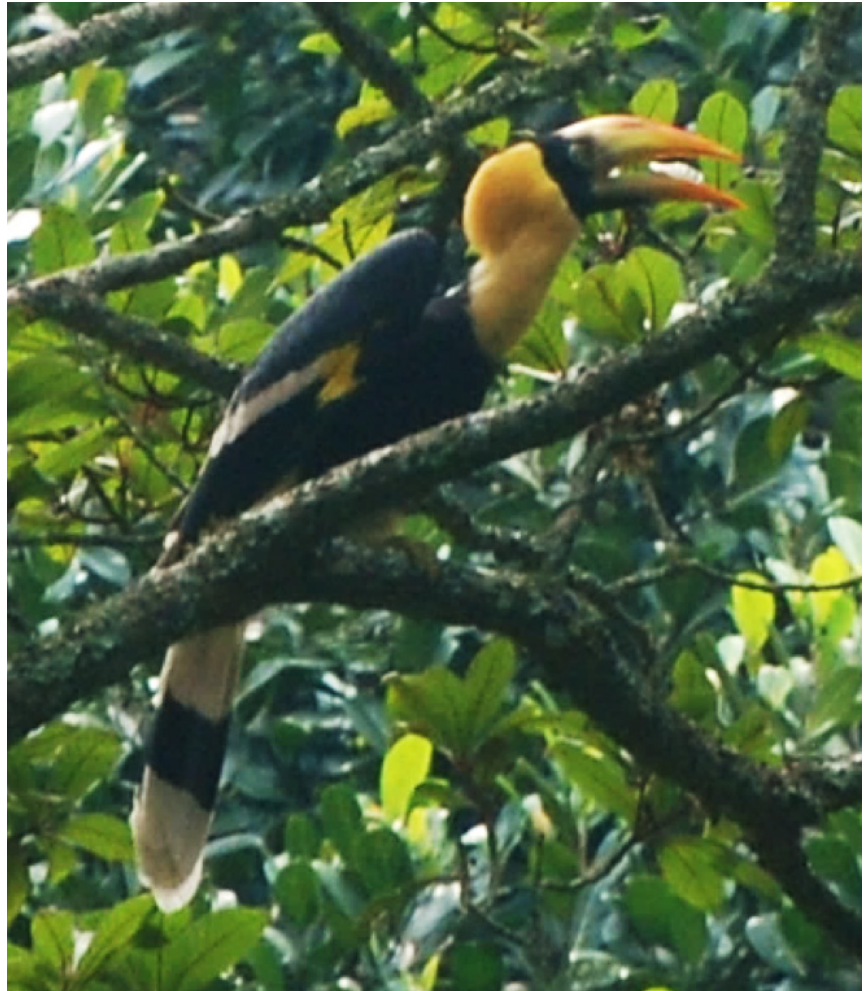


Casque-less Great Hornbill sighting in the Nelliampathy Hills, Kerala

Hornbills (Order: Coraciiformes, Family: Bucerotidae) are one of the most unique and interesting group of birds. An exclusive anatomical feature of hornbill is the presence of a casque, elevated or surmounted on the upper mandible or dorsal maxillary beak in some species (Poulsen 1970; Miller et al. 1985; Gamble 2007; Kasambe 2011;), which gives it the name 'Hornbill'.

Of the 54 species of hornbills known from the world (Kemp 1993), India is home to nine, and in the Western Ghats, there are four species of Hornbills (Mudappa & Raman 2008). The Great Hornbill (AKA Great Indian Hornbill or Great Pied Hornbill) *Buceros bicornis* is the largest of all the nine species found in India (Ali & Ripely 1983; Das 2014). It measures 95–130 cm (37–51in) in length, with a wingspan of 152 cm (60 in) and weighs 2.15–4 kg (4.7–8.8 lbs) (Das 2014). The most striking feature is the bright



Immature casque-less Great Hornbill sighted in the Nelliampathy Hills, Kerala. © S. Sushanth.

yellow and black casque.

When it is viewed from front, it appears to be U-shaped with a concave top having two ridges along the sides which lead to a point in the front, to which Latin species epithet reference *bicornis* is made (Das 2014). Hornbill's casque actually initiates from a highly

vascular ridge of the maxillary rhamphotheca in the young ones, gradually increasing in size with time, age and sexual maturity (Gamble 2007). The casque is an air-filled cavity which is surrounded by the bone (Gamble 2007). Male Great Hornbills have been known to involve and use

casque in aerial casque butting where birds strike at each other in mid-air during flight (Das 2014). There are even reports of direct visual encounters of casque butting of Great Hornbills (Raman 1998). Here, we report a field sighting and observation of a casque-less Great Hornbill in one of the coffee gardens named Rajakkad Estate in the Nelliampathy Hills, Kerala. This sighting was made during our study on the biodiversity assessment of these hills. The study site has significant area coverage of coffee and tea plantations along with reserve forest area located next to each other.

