



### Unusual nesting behaviour of white-throated kingfisher (*Halcyon smyrnensis*)

The white-throated kingfisher or white-breasted kingfisher, *Halcyon smyrnensis* is a common breeding resident found throughout Asia. Both sexes are alike; juveniles are duller than the adults. They breed yearly from January to August in pairs, but the breeding season begins earlier in India and Sri Lanka. The most active period of breeding related activities is from April to July. Deep burrows (about 50 cm to 1 m) are dug by mating birds into a vertical embankment or wall for the construction of nests (Ali & Ripley 1983). They are common in agricultural landscapes, swamps, marshes, near ponds, lakes, parklands, mangrove swamps, and gardens (Anderton & Rassmussen 2005). However, we have observed a nest of white-throated kingfisher in an artificial nest box towards the end of December 2020 in Moratuwa, Sri Lanka, the first documented record of such breeding behaviour in Sri Lanka and throughout its range. This note highlights the key observations made.

Four white-throated kingfisher hatchlings (Fig. 1) in the artificial nest box were first observed at 13:45 h on 30 December 2020 in Katubedda (6.8012° N, 79.8935° E), Moratuwa, which is a semi-urban area in the Colombo district of Sri Lanka. The artificial nest box was a clay/mud pot fixed to a vertical wall. The location was a two-story residence with a small home garden, but the ground floor had been abandoned for three months when we made the first observation and the area remained abandoned during the entire breeding period. The opening of the pot chamber was vertical and was oval in shape with a diameter of 7 cm. The depth of the chamber was 17 cm. Maximum diameter of the chamber was 27 cm. No other space or tunnels were available. The opening was located from 3 m above the ground. The floor of the chamber was lined with coarse fibre. However, it is not known whether this was done

by the kingfishers or by the birds that have used the nest box previously.

A transmission line was located 4 m from the nest, which was frequently used by the parent birds when travelling between feeding grounds and the nest (Fig. 2). A *Sesbania grandiflora* (Fabaceae) tree was located 7 m from the nest. However, the birds frequently used a different tree of same species for overseeing the nest and searching for prey, located 9 m away from the nest. One abandoned allotment and a water canal were located 20 m and 36 m away from the nest respectively, another transmission line was found above this allotment and parents used this line to spot prey from the allotment. Although no direct observations were made on actual prey behaviour in the canal due to inaccessibility, parents were often seen diving to the allotment in search of prey. Both parents were involved in feeding and feeding intensity was higher during morning and evening times just before sunset. Parents were in resting behaviour during peak sunlight up to around 14:00 h. Sometimes both parents arrived at the transmission line with prey and then one would wait until the hatchlings were fed by the other. Hatchlings were fed with geckos, skinks, lizards (Fig. 3), crabs, larvae, insects, fish, and earth worms. Lizards comprised the main prey item brought to hatchlings. Parents made a unique sound when they arrived with prey. As the hatchlings grew, upon hearing this sound they also responded with sounds.

Throughout the nesting period, the parents showed vigilant behaviour both during the night and the day. Often, when domestic cats were seen near the nest, parents would sound alarm calls. Fledglings (Fig. 4) started leaving the nest on 16 January 2021. One left on that day and three left the day after. In total, four fledglings left the nest so breeding success was 100%. The young adults were seen associated with the parents for up to three days in the vicinity. Parents were seen seldom thereafter but have been observed inspecting the nest.

The white-throated kingfisher prefers sandy riverbanks for nest construction (Naher & Sarker 2016). However, they also lay eggs in ant hills, rock crevices, under projecting stones on the bank of channels, decaying trees, the shafts of un-bricked walls, natural holes found inside wells, and under bridges (Naher & Sarker 2016). Some exceptions from the natural nesting sites have been haystacks, excavations in the earthen wall of old houses, and excavations in cement pipes (Palkar *et al.* 2008). However, this is the first time as far as the published literature shows that the white-throated kingfisher has selected a man-made nest box. Lack of suitable natural nesting sites in urban settings would be a forcing factor in this regard. Urbanization forces animals and plants to either adapt to new situations or be wiped out (Moller 2008), and a variety of evidence has shown that some species of birds have succeeded in new environments through adaptations (Roshnath & Sinu 2017, Alexandrino *et al.* 2019). Hence this scenario could also be identified as such an adaptation to the semi-urban environment.

