling period was 0.75. Overall breeding success i.e., %age of total eggs fledged was 69.23%. Only 11 nests were predated during the study. In these nests complete loss of eggs or hatchlings took place. Cat and house crow were the only predators seen. Hsu and Lin (1997) also reported cat to be one of the predators.

Conclusion

Himalayan bulbul a resident bird of Kashmir which has shown decline in its number breeds generally in bushes from April to July and after

raising its new generation disperses in different parts of the valley. Their survival rate is low because of heavy depredation by common crows, domestic cats and also due to loss of their nesting habitats.

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