Malabar Grey Hornbill *Ocyceros griseus* nesting near human habitation

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Introduction

India is home to nine species of hornbills (Ali & Ripley 1987) out of which four are found in Kerala (Ali 1969). The Malabar Grey Hornbill *Ocyceros griseus* is a Western Ghats endemic, whose existence could be threatened due to rampant and unchecked deforestation, resulting in a decline of suitable nesting and fruit trees, since the bird is a secondary cavity nester and predominantly frugivorous. Its nesting and breeding biology have been studied by Abdulali (1942), Mudappa (1994, 2000) and, Mudappa & Kannan (1997). Usually the bird nests in tall trees in forests but I report here it's nesting inside two villages in Kozhikode district of Kerala in 2003 and 2006.

Study area

The first instance of nesting was observed in 2003 at Thaleekara village, situated near Kuttiady River in Kozhikode district, *c.* 25 km west of the foothills of Wyanad. The second nest was seen in 2006 at Tharippilode village, in the same district, located *c.* 20 km west of Wyanad forests.

Methods

I visited the locations twice a week throughout the nesting period. The observations were made between 07:00 hrs and 18:00 hrs, from behind a blind. Pre- and post-nesting behaviours of the birds were noted. Height and diameter of the nest at breast height (DBH) were measured. Trees in the vicinity of the nest were identified. Fruits and seeds in the midden were collected to identify the trees that bore them.

Results

The male and female hornbills were first observed in Thaleekara locality in March 2003. Prior to starting the nesting activities the birds were seen flying around in the vicinity for a month. Thereafter they selected a natural cavity, which was formerly used by honeybees, in a 20 m tall coconut palm *Cocos nucifera*. This tree was located 25 m away from a house under construction and 35 m away from an occupied house. The nest cavity was at a height of 2.3 m above the ground and the DBH was 90 cm. The elliptical nest cavity was 17 cm long and 10 cm wide. The nest had a north-west orientation. The female sealed herself using her excreta to plug the nest cavity. Then she made a small slit (13 cm x 4 cm) on the shutter with her beak. During nest making the male flew about in the vicinity, attentively.

Once, some local people reported to me that they were alerted by the "*krew…krew…krew*" calls of the female. Upon inspection, they found a common mongoose *Herpestes edwardsii* attempting to demolish the nest. The female successfully defended the nest by holding out her beak through the slit and calling loudly.

The male fed the confined female four to six times a day (mean 5.4) for the first six weeks after incarceration. After the hatching of the egg(s), the male visited the nest six to eight times a day to feed the female and the squab. Hatching was confirmed six weeks after the incarceration of the female as egg fragments were observed beneath the tree and also the calls of the squab were heard.

When the male brought food to the female he first alighted on a nearby tree and watched around for some time. Once, seeing a House Crow *Corvus splendens* flying above the tree, he flew to a coconut palm far away from the nest tree. After making sure that there were no predators around he returned to the nest tree and spent some more time watching around to re-ensure the safety of the nest. When the female saw the male through the nest slit she responded by making soft begging calls and he proceeded to feed her. If the female did not extrude her beak through the slit the male returned without offering the food to her but he flew back after a short while. The chick also made soft calls along with the calls its mother. The four weeks old chick was seen putting out its beak through the slit in response to the arrival of the male. When the male came with food, it remained silent till it finished feeding the female and squab. Surprisingly, the bird apparently did not consider humans dangerous because it fearlessly fed the female despite my presence at a distance of 2 m from the nest.

The food items delivered consisted mainly of fruits, but 'animal' items were also brought, including grasshoppers, lizards (*Calotes* sp.), frogs and some unidentified insects. Fruits and seeds collected from the midden showed that the major share comprised figs, namely, *Ficus beghalensis*, *F. hispida*, *F. racemosa*, *F. tinctoria* and *F. callosa*. Fruits of *Mimusops elenji* were also offered to the inmates. The male regurgitated a maximum of 24 fruits in a bout of feeding. The male spent only 5–30 seconds (mean=24) at the nest, as it fed the female rapidly.

The midden beneath the tree consisted of tail, wing and down feathers indicating the moulting of the incubating bird. The bird squirted excreta up to 2.5 m away from the nest tree.

The trees within a 100 m radius of the nest tree included *C. nucifera, Areca catechu, Erythrina indica, F. hispida, Tamarindus indicus, Mangifera indica, Holigarna arnottiana, Artocarpus integrifolia, Borassus flabellifer, Pterocarpus marsupium* and *Cycas* sp.

The incubation period lasted 46 days and the fledging period, 42 days. In the morning of 23.v.2003 the incarcerated female broke open the nest and flew out, accompanied by the fledgling.

Another nest was observed in Tharippilode village in February 2006. The locality was a hilly terrain with a plenty of trees around. Pre- and post-nesting behaviour was as explained above. The bird nested in a natural cavity of a pezha tree *Careya arborea* at a height of 98 cm above the ground and 2.4 m away from a house. The tree was 10 m tall with a DBH of 75 cm. This nest was also oriented towards north-west .The fruits and seeds collected from the midden showed similar items as those observed in the earlier case but, additionally, there were seeds of *Strychnos nuxvomica*. The trees in the vicinity of the nest were identified as *C. nucifera, Areca catechu, Psidium guajava, A. integrifolia, M. indica, T. indicus, C. arborea, Macaranga peltata, Tectona grandis, M. elenji, Anacardium occidentale, Citrullus vulgaris, A. hirsutus* and *Myristica fragrans.*

Discussion

These observations appear significant because, first, the bird left the forest and nested inside villages. Second, it made nests close to human habitation. This may be due to the reduced numbers of suitable nest trees, thanks to the felling of trees for construction of roads. Officially (commercially?), trees with cavities are uneconomical. But the fact remains that such trees are crucial for the survival of hornbills. Decline in fruit trees also may have forced the birds to breed in the villages. Nests of hornbills at such low heights have not been recorded earlier. Malabar Grey Hornbills nest at heights ranging between 9–18 m from ground (Grimmett *et al.* 1998). Mudappa (2000) observed nesting at a height of 14 m. There is no previous record of their, nor that of any other hornbill species, nesting in *C. nucifera* and *C. arborea*. North-western orientation of nest in both cases agrees with the observation of Mudappa (2000) and could actually be helpful in minimizing the direct sunlight into the nest. However nesting of the hornbill in villages is not a good sign since it potentially indicates the loss of adequate breeding conditions in the forests. Conservation of hornbills solely depends on protection of trees, especially figs, and not only retaining but also viewing trees with cavities as an important ecological niche.

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The plight of Rollapadu Great Indian Bustard Sanctuary, Andhra Pradesh

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Rollapadu, in Kurnool district, Andhra Pradesh, is a designated sanctuary for the Great Indian Bustard *Ardiotis nigriceps*. It is basically flat open grassland with marginal lesser millets cultivated in patches. Due to the lack of rainfall –being situated in a semi arid region – the habitat is inhospitable to many life forms; only the hardy survive.

Among these, the mega-fauna are: Great Indian Bustard, Blackbuck *Antelope cervicapra*, Wolf *Canis lupus* and the Lesser Florican *Sypheotides indica*. For the Bustard and the Lesser Florican this is a critically important area since this is where they breed in relative safety.

Biodiversity at Rollapadu thrived due to its remoteness. There were times when, in just under an hour, forty-four bustards have been seen. Blackbucks were seen occasionally, as were wolves. Foxes *Vulpes bengalensis* were the commonest canids. Over the years, the numbers of blackbuck increased to