

CONSERVATION UPDATE

Securing safe havens for the Helmeted Hornbill *Rhinoplax vigil*

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The plight of the Critically Endangered Helmeted Hornbill *Rhinoplax vigil* needs no introduction to birdwatchers and ornithologists with an interest in Asian birds. Despite having a wide distribution spanning five countries—Brunei, Indonesia (Sumatra, Kalimantan), Malaysia (Peninsular, Sabah and Sarawak), Myanmar and Thailand (BirdLife International 2018)—this bird has suffered one of the fastest declines of any avian species in Asia in recent years, with the possible exception of *Gyps* vultures and the Straw-headed Bulbul *Pycnonotus zeylanicus*. The causes have been very specific—the escalation in the trade of its solid reddish-orange casque (Collar 2015, Beastall *et al.* 2016, Bale 2018) superimposed on the well-established problem of degradation and destruction of its forest habitat. In 2015, Yok Yok Hadiprakarsa of the hornbill conservation organisation Rangkong Indonesia revealed the unprecedented and unsustainable levels of poaching from Kalimantan and brought the crisis to the attention of the international conservation community (Hii 2015). This was followed by a *BirdingASIA* article on Helmeted Hornbill (Collar 2015). Since then, bird conservationists have collaborated and worked hard to raise awareness of the issue, set up the IUCN Species Survival Commission (SSC) Helmeted Hornbill Working Group (a subgroup of the IUCN SSC Hornbill Specialist Group), and intensified national and international conservation efforts. Here we highlight some of the recent collaborative efforts on Helmeted Hornbill conservation by the BirdLife International Partnership, Planet Indonesia, Gaia, Wildlife Reserves Singapore and others, with the aim of inviting further collaboration and to synergise actions with other conservation efforts, including those for large mammals. Given the urgency of the issue, it is vital for concerted conservation effort to be implemented immediately.

The 10-year conservation strategy and action plan

The development of a 10-year conservation strategy and action plan (Jain *et al.* 2018), launched in Bangkok in August 2018 (Sessa-Hawkins 2018), is a major milestone in the attempt to synergise conservation efforts in all the countries making

up the species's range. The plan is a collaborative effort involving more than 30 organisations. It has three main goals:

- 1) To eliminate the trade in Helmeted Hornbills. In order to do this, non-governmental organisations (NGOs), governments, universities and other organisations will map the current and potential trade routes in detail, make sure that local laws penalising Helmeted Hornbill trade are strengthened, and support law enforcement agencies in improving national and cross-border law enforcement. They will also launch projects to better understand the drivers of the demand for casques in order to develop campaigns to change social behaviour and thereby marginalise the purchase and possession of Helmeted Hornbill products.
- 2) To protect remaining Helmeted Hornbill populations and their habitats throughout their range. This will include implementing anti-poaching measures such as on-ground patrolling by well trained and supported teams in areas that are not already protected, and ensuring that patrolling in protected areas is carried out to the necessary standards; putting into place reforestation efforts in degraded but critical forests; and curbing illegal logging and encroachment practices. The plan will also work on trying to safeguard hornbill habitats outside protected areas by advocating increased protection of them and empowering local communities to be conservation stewards.
- 3) To expedite and coordinate critical research to close gaps in our understanding of the Helmeted Hornbill's ecology, its tolerance of disturbance, and hunting pressure and trends, and to accurately estimate its population, distribution, densities and trends.

Detailed actions have been developed under each goal to guide conservation efforts. During the development of the action plan, the participants also scored and ranked each conservation objective in terms of its urgency and/or importance to achieve Helmeted Hornbill conservation (Appendix VII of Jain *et al.* 2018). It was agreed that the most urgent and important action was the



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



Plate 2. The multi-country 10-year Helmeted Hornbill conservation strategy and action plan was launched in August 2018.

identification of Helmeted Hornbill priority sites (i.e. population strongholds) and the improvement of our understanding of its current distribution. Without an accurate and detailed understanding of which sites to protect and monitor over time, conservation efforts will be ineffective.

In a parallel effort, the Ministry of Environment and Forestry in Indonesia has recently launched and ratified the new national conservation action plan strategy for the Helmeted Hornbill 2018–2028 (KLHK 2018, Tribun Pontianak 2018). The plan and associated list of activities have been disseminated to the public and private sectors through focused launch events in Kalimantan and Sumatra in October and November 2018 respectively. This makes Indonesia the only range country to have produced a national strategy for Helmeted Hornbills in accordance with the CITES Resolution Conf. 17.11. (<https://cites.org/res/17/17-11.php>). Many of the key organisations involved in the Indonesian national action plan, such as the Ministry of Environment and Forestry Indonesia, Rangkong Indonesia, Burung Indonesia, Planet Indonesia and Wildlife Conservation Society, are also members of the IUCN Helmeted Hornbill Working Group which will, at least in principle, make it feasible to synergise national and international strategies and actions.

