

CONSERVATION ALERT

Helmeted Hornbills *Rhinoplax vigil* and the ivory trade: the crisis that came out of nowhere

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Helmeted Hornbill—wonder of the world

The Helmeted Hornbill *Rhinoplax vigil* is one of the most amazing of all the animals that populate the forests of southernmost Myanmar, south Thailand, the Malay Peninsula, Borneo and Sumatra. In the recent past the species was often mistakenly assigned to the genus *Buceros* (e.g. Sibley & Monroe 1990, Clements 2007), but it is highly distinct morphologically—more so even than it seems to be genetically (Gonzalez *et al.* 2013)—with its huge size, remarkable, far-carrying hooting-then-cackling ‘song’, striking elongated central tail feathers, bare wrinkled neck-skin (glossy dark red in males, pale blue to turquoise in females [Plates 1–4])—a much greater sexual dimorphism than found in *Buceros*), relatively short, straight, wedge-like bill, and high sheer-fronted casque (*Rhinoplax* means ‘slab-nose’). The song is the source in Borneo of an indigenous people’s legend (Cammann 1950), the slow, resonant hooting resembling the sound made by the axe of a

disgruntled young husband chopping at the legs of the longhouse where his mother-in-law is asleep, and the subsequent maniacal cackle being his laughter as the longhouse slides into the river and floats away (the gods punished him by turning him into a Helmeted Hornbill so that he would ever after rehearse the incident in his song). By contrast, the casque is the source of a far from funny circumstance that now looks to be driving the species to extinction.

Hornbill casques are hollow, supported internally by bony ridges and rods, except in the case of *Rhinoplax*, in which the front section of the casque is solid keratin, making the skull so heavy that it comprises over 10% of the bird’s body weight (Kemp 2001). Males use this feature in a form of head-to-head ‘combat’—aerial casque-butting, otherwise known as aerial jousting—the extraordinary but little-known behaviour which appears to occur as a contest for access to fruiting fig trees (but was once also seen between a paired

Plate 1. Male Helmeted Hornbill *Rhinoplax vigil* in flight, Hulu Terengganu, Malaysia, 28 August 2015.



MUHAMMAD ALZAHRI DARUS



Plate 2. Male Helmeted Hornbill, Hulu Terengganu, Malaysia, 28 August 2015.

Plate 3. Female Helmeted Hornbill, Buji Tinggi, Pahang, Malaysia, 2 January 2010.

TAN GIM CHEONG





MUHAMMAD ALZAHRI DARUS

Plate 4. Close-up of male Helmeted Hornbill casque, Hulu Terengganu, Malaysia, 28 August 2015.

male and female, the female remaining perched): two males, sometimes with their female partners following them, fly in opposite directions from a tree, circle back, glide towards each other and collide casque-to-casque with a loud *clack*, the impact sometimes being so great ‘that one or both birds are thrown backwards, performing dramatic, acrobatic flips before righting themselves and flying level’ (Kinnaird *et al.* 2003). Richard Owen and Alfred Newton found structures behind the casque consistent with bracing for a forward impact (see Newton 1896). Selection for size, weight and support of the casque must therefore be strong and continuous.

Hornbill ivory—from chic to shock

The keratin of the Helmeted Hornbill casque is very hard (Harrison 1960) although softer than elephant dentine, and therefore more easily and intricately carvable. Artefacts such as ear-pendants and toggles made by the native peoples of Borneo date back some 2,000 years (Kane 1981), but when the Chinese began importing the material they ‘probably... improved the technique at their end’ (Harrison 1960). Trade between Borneo and China flourished from at least the year 700, driven by the Bornean demand for metals, ceramics and beads, and by the Chinese demand for—among other things—feathers, swiftlet nests and especially hornbill ivory, which they called *he-ding* or *ho-ting* (‘crane’s crest’); the King of northern Borneo is recorded as sending a gift of *ho-ting* to the first Ming emperor, in about 1370, when it already commanded a much higher price than elephant ivory (Cammann 1951, Harrison 1960, Liang *et al.* 2014).

Chinese carvings of hornbill ivory were exquisite; status-enhancing items such as belt buckles, seals, figurines, snuff boxes, plume holders, hair-grips, buttons, thumb-rings and bracelets could be fashioned from it. Ornamental scenes, often retained *in situ* on the skull, could be elaborate and detailed (Plate 5). Many items depicted today date from the mid- to late nineteenth century, and there was evidently a surge in Chinese consumption of hornbill ivory at that time, more to meet European rather than domestic demand. By the mid-twentieth century, however, demand had virtually died out, with Harrison (1951) reporting ‘the annual take for the whole island [Borneo] would doubtfully much exceed a hundred birds’, adding that ‘there is no export of casques now’; and by the end of it Bennett *et al.* (1997) reported that carving ‘is now illegal under national laws and CITES, and current exports [from northern Borneo] are probably minimal’.

