

Ground-nesting Attempt by Asian Barred Owlet *Glaucidium cuculoides*

Wangworn Sankamethawee¹ and Andrew J. Pierce^{2*}

The Asian Barred Owlet *Glaucidium cuculoides* is a small owl of body mass ca. 150–240 g which is widespread throughout mainland Southeast Asia (except the Thai/Malay peninsula), Southeastern China and along the foothills of the Himalayas into Pakistan (KÖNIG *ET AL.*, 2008). It inhabits a wide variety of woodland habitats including parkland and semi-open country from the lowlands to 1800 m above sea level (TREESUCON & LIMPARUNGPAITTHANAKIJ, 2018). Breeding has been recorded from January to February in Thailand (HERBERT, 1926) and March to June elsewhere in mainland Southeast Asia (ROBSON, 2008). However, a bird with enlarged gonads taken in March and juveniles collected in early May, both in Chiang Mai Province, northern Thailand (DEIGNAN, 1945), suggest a longer breeding period in Thailand. Clutches of 3–5 eggs are laid in natural tree cavities, or in the old nests of woodpeckers or barbets. Ground-nesting does not seem to have been previously reported in the species. This note documents one such attempt, from Northeast Thailand. A second ground nest came to light while researching this note.

Our observations took place during 18–25 March 2017 on the main campus of Khon Kaen University, Khon Kaen Province, Northeast Thailand (16°27'33.12"N, 102°49'5.15" E). The nest site was in a small (26.8 ha) patch of mixed deciduous and dry dipterocarp forest dominated by *Xylia xylocarpa* (Roxb.) Taub. but including other common species such as *Shorea obtusa* Wall., *S. roxburghii* G. Don, *Pterocarpus macrocarpus* Kurz and *Lannea coromandelica* (Houtt.) Merr. This time of the year being the dry season, the understory was mainly bare apart from a few grasses and scattered annuals (Figs. 1, 2). To avoid undue disturbance, the nest was examined, and measurements of the eggs taken, using dial callipers, after the nest had failed.

The nest was found while birdwatching on 18 March 2017 at 0820 h when we flushed an Asian Barred Owlet from the ground just a few meters from us as we paused on a track through the woods. Closer inspection revealed a nest containing three eggs. After a few “record shot” photographs we left the area. An hour later the nest was unattended but the eggs had been covered over with dead leaves. On 19 and 22 March the three eggs were still in the nest but no adult was present at the nest despite our approaching carefully from a distance (and thus not flushing any bird from the nest before seeing it ourselves). However, on each occasion an adult was seen flying around and calling in the area. On the final visit, 25 March, one egg had disappeared; a second was covered with ants and was on the ground outside of the nest; and the third was in the nest. Both remaining eggs were cold and had small holes in them, 1.2–1.8 mm in diameter. Asian Barred Owlets were seen in the area during the following months but no other nesting attempt was discovered.

¹ Department of Environmental Science, Faculty of Science, Khon Kaen University, Khon Kaen 40002, Thailand.

² Conservation Ecology Program, School of Bioresources and Technology, King Mongkut's University of Technology Thonburi, Bangkokthien, Bangkok 10150, Thailand.

*Corresponding author. E-mail: andyp67@gmail.com

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The nest was placed in a slight depression on the ground, about 15 cm deep with a small clump of grass on one side. The depression may have been made by people digging for insects (such as scarabeid beetles *Holotricha* sp.), but it is possible that it was enlarged by the owlets as there was a pile of loose sand in front of the nest. Otherwise the area was only sparsely vegetated among the trees (Figs. 1, 2). The nest was lined with a few dry leaves of *S. obtusa* and *Artocarpus lakoocha* Roxb. The two remaining eggs measured 34 × 29 mm and 33 × 28 mm, respectively, which accords with BAKER (1934) who gives an average of 34.1 × 30.1 mm for seven eggs of *G. c. brugeli*.

