

OBSERVATIONS ON THE BREEDING BIOLOGY OF HELMETED HORNBILL IN PAHANG, PENINSULAR MALAYSIA

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ABSTRACT. – Observations were conducted on a nesting pair of Helmeted Hornbill (*Rhinoplax vigil*) at the Genting Highlands forest area in February–July 1998, in Pahang, Peninsular Malaysia, in sub-montane primary forest at c. 800m altitude. Sealing the nest hole was done only by the female when the male brought only ripe and unripe figs and other fruits, apparently for the female to produce ‘plaster’. Food material supplied to the female during confinement in the nest were mostly unidentified figs and other fruits, although a snake was also brought to the nest. The female and a single chick were observed in the nest on 17 July 1998. The position exposed the nest to sun by day, kept it dry during rain, and allowed the nest plaster to dry. Nest site selection showed preference for a secluded and steep forest area, although located within an area with human activities. With limited primary lowland forest remaining, intact sub-montane forest habitat can be important to Helmeted Hornbills for nesting.

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KEY WORDS. – Helmeted Hornbill, breeding, figs, forest.

INTRODUCTION

The Helmeted Hornbill (*Rhinoplax vigil*) is one of the 10 hornbill species found in West and East Malaysia. It has a restricted range in South-east Asia, and is only found in southern Myanmar, Thailand, Peninsular Malaysia, Sumatra (Indonesia) and Borneo. In Peninsular Malaysia, it is usually found in lowland forest but it can also be seen and heard in montane forest up to 1,200 m (Jeyarajasingam & Pearson, 1999) or 1,400 m (Wells, 1999). This species prefers mainly mature and contiguous forest and is seldom seen in secondary, degraded forest or forest fragments (pers obs.). Being one of the larger species, the Helmeted Hornbill has arguably the most amazing and far reaching call among all the Asian hornbills (Kemp, 1995). The one previous nesting record of Helmeted Hornbill in Malaysia lacked information on nesting behaviour and development (Wells, 1999). Data are presented here on the breeding biology of a pair of Helmeted Hornbills in Pahang, Malaysia.

STUDY AREA AND METHODS

The study area was located in sub-montane forest at the Genting Highlands forest area in Pahang, Peninsular Malaysia.

The nesting hornbills were observed using 10x42 binoculars and a 20x60 spotting scope. A total of 19 observational visits were made to monitor the nesting hornbills. Observations were mainly carried out by the author with contributions and notes from a few other observers. Monitoring of the nest was carried out from a vantage point about 40m from the nest, and was non-invasive to the nesting hornbills due to the very narrow angle of view on the nest.

RESULTS

Nest and nest site. – The nest cavity was situated in the hollowed stump of a large branch where it had broken off at the fork, in an unidentified tree at a height of about 30m from the ground. The tree was located at about 800m altitude on a very steep slope and was surrounded by other trees in close proximity. The nest site was presumably selected to allow the hornbill chick easy perching areas on emergence and fledging from the nest. Although situated in an area with human activities, the nest itself and the nesting area were very secluded and very well hidden from view. Orientation of the nest allowed it to be exposed to the sun during the daytime and to stay relative dry during rainy periods.

Sealing of the nest entrance. – Observations started on 21 February 1998 when the female Helmeted Hornbill had started to seal the nest entrance. Both male and female had first been seen near the nest a day earlier. The sealing (plastering) of the entrance was carried out entirely by the female, and lasted for about 13–14 days until 6 March 1998, when the nest entrance sealing work was completed. During this period, the male hornbill brought only unidentified figs and other fruits to the female in the nest. The supply of ripe and unripe fruits by the male during the early nesting stage was apparently for the female to produce “plaster” material to seal the entrance.

On 25 February 1998, the male was seen passing five oblong-shaped yellowish material to the female in the nest. These were flattish and were about 2.5cm wide and 4cm long, and were at first assumed to be fruits. It is now thought that these were clay material brought to the female for nest sealing purposes. It was interesting to note that these five items were also regurgitated by the male to the female. During entrance sealing, the female left the nest on two occasions, at 1903 hr on the second day of observations and at 1925 hr on the third day of observations.

