

## Nesting Pattern and Nesting Material Preferences of Ashy Wren-Warbler *Prinia socialis* in the Urban Wetlands of Bangalore Karnataka

Devaraju R., Mahaboob Basha P.

Received 15 September 2021, Accepted 17 October 2021, Published on 8 November 2021

### ABSTRACT

Ashy wren-warbler *Prinia socialis* is a small passerine bird that birders most encounter in the scrub and thorny bushes, agricultural lands, wetlands, wastelands and vegetations surrounding the human settlements in rural and urban landscapes across the Indian subcontinent. It is a common resident breeder that times its breeding on the onset of the monsoon season. The present study assessed the breeding and nesting activities of Ashy prinia in the selected urban wetlands of Bangalore for three breeding seasons from August 2016- July 2009. A total of 31 solitary nests comprising cup-shaped, funnel-shaped, dome-shaped and oblong purse-shaped nests have been recorded. *Lantana camara*, *Parthenium hysterophorus*, *Ocimum* and *Alternanthera* species besides, tall grasses along the wetland margin were found to be

the preferred nesting sites. The analysis of nesting material composition of Ashy prinias in rural and urban areas had revealed their adaptive nature in selecting the nesting materials available within the nesting range rather than their specificity. Further synurbization processes have brought in them a notable change in the selection of nesting materials of anthropogenic origin and their concentration in their nests. Furthermore, nest-shifting and nest-dismantling behaviors of Ashy prinias appear to be rare among nesting species to overcome nest predation by humans and human-induced predators.

**Keywords** Anthropogenic origin, Nest dismantling, Nest predation, Nest shifting, Passerine.

### INTRODUCTION

Ashy wren-warbler *Prinia socialis* a widely distributed passerine bird in the family *Cisticolidae*, which has a distribution range from rural to urban landscapes across the Indian subcontinent. The insectivorous bird inhabits scrub and thorny bushes, grassy vegetation in the garden, farmyards, uncultivated lands, along the wetland margin, roadside vegetation and standing crops, notifying the observer of its presence through shrieking calls, moving its tail up and down while hopping on the ground and

---

Devaraju R., Mahaboob Basha P.\*  
Department of Zoology, Bangalore University, Bangalore, Karnataka 560056, India  
Email: pmbashabub@rediffmail.com  
\*Corresponding author

amongst vegetation foraging insects and spiders. It is a small warbler measuring about 13-14 cm with a grey head, red-eye-a short black bill. The bird with a narrow supercilium, rufous-brown mantle, ear coverts, orange buff wash on underparts and a long graduated tail tipped with black sub-terminal spots in non-breeding plumage acquires slate-grey mantle, ear coverts, reddish-brown upperparts and pale cinnamon underparts, a shorter tail and disappeared supercilium in breeding plumage (Grimmett *et al.* 2011). It is a widespread resident breeder, times its breeding on the onset of the monsoon season between March - September months. The monogamous and solitary nester exhibits maximum diversity in the nesting pattern comprising cup-shaped, funnel-shaped, dome-shaped and oblong purse-shaped nests (Ali 2012). The clutch size varies between 3-4 oval-shaped glossy brick red (Budkewar *et al.* 2018) or orange-red to chestnut or crimson red colored eggs (Vyas and Upadhyay 2015). The eggs measure 0.6 to 0.68 inches in length and 0.45 to 0.5 in breadth, which hatch in about 12 days. It places its nest close to the ground in a shrub or tall grass and the fearless movements of the male and females while discharging parental duties in the nesting region such as incubation of eggs, carrying food for the nestlings and mating and alarm calls serve as cues that attract human and human induced predators and easily vulnerable to them. Further nest-shifting and nest-dismantling (Pachlore and Pachlore 2012) behaviors of Ashy prinias appear rare strategies to overcome the chances of nest predation by humans and human-induced predators.

## MATERIALS AND METHODS

### Study area

The Greater Bangalore is the metropolitan and the capital city of the Indian state, Karnataka, situated in the heart of south Deccan plateau of Peninsular India to the south-eastern corner of Karnataka state between the latitudes (12°39'-13°13'N) and longitudes (77°22'-77°52'E) with an aerial extent of about 2190 sq km (SAC 2010) at an average elevation of 900 m above mean sea level. Bangalore enjoys a salubrious and equable climate throughout the year (Ramachandra *et al.* 2015). The garden city supports