The availability of abandoned allotments, water bodies, small trees, and transmission lines etc., facilitates breeding in urban areas by supplying feeding grounds, vantage posts and water (Naher & Sarker 2016, Asokan *et al.* 2010). All such facilities were observed in close proximity to the nest site, which would have been an advantage in site selection. Usual diameter of the burrow opening of the white-throated Kingfisher's nest is 6.5–14.0 cm in Bangladesh (Naher & Sarker 2016) and 6.0–15.0 cm in India (Palkar *et al.* 2008, Ali *et al.* 2010). The chamber diameter is 12.5–18.0 cm (Palkar *et al.* 2008) and length from burrow opening to the ground is about 2 m (Ali *et al.* 2010). The similar dimensions of the nest box and the larger opening, probably the result of an accidental break, would have been another stimulus for selection. Hence, experimenting on nest boxes with different opening size may reveal the use of nest boxes by previously unknown species that find themselves in urban areas without suitable nesting facilities.

#### Literature cited

Alexandrino, E.R., J.A. Bogoni, A.B. Navarro, A.A.A. Bovo *et al.* (2019). Large terrestrial bird adapting behavior in an urbanized zone. *Animals*, 9 (6): 351–365.  
 Ali, A.M.S., S. Asokan, and R. Manikannan (2010). Observations on nesting ecology of

white-breasted kingfisher *Halcyon smyrnensis* (Aves: Coraciiformes) in Cauvery Delta, Southern India. *Journal of Ecology & Natural Environment*, 2 (7): 134–139.

- Ali, S. and S. Ripley (1983). *Handbook of the Birds of India and Pakistan*. Volume 4. Oxford University Press, New York: 488pp.  
 Anderton, J. and P. Rasmussen (2005). *Birds of South Asia: The Ripley Guide*. Volumes 1 & 2. Smithsonian Institution and Lynx Edicions, Barcelona: 1067pp.  
 Asokan, S., A.M.S. Ali, and R. Manikannan (2010). Breeding biology of the Small Bee-eater *Merops orientalis* (Latham, 1801) in Nagapattinam District, Tamil Nadu, India. *Journal of Threatened Taxa*, 2 (4): 797–804.  
 Harrison, J. (2012). *A field guide to the Birds of Sri Lanka*. 2<sup>nd</sup> Edition. Oxford University Press, New York: 256pp.  
 Moller, A.P. (2008). Flight distance of urban birds, predation, and selection for urban life. *Behavioral Ecology & Sociobiology*, 63: 63–75.  
 Naher, H. and N.J. Sarker (2016). Nest and nest characteristics of common kingfisher (*Alcedo atthis*) and white-throated kingfisher (*Halcyon smyrnensis*) in Bangladesh. *Bangladesh Journal of Zoology*, 44 (1): 99–109.  
 Palkar, S.B., R.J. Lovalekar, and V.V. Joshi (2008). Breeding biology of white-breasted kingfisher *Halcyon smyrnensis*. *Indian Birds*, 4 (3): 104–105.  
 Roshnath, R. and P.A. Sinu (2017). Are the heronry birds adapting to urbanization? *Zoo's Print*, 32 (12): 27–33.  
 Woodall, P.F. and G.M. Kirwan (2017). white-breasted kingfisher *Halcyon smyrnensis*. *HBW Alive* <www.hbw.com> Accessed on 21 April 2021.

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T.G.S.L. Prakash<sup>1,5</sup>, S. Jayakody<sup>2</sup>, A.G.K. C. Perera<sup>1</sup>, R. Gamage<sup>3</sup> & T.G.T. Kusuminda<sup>4</sup>

<sup>1</sup>Biodiversity Conservation & Research Circle of Sri Lanka, No. 50/1, Paranakanda, Wattala, Sri Lanka

<sup>2</sup>Department of Aquaculture & Fisheries, Wayamba University of Sri Lanka, Gonawila, Sri Lanka

<sup>3</sup>Friends of Horton Plains, Tea Research Institute, Talawakelle, Sri Lanka

<sup>4</sup>Department of Agricultural Biology, Faculty of Agriculture, University of Ruhuna, Kamburupitiya, Sri Lanka

<sup>5</sup>E-mail: prakashtgsl@gmail.com



## Plate 13



**Figure 1.** Four white-throated kingfisher hatchlings inside the artificial nest box were observed at 13:45 h on 30 December 2020



**Figure 2.** Overall appearance of the nesting site of white-throated kingfisher in Katubedda, Moratuwa, Sri Lanka; adult bird and the artificial nest box can be seen at top left and right corners respectively (on 1 January 2021)



## Plate 14



**Figure 3.** Adult white-throated kingfisher feeds hatchlings with a lizard (*Calotes versicolor*) in the artificial nest box (on 2 January 2021)



**Figure 4.** Four fledglings of white-throated kingfisher in the artificial nest box; a day before leaving the nest (on 15 January 2021)