Female confinement, food supply and communication.

– The female was totally confined in the nest cavity on the ninth day after she started sealing the entrance. Hence, further entrance sealing continued for another four or five days after the female’s confinement, making up the total period of 13 or 14 days of such behaviour. Food brought by the male and regurgitated to the female consisted mainly of unidentified figs and other fruits. They were of various sizes and amounts: the most number of fruits fed to the female in a single event was 113 fruits, and the least was less than ten. The chick was first seen in the nest on 17 July 1998, 138 days after the female was confined in the nest. During this period the female was still in the nest with the chick. In late July, the male brought an unidentified snake and fruits to the female and chick in the nest (Lum et al., 1998). The male was generally quiet when bringing food to the nest, but occasionally called in the vicinity of the nest.

Interactions with sympatric hornbill species. – Four other hornbill species, Rhinoceros Hornbill (*Buceros rhinoceros*), Great Hornbill (*B. bicornis*), Bushy-crested Hornbill (*Annorhinus galeritus*) and White-crowned Hornbill (*Aceros comatus*) were found in the nesting area. All four species were heard in the general vicinity of the nest, although only the White-crowned and Bushy-crested Hornbills were heard close to the nest tree. The male Helmeted Hornbill did not appear alarmed or agitated when the two other hornbill species were heard on these occasions. Hence there was no evidence of interactions, inter-specific territoriality or competition for nest holes.

CONCLUSIONS

This is the first record of Helmeted Hornbill breeding in sub-montane forest habitat and only the second breeding record

for Peninsular Malaysia (Wells, 1999). It was interesting to note that the nest was located in a tree in a thickly wooded area, and not an isolated tree with a fairly open area in front of the nest-tree.

On 17 July 1998, at 138 days after the female was confined, the female was in the nest with the chick. This showed that the female Helmeted Hornbill stayed in the nest with the full grown chick until the chick was about to fledge. The female and chick were still being fed by the male in the nest on 25 July 1998 (Lum et al., 1998), 146 days after the female’s nest confinement. During a visit on 8 August 1998, the nest sealing was seen to be broken and both female and chick had vacated the nest, evidently between 25 July and 8 August 1998.

The estimated period the female was in the nest since her confinement on 2 March until she left the nest was 154–167 days. Lim (1998) suggested that the nest may have been breached between 29 and 31 July 1998. During this study, only a single chick was apparently raised by the hornbill pair. A pair of Helmeted Hornbill and a recently fledged young were seen near the nest area on 4 September 1998 (Lim., 1998). This pair and the young were presumed to be same hornbills from the earlier nesting observations.

The nesting period of Helmeted Hornbill in this study, is somewhat similar to that in South Sumatra, Indonesia. Data on five active nests (WCS-Indonesia Program) showed that nesting started from January to August in 2003. One previous observation of nesting in Peninsular Malaysia was of a male bringing food to a nest in August 1993 (Wells, 1999). However, there are also observations of nesting starting earlier, from November 2001 to March 2002 (Y. Hadiprakarsa, pers. comm.). The characteristics of the nest cavity observed in this study is similar to a nest cavity of Helmeted Hornbill observed at the Hala-Bala Wildlife Sanctuary in southern Thailand (L. H. Tee, pers comm.).

The Helmeted Hornbill has been recorded in the Genting Highlands area and the habitat where it occurs here is thought to be threatened (Chong, 1993). This study demonstrates that large contiguous areas of sub-montane (mountain) forest habitat can be important breeding habitat for the Helmeted Hornbill in Peninsular Malaysia. Due to limited extensive areas of protected lowland rainforest, more sub-montane forest in Peninsular Malaysia should be fully protected for Helmeted Hornbill and other hornbill species’ breeding requirements and their conservation.

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