The following observation was made by one of the authors (S.S.). At 1518 h on 28 May 2023, activity of three Great Hornbills was observed from a distance of 100 m in the Rajakkad Estate (10.49316N, 76.6761E; altitude 930 m). At 1520 h, as the observer approached the birds, one particular Great Hornbill individual flew from one tree to another at a distance of about 60 m. The bird was flying by producing loud and heavy whooshing sound through every wing beat (James & Kannan 2009) with a clear light blue sky background. The first thing that significantly struck the observer was its missing casque.

During that time, the bird had perched on a fig tree where two more Great Hornbills had also arrived. Then all the three individuals were observed in which, the first two individuals were spotted to have a normal and prominent bright yellow casque on their beaks where one individual was an adult male and another was an adult female. But, the third individual had no casque at all on its upper mandible or beak.

Instead, there was just a tiny little bump. Based on the sexual dimorphism characters by Das (2014) (other than the casque characters), this individual looked like an immature female. Such a kind of sighting is opportunistic and non trivial and it occurs infrequently. During the study on the breeding biology of hornbills in northern Bengal by Nature Conservation Foundation (NCF), a similar individual with no casque was captured by Karishma Pradhan. So, an immature individual which is very recently fledged and emerged will be casque-less, until its maxillary rhamphotheca grows and develops into a casque (Gamble 2007). Therefore, we can say that this individual could be a just fledged and emerged one. The absence of casque could also be a result of an injury but there was absolutely no sign of any physical damage and the bird did not even show any signs of pain or stress, as it happens when an animal is injured or loses a body part. The bird looked very young and immature. Such sightings throw light on the changes and modifications that happen to a biological organism during its development.

This also conveys that the 'Near Threatened' Great hornbill is breeding successfully in the above study site even though the site has many constraints like non-native plantations and anthropogenic disturbance which makes them vulnerable (Datta 1998; Raman 2001). Detailed and comprehensive studies on this are required and have to be conducted in order to know the exact reason of Great Hornbill being casque-less and to understand its breeding biology and development.

References

Ali, S. & S.D. Ripely (1983). *Handbook of the Birds of India and Pakistan together with those of Bangladesh, Nepal, Bhutan and Sri Lanka. Compact ed.* Oxford University Press, Delhi, 737 pp.

Das, N. (2014). Seasonal migration of Great Hornbill *Buceros bicornis* in the high forest areas of Nameri National Park. *Bird Populations* 13: 6–9.

Datta, A. (1998). Hornbill abundance in unlogged forest, selectively logged forest and a forest plantation in Arunachal Pradesh, India. *Oryx* 32: 285–294.

Gamble, K.C. (2007). Internal anatomy of the hornbill casque described by radiography, contrast radiography, and computed tomography. *Journal of Avian Medicine and Surgery* 21(1): 38–49.

James, D.A. & R. Kannan (2009). Nesting habitat of the Great Hornbill (*Buceros bicornis*) in the Anaimalai Hills of southern India. *Wilson Bulletin* 121:485–492.

Kasambe, R. (2011). The urban hornbills. *Nature Watch* 32–35.

Kemp, A.C. (1993). Conservation of Asian hornbills and their habitats: an introduction, pp. 4–23. In: Poonswad, P & A.C. Kem (eds.). *Manual to the Conservation of Asian Hornbills*. Hornbill Project, Thailand, Mahidol University, Bangkok.

Miller, R.E., D.W. Trampel, W.J. Boever & M.A. Kling (1985). Carcinoma in the Casque of a Greater Indian Hornbill (*Buceros bicornis*). *The Journal of Zoo Animal Medicine* 16: 131–136.

Mudappa, D. & T.R.S. Raman (2008). Hornbills and Endemic Birds: A Conservation Status Survey Across the Western Ghats, India. NCF Technical Report No. 17. Nature Conservation Foundation, Mysore.

Poulsen, H. (1970). Nesting behaviour of the Black-casqued Hornbill *Ceratogymna atrata* (Temm.) and the Great Hornbill *Buceros bicornis* L. *Scandinavian Journal of Ornithology* 1: 11–15.

Raman, T.R.S. (1998). Aerial casque-butting in the Great Hornbill *Buceros bicornis*. *Forktail* 13: 123–124.

Raman, T.R.S. (2001). Effect of slash-and-burn shifting cultivation on rainforest birds in Mizoram, North-east India. *Conservation Biology* 15: 685–698.

Acknowledgements

We would thank the Kerala Forest Department for providing permission (KFDHQ-4025/2021-CWW/WL10) to conduct research and support in the field. We also thank Dr. Sanjay Molur, Dr. S.R. Ganesh, Ms. Usha Ravindra and Ms. Swaathi N.A. (who were present when the individual was sighted) for their support. This research is supported by Science and Engineering Research Board, Government of India grant under Distinguished Fellowship to Mewa Singh.

S. Sushanth¹ & Mewa Singh²

^{1&2} Biopsychology Laboratory and Institution of Excellence, University of Mysore, Mysuru, Karnataka 570006, India.

Email: ²mewasinghltm@gmail.com (corresponding author)

Citation: Sushanth, S. & M. Singh (2023). Casque-less Great Hornbill sighting in the Nelliampathy Hills, Kerala. *Bird-o-soar* #202, In: *Zoo's Print* 38(7): 17–19.