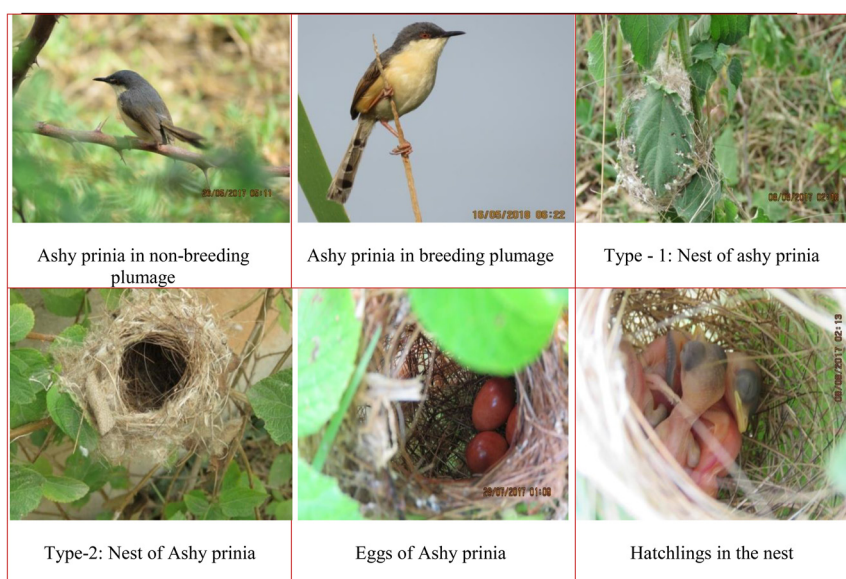
a wide range of avifaunal communities in its green spaces and dry-deciduous type of vegetation. Four lakes Yale Mallappa Shetty Kere (YMSK 286 ha), Rampura (110 ha), KR Puram (Vengainakere 40 ha) and Rachenahalli (60 ha) lakes were selected for the present study.

### Methodology

A systematic examination of vegetation was undertaken for three breeding seasons from August 2016 to July 2019 for the location of nests. The observations on breeding and nesting activities were recorded in the early morning (6:00-10:00 h) and the evening (4:00-6:00 h) on a daily basis. The movements of Ashy prinias while carrying nesting materials, food for the nestlings, including the behavioral cues such as shrill calls around the nesting sites were taken as clues for the exact location of their nests. Standard protocols were followed during nest searching and monitoring (Martin *et al.* 2013) and utmost care was taken to ensure the safety of the nest, eggs, and hatchlings from observer-induced nest predation and mortality (Martin and Geupel 1993). Photographs of nests, eggs and nestlings were taken with the aid of a digital 16.1 megapixels' camera (Canon Power Shot S×60 HS). Binoculars (Olympus 10×15) were used to observe breeding and nesting activities from a considerable distance without their knowledge to allow their natural breeding activities. The deserted and dead nests were utilized for analysis of nesting material composition. Some aspects of their breeding such as collection and carrying of nesting materials, construction of nests, incubation of eggs, feeding the nestlings, removal of faecal sacs (Vyas and Upadhyay 2015). Nest-shifting and nest-dismantling behaviors including the impact of proximate factors on the nesting behaviors were documented.

## RESULTS AND DISCUSSION

In the present study we located 31-nests comprising, cup-shaped, funnel-shaped, Oblong-purse shaped and domed-nests. The morphometric measurements of the nest such as length (13.5 cm), width (9.5cm), external diameter at nest entrance (17cm) and around the egg chamber (27cm) including the natural and anthropogenic materials concentrated in the nests



**Plate 1.** Breeding and nesting biology of Ashy prinia.

were presented (Plate 1,2).

The nesting site preferences of Ashy prinia comprise *Lantana camara*, *Parthenium hysterophorus*, *Hyptis suaveolens*, *Ocimum* and *Alternanthera* species including tall grasses along the wetland margin. The nesting material preferences vary with the habitat and their availability such as the fresh leaves, coarse and finer grasses, fluffy material from the grasses and reeds, lichens, arthropod silk and manmade materials like artificial fibers and cotton threads.

The analysis of structure and composition of nest revealed the presence of plant, animal and anthropogenic materials. In one of the nesting patterns, the three fresh leaves of *Hyptis suaveolens* stitched together at the margin in the form of a funnel using artificial fibers and lined with soft fibrous materials like Tailorbird *Orthotomus sutorius* (Type-1). In another type 6-7 leaves of *Lantana camara* were stitched together along with artificial fibers and coarse grasses using cotton threads forming an oblong pursue (Ali 2012) lined internally with soft grasses and fibrous materials to serve as cushion material for the eggs nestlings. The nest's rim was attached to the branches using spider cobs as adhesive materials (Type-2). In some nests interwoven fibers were held between the

branches of *Parthenium* and *Ocimum* species using adhesive materials. The domed nest consisted of only grasses stacked between the stems of tall grasses on the ground with spider cobs. The clutch size varied between 3-4 brick-red (Budkewar *et al.* 2018) to chestnut or crimson-red colored eggs (Vyas and Upadhyay 2015).

Further, the nesting material composition analysis revealed the presence of considerable amounts of anthropogenic materials procured from the adjacent human habitations. The artificial cotton threads (Budkewar *et al.* 2018) were used as stitching material to make a funnel or oblong purse of leaves and synthetic fibers as a structural material to offer rigidity and support to the nests.

The maximum occurrences of anthropogenic material in the nests of Ashy prinias was reported from YMSK lake areas close to human settlements with an abundance of stitching materials like cotton threads and artificial fibers whereas the nest located in Rachenahalli lakes were free from anthropogenic materials. Further, the analysis of nesting material composition of Ashy prinias from the Bayaluseeme region of Tumkur district of Karnataka has revealed the absolute absence of such anthropogenic materials,



**Plate 2.** Analysis of nest material composition of Ashy prinia.

indicating that the nesting material choices of Ashy prinias depends on their availability and abundance no matter whether the materials are natural or anthropogenic.