But in the last five years the species has come under terrible new pressure from an exploding illegal demand for its ‘red ivory’. In January 2015 the Environmental Investigation Agency (EIA 2015a) highlighted the threat, indicating that black market prices in China are up to five times higher than for elephant ivory, as increasingly affluent clients seek *chic* status-enhancing products. In May Hii (2015) published an interview with Yokyok (‘Yoki’) Hadiprakarsa, who originally studied hornbills with the Wildlife Conservation Society (WCS), with OBC financial support (Hadiprakarsa *et al.* 2004); he has estimated that in 2013 at least 500 adult Helmeted Hornbills were killed each month in West Kalimantan province alone (6,000 a year) and that between 2012 and 2014 the Indonesian authorities confiscated 1,111 Helmeted Hornbill casques en route to China. In June WCS (2015) reported the arrest on Sumatra of two dealers (Plates 6 & 7) who confessed to selling 124 casques in the previous six months to a Chinese middleman and were believed to have operated a ring of 30 hunters who poached

Plates 5. Finely carved Helmeted Hornbill casque in Natural History Museum, specimen registration no. S/2012.1.1.



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DEWANTARA/WCS



DEWANTARA/WCS

Plates 6 & 7. Helmeted Hornbill casques and weapons confiscated from dealers arrested at Langkat, Sumatra, 12 June 2015.

birds in the island’s threatened Leuser ecosystem, including inside Gunung Leuser National Park. Bosco Chan (*in litt.* 2015) reports that for the last year or so a contact of his in the Chinese ivory trade has received hundreds of birds per month from Sumatra.

Analysing online sales of hornbill ivory, Hadiprakarsa (verbally 2015) has established that the demand for ‘red ivory’ began in 2011. In a paper under review which surveys online reports of confiscations, he, Debbie Martyr (Fauna and Flora International), Claire Beastall and Chris Shepherd (both TRAFFIC) have found that over 2,000 casques or heads of Helmeted Hornbills (Plate 8) were seized by officials in the 30 months from March 2012 to August 2014. This is, doubtless, only the tip of the iceberg. Worse, the investigation uncovered reports that clearly point to this trade being an add-on to the extensive black market in animals, plants and their various products being operated by sophisticated criminal gangs. And the EIA (2015b) have investigated a resort complex in Laos which operates an illegal wildlife trade supermarket for visiting tourists where endangered species products including Helmeted Hornbills can be purchased. Clearly the pursuit of the species will be systematic and relentless.

Plate 8. Recently decapitated head and casque, Tajung Asam, Kalimantan, Indonesia, 26 November 2012.

YOKYOK HADIPRAKARSA



How biology compounds the threat

The evolutionary circumstance of the species only multiplies the effect of this new pressure. The Helmeted Hornbill is ‘K-selected’, meaning that it occurs at densities close to carrying capacity in a highly stable environment, adults being very long-lived and investing in a few high-input (rather than many low-input) offspring. In one nest study the female incarcerated herself for at least 154 days (five months) in order to lay her one or two eggs and rear her single offspring to fledging (Chong 2011). The reproductive rate of the species is thus extremely low, and depleted populations will take decades to recover their numbers. Moreover, killing a breeding male has major consequences, for although his partner can break out of her nest she is likely to be in heavy moult, compromising her ability to survive, and even if not killed herself, she may not find another mate for many years, and the nestling will certainly die.

On top of this the species depends on tall pristine forest in lowlands and foothills, rarely nesting above 750 m (Harrison 1951), and needs huge trees in which trunk cavities have formed with adjacent woody projections where the male can perch (Thiensongrusamee *et al.* 2005); such trees are of course the particular target of logging operations. Moreover, as a fig specialist it faces disproportionate reductions in its staple food, since logging greatly reduces fig abundance (Frank Lambert *in litt.* 2015). However, perhaps the most alarming statistic derives from work done in the 1990s in northern Borneo, when trade was not an issue but hunting of large hornbills by indigenous people for food and feathers was increasing, ‘causing population declines and even local extinctions’: for this traditional cultural practice to be sustainable it was then estimated that ‘only one Helmeted Hornbill can be hunted per 84.2 km² [my italic] of forest per year’ (Bennett *et al.* 1997). Forest cover in West Kalimantan is currently said to be ‘91,788 km²’, but over half of this is production



ANON POACHER

Plate 9. Helmeted Hornbill shortly after being killed by a poacher, Murung Raya district, Central Kalimantan province, Indonesia June 2015.

forest (GCF 2015), unsuitable for the species; assuming—wholly improbably—that 45,000 km² of the forest estate remain suitable, the number of birds that could have been harvested sustainably in 2013 was the number of birds being harvested *every month* during that year.

Based on this evidence, in November 2015 the Helmeted Hornbill was uplisted to Critically Endangered (BirdLife International 2015).

What is to be done?

In September 2015, at the end of the Asian Songbird Crisis Summit held in Singapore, several delegates joined experts from other parts of Asia to discuss and agree a plan of action to bring the Helmeted Hornbill crisis to world attention. The attendees, forming the founding members of a 'Helmeted Hornbill Working Group' included Pilai Poonswad, *doyenne* of Asian hornbill studies, Yokyok Hadiprakarsa, the expert on the Helmeted Hornbill in Indonesia, Dwi Adhiasto of WCS Indonesia, Aparajita Datta of the Nature Conservation Foundation, India, Bee Choo Strange of the Hornbill Research Foundation, Chin Aik Yeap of the Malaysian Nature Society, Ria Saryanthi of Burung Indonesia and Chris Shepherd of TRAFFIC South-East Asia.

To draw China's attention to the issue the group considered a range of options: an IUCN motion at the next World Conservation Congress in September 2016, expressions of concern by range states, high public profiling of the issue by global and national conservation organisations, exposure of the problem in various Chinese media, and the involvement of sympathetic celebrities with Chinese connections. To make a more direct impact on the situation in the wild, the group hopes that the relevant CITES authorities will step up their vigilance, state authorities (customs, police, rangers) expand their activities, rhino and orangutan protection units add hornbill protection to their remits, 'hornbill guardians' be recruited through appropriate incentives to local communities, and nest-adoption schemes allow some pairs to breed successfully. To define more precisely the status and needs of the species, the group plans to promote a range-wide survey in 2016, using as many observer networks as possible and drawing on evidence assembled by several researchers over recent decades. To generate political and administrative support within Indonesia, Yokyok Hadiprakarsa plans a series of initiatives including a national workshop involving key decision-makers early in 2016. To promote the cohesion and authority of this endeavour, the group hopes to revive the long-defunct IUCN Hornbill Specialist Group.

Anyone wishing to contribute to this endeavour is warmly encouraged to contact OBC or the following email address: nigel.collar@birdlife.org.

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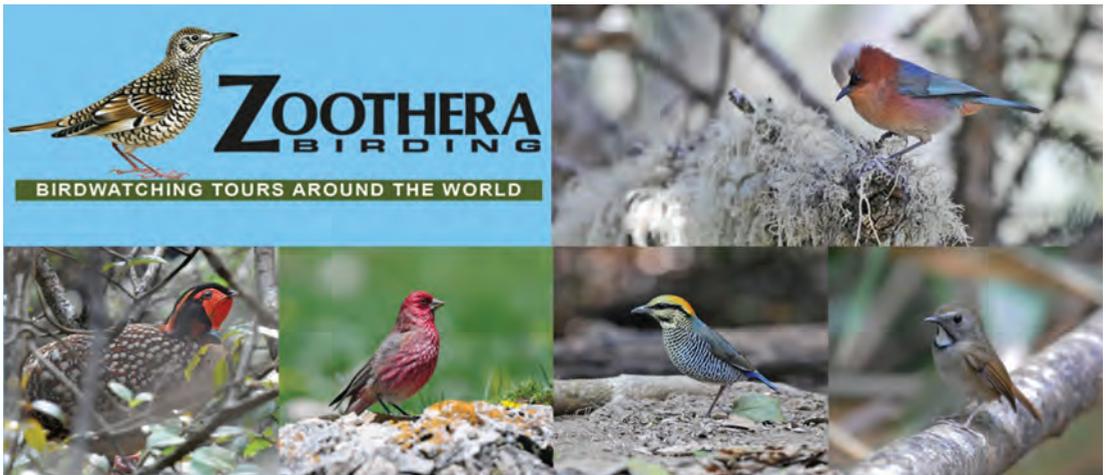
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