Identifying Helmeted Hornbill population strongholds

BirdLife International has experience in identifying important sites for birds as a result of its Important Bird and Biodiversity Areas (IBAs) Programme, managing large tracts of forest for birds through its Forests of Hope Programme, and empowering local communities through its Local Empowerment and Engagement Programme. Using these toolkits and with funding support from several sources, including the National Geographic Society, Ernest Kleinwort Foundation and individual donors, BirdLife International initiated a large collaborative project in 2018 to identify safe havens for the Helmeted Hornbill and to map in detail the species's distribution.

In May–June 2018, BirdLife International organised a two-day workshop in Kuala Lumpur, hosted by the Malaysian Nature Society (MNS), where 22 representatives from 17 organisations gathered to review our current knowledge of Helmeted Hornbill distribution across the range states. We identified population strongholds in several protected and unprotected areas throughout its range.

Unfortunately, large knowledge gaps were evident at several levels. In the context of this article, we classify them at three levels—regional, cluster and site. Regional level refers to areas greater than tens of thousands of km², typically the size of a large state or small country. Clusters refers to areas which typically cover a few thousand km², often part of one forest complex. Sites refer to national parks and/or wildlife sanctuaries, typically managed as a single conservation unit, or concessions which have high conservation value areas.

Regional scale

In Brunei, Kalimantan and Sarawak on the island of Borneo, the island of Sumatra, and Myanmar, there is little or no readily available data on the presence/absence of Helmeted Hornbills from many of the largest remaining tracts of forest (e.g. east of Lanjak-Entimau to Usun Apau, including the Hose Mountains and Batu Laga, in central Sarawak). This is also true for large areas of forested land under concessions in parts of Kalimantan, Sarawak and Sumatra, which are areas of high conservation value with potential Helmeted Hornbill populations.

Cluster (forest complex) scale

In better studied areas such as Peninsular Malaysia, Sabah, parts of Sumatra and Thailand, the presence/absence of Helmeted Hornbills is known from the majority of forest complexes

(e.g. Ulu Masen and Leuser ecosystem, Sumatra) but detailed population counts/densities are only known for a small fraction of these sites. Most Spatial Monitoring and Reporting Tool (SMART) patrols in Helmeted Hornbill range countries only monitor large mammals but not hornbills, except for parts of Sumatra where hornbills have been included since 2017.

Site scale

With the exception of some sites where large areas are routinely monitored for all hornbills with the engagement of local communities, the majority of sites only have population density estimates from a few transects which are monitored sporadically. This localised information makes it difficult to ensure that Helmeted Hornbill populations are stable at most known sites. An exception is the long-term hornbill monitoring initiative at Budo Sungai Padi National Park, Thailand, by the Thailand Hornbill Project, where large areas of the park are monitored annually and the stability of populations is determined by monitoring annual hornbill breeding success (Trisurat *et al.* 2013, P. Poonswad pers. comm.).

What constitutes a Helmeted Hornbill population stronghold?

- 1) A stronghold should be large enough to support a stable Helmeted Hornbill population. At the Kuala Lumpur meeting, we agreed on stronghold size thresholds. The consensus was that a site of suitable habitat greater than 500 km² was large enough to support a stable population, provided hunting and habitat loss were controlled. The suitable habitat for the Helmeted Hornbill is generally limited to pristine forest in lowlands and foothills, with nests rarely seen above 750 m (Harrisson 1951). The Helmeted Hornbill also needs large trees with specific types of trunk cavities for nesting and large fruiting figs for feeding. Anecdotal evidence suggests that smaller sites between 100–500 km² are able to support Helmeted Hornbill populations but these could in fact be transient populations, dependent on larger metapopulations and prone to localised extirpations. It should be noted that the size thresholds proposed above have still to be tested with systematic data.
- 2) The population counts and density estimates at a stronghold site must be high. At present, there is no consensus on a lowest viable population count and density threshold for population stronghold sites. This is because there appears to be a large variation in Helmeted Hornbill density, ranging from 0.2 to 2.5 birds/km²

across the species's latitudinal range and depending on habitat quality (Table 1, Jain *et al.* 2018).