The findings on the breeding and nesting behaviors of Ashy prinia such as construction of nests, clutch size, incubation of eggs, feeding the nestlings, removal of fecal sacs, breeding and incubation periods were in confirmation with the earlier findings of Pachlore and Pachlore(2012), Vyas and Upadhyay (2015), Balkhande *et al.* (2017), Budkewaret al. (2018), Sarwar and Hussain(2018). The nest-dismantled and disappearance of eggs and nestlings

we observed supports the findings of Pachlore and Pachlore(2012), Sarwar and Hussain (2018). The nest-shifting behavior which involves nest-dismantling for utilization of its materials for the construction of a new nest in the new location due to disturbances during nesting period further confirms the findings of Pachlore and Pachlore(2012), Sarwar and Hussain (2018). However, we could not trace the new nest in the vicinity and ascertain whether the disappearance of eggs and nestlings was due to nest predation or shift to a new location. There is no mention of shifting the nest contents in the literature. In case the nest contents were shifted to a new site, it requires further investigation to address the issues relating to the chances

of the eggs and nestlings' damage during shifting. The present findings on the nesting behavior of Ashy prinia concentrating anthropogenic nesting materials in the context of intense urbanization pave the way for new investigation by researchers.

### Breeding success and factors impacting on it

The study finds that the nesting site preferences of Ashy prinias along the lake margins that serve as walking tracks for humans and predators have posed severe threats to nest survivability. The frequent removal of buffer vegetation during deweeding as in KR Puram and Rachenahalli lakes, overgrazing by cattle or cutting off wetland grasses as fodder for animals in semi-urban areas like Rampura and YMSK lakes have direct impact on the reproductive activities. Further, the nests placed in low-lying regions such as Rajakaluves were highly vulnerable to flooding and lakes' overflow by the inputs of monsoon rains. The dumping of garbage, dead bodies of cattle and other animals, wastes from slaughterhouses, fish wastes from pisciculture activities and deplorable conditions that attract predators like stray dogs, cats, mongoose, snakes, rats, bandicoots and scavenger birds obstruct the reproductive activities. Further more, anthropogenic interventions, recreational activities and fishing using boats impact the reproductive activities of Ashy prinias. Therefore, the study recommends the restoration of vegetation cover in the buffer and catchment areas. Further the need for delimitation of anthropogenic activities, indiscriminate use of wetland resources, cutting of wetland grasses and overgrazing by cattle to promote the reproductive activities of solitary nesters that prefer to place their

nests in low bushes and vegetation close to the ground in the buffer and catchment areas.

### REFERENCES

- Ali S (2012) The Book of Indian birds (13th Revised edition). Oxford University Press, New Delhi, India, pp326.
- Balkhande Jayvardhan, Chavhan Arvind, Azeem Issak Shaikh (2017) Study of nesting pattern and breeding biology of *Prinia socialis* in the forest office of Bhokar Dist. Nanded (Maharashtra) India. *Int J Life Sci* 5(4): 635-638.
- Budkewar Shubhangi Dhammapushpa, Balkhande Jayvardhan, Chavhan Arvind (2018) Study of nesting pattern and breeding ecology of *Prinia socialis* in Manjula Nagar Colony Bhokar Dist. Nanded (MS) India. *Int J Life Sci* 6 (3): 807-813.
- Grimmett Richard, Inskipp Carol, Inskipp Tim (2011) Birds of the Indian subcontinent. 2<sup>nd</sup> edn. London: Christopher Helm, Oxford University Press, India, pp 528.
- Martin JM, Bailey R, Phillips T, Cooper C, Dickinson J, Lowe J, Rietsma R, Gifford K, Bonney R (2013) Nest Watch Nest-monitoring manual. Ithaca, NY: Cornell Lab of Ornithology, pp1-33.
- Martin TE, Geupel GR (1993) Nest-monitoring plots: Methods for locating nests and monitoring success. *J Field Ornithol* 64(4):507-519.
- National wetland atlas (2010) Karnataka. SAC, ISRO, Ahmedabad, India, pp204.
- Pachlore GS, Pachlore SP (2012) Dismantling and shifting of nest, a rare behavior of Ashy Prinia (*Prinia socialis* skyes) Zoo's Print 27(1): 24.
- Ramachandra TV, Asulabha KS, Sincy V, Bhat Sudarshan, Aithal Bharath H (2015) Wetlands: Treasures of Bangalore. ENVIS Technical Report 101, Energy and wetlands, research group, CES, IISc Bangalore, India.
- Sarwar M, Hussain (2018) Feeding and breeding ecology of Ashy-wren warbler (*Prinia socialis*) in Pothwar plateau, Pakistan. *The J Anim Pl Sci* 28(2):1-5.
- Vyas Raju, Upadhyay Kartik (2015) Notes on breeding of Ashy Prinia, *Prinia socialis* in Gujarat, India. *Ind Birds* 10 (5):118-121.