Of the 20 species of owl that breed in Thailand only Eastern Grass Owl *Tyto longimembris* and Barn Owl *T. alba* (occasionally) nest on the ground; most others generally use cavities in trees, resulting from a variety of causes including excavation by other birds (woodpeckers or barbets). Although other species of owl outside the region are regular ground nesters, e.g. Burrowing Owl *Athene cunicularia* in North and South America, this seemed to be the first indication of ground-nesting by Asian Barred Owlet. The species is fairly common around the well-wooded campus; perhaps a lack of a suitable nest sites such as few old trees caused it to nest in this novel situation. Nest-site shortage might have been exacerbated by the recent felling of 4.5 ha of connected nearby forest. A lack of tree cavities has been shown to reduce densities of cavity-nesting species (BRAWN, 1988; COCKLE ET AL., 2010). These owls may benefit from the placement of nest boxes around the wooded areas of Khon Kaen University as well as making for an interesting student project along with educational opportunities. Nest boxes have been used successfully by owls in many places including where nesting sites are limited (e.g. MARTI ET AL., 1979; YIP, 2006).

During our research we were notified of an Asian Barred Owlet nest from Phetchaburi Province, southwestern Thailand. It had been placed inside a discarded paint pot lying on its side on the ground and contained five eggs, but was later depredated by feral dogs (Wittawat Noul-in, personal communication [Fig. 3]). However, this was in a cavity of sorts, unlike the nest we observed which was completely exposed. The innate instinct to breed presumably overcomes, at least occasionally in this species, the lack of favoured nest sites.

The small holes in the eggs suggested they may have been attacked by a rodent—other potential predators in the area, especially feral dogs, snakes and birds such as Greater Coucal *Centropus sinensis*, would likely have removed the whole eggs (WILLIAMS & WOOD, 2008). Had the nest been successful, the nestlings would have fledged sometime in April or possibly later, confirming the known breeding season in Thailand to be from at least January until April.

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REFERENCES

- BAKER, E. C. S. 1934. *The nidification of birds of the Indian empire* Vol. III. Taylor & Francis, London. 568 pp.
- BRAWN, J. D., AND R. P. BALDA. 1988. Population biology of cavity nesters in northern Arizona: do nest sites limit breeding densities? *Condor* 90: 61–71.
- COCKLE, K. L., MARTIN, K., AND M. C. DREVER, 2010. Supply of tree-holes limits nest density of cavity-nesting birds in primary and logged subtropical Atlantic forest. *Biol. Cons.* 143(11): 2851–2857.
- DEIGNAN, H. G. 1945. The birds of northern Thailand. *US Natl. Mus. Bull.* 186: 179–180.



Figure 1. Forest patch by ground nest of Asian Barred Owlet *Glaucidium cuculoides* in northeastern Thailand (photograph by Wangworn Sankamethawee).



Figure 2. Nest of Asian Barred Owlet in northeastern Thailand. (photograph by Andrew Pierce).



Figure 3. Nest of Asian Barred Owlet in a discarded paint tin in Phetchaburi, Thailand (photograph by Wittawat Noul-in).

- HERBERT, E. G. 1926. Nest and eggs of birds in Central Siam. *J. Nat. Hist. Soc. Siam* 6(4): 323–356.
- König, C., Weick, F., and J.-H. Becking. 2008. *Owls of the World* 2nd edition. Christopher Helm, London. 528 pp.
- MARTI, C. D., Wagner, P. W., and K. W. Denne. 1979. Nest boxes for the management of Barn Owls. *Wildl. Soc. Bull.* 7(3):145–148.
- ROBSON, C. 2008. *A field guide to the birds of South-east Asia*. New Holland. London. 544 pp.
- TRESSUCON, U. AND W. LIMPARUNGPATTHANAKIJ. 2018. *Birds of Thailand* Lynx. Edicions, Barcelona. 452 pp.
- WILLIAMS, G. E., AND P. B. WOOD. 2002. Are traditional methods of determining nest predators and nest fates reliable? An experiment with Wood Thrushes (*Hylocichla mustelina*) using miniature video cameras. *Auk* 119 (4): 1126–1132.
- YIP, J. Y. 2006. A Note on the Use of Nest Boxes by Owls and other Birds in the Hong Kong Wetland Park. *Hong Kong Biodivers.* 13: 15–16.