- 3) Where large sites with suitable habitat are present but with no available Helmeted Hornbill data, species distribution modelling was used to test their potential as population strongholds. AJ collated known Helmeted Hornbill sighting locations in 2017–2018 across the species's range and used it to predict the distribution based on a Maximum Entropy (MAXENT) approach. Several climatic variables (Fick & Hijmans 2017), altitude and forest cover were applied as predictors, with a sampling bias correction. Areas where MAXENT predicted a probability of occurrence > 0.7 for large states and > 0.5 for smaller states were deemed suitable as potential population strongholds. We are aware of the limitations of MAXENT modelling, but see it as a vital first step in an iterative process that can help to identify potential population strongholds for sites with little or no data and thereby help to prioritise on-ground assessments. The latter must be carried out in an expeditious manner to ascertain if the Helmeted Hornbill is present at these sites in high numbers.

A population stronghold can only be considered to be a safe haven if the threats to Helmeted Hornbill populations (poaching) and habitat (degradation and deforestation) can be mitigated (if not nullified) through adequate protection and enforcement. The Kuala Lumpur meeting assessed levels of protection, known hunting pressures and on-ground enforcement efforts at the identified population strongholds, which enabled us to determine whether these sites qualified as safe havens or not. Safe havens must have strong on-site protection and enforcement and, for that reason, the majority of identified safe havens are inside protected areas. However, community and/or privately protected areas were also deemed suitable if they met the other criteria. At each safe haven, there will be core areas where focused Helmeted Hornbill conservation efforts are in place and buffer areas where there are some management interventions. The latest GPS tracking data for some hornbill species shows that individuals may fly distances greater than 100 km during normal foraging activities (J. Teampanpong pers. comm.). These distances are comparable with the movements of large mammals and therefore useful lessons can be derived from large mammal conservation on the size of core and buffer areas needed for Helmeted Hornbills. As an example, tiger conservationists recommend a minimum

core area of 100 km² and a buffer zone of at least 10 km² (Sanderson *et al.* 2016).

Filling the gaps

A multi-pronged approach is being undertaken at regional, cluster and site levels to address critical gaps in our knowledge of Helmeted Hornbill distribution, with the objective of identifying and eventually safeguarding population strongholds as safe havens.

Regional level

Several rapid assessments have been initiated to improve our knowledge of the distribution of the hornbill at the regional level. In Myanmar, a questionnaire-based semi-structured interview has been developed and was piloted in October 2018 (Plate 3), drawing heavily on research by the Nature Conservation Foundation, India. Using this approach, Biodiversity and Nature Conservation Association (BANCA), who have been working in the Thanintharyi landscape on bird conservation issues for over five years, is able to make use of local communities' knowledge of Helmeted Hornbill distribution, ecology, hunting pressure and (anecdotal) population trends while at the same time understanding local cultural attitudes to the species. Such interviews assume that the interviewers have established a certain degree of trust with the interviewees and that the latter are truthful. Our pilot studies suggest that this is indeed the case in southern Myanmar where Helmeted Hornbill hunting pressure appears to be low or non-existent. Such interviews, when coupled with information from confirmed sight records and MAXENT species distribution modelling, are proving to be hugely beneficial in finding locations where rapid assessment surveys for Helmeted Hornbill populations should take place. Similar surveys are being planned by the MNS Kuching Branch in Sarawak, Borneo.

Plate 3. Lay Win of BANCA (right) interviewing a former hunter about Helmeted Hornbills in southern Myanmar, October 2018.



In Indonesia, the new national strategy and action plan, published in October 2018, will add the Helmeted Hornbill to the list of priority species, which will mandate systematic patrols (e.g. using SMART system) to supplement other government-run (and NGO-supported) monitoring programmes to collect Helmeted Hornbill data. In Kalimantan, Planet Indonesia and Rangkong Indonesia are helping facilitate the implementation of this action plan at the regional and site-based levels.

In Sumatra, tiger occupancy surveys by the Indonesian government and supported by conservation NGOs are due to start at the end of 2018. The surveys will cover the remaining potential tiger habitat in Sumatra by surveying more than 700 cells (each 17 km × 17 km), which will effectively cover more than twice the area surveyed in 2007. The survey team will also record the presence/absence of Helmeted Hornbills, provided the necessary resources can be obtained (W. Marthy pers. comm.). Similar tiger occupancy surveys by the Department of Wildlife and National Parks (Perhilitan) supported by NGOs are ongoing in Peninsular Malaysia and already record Helmeted Hornbills (N. L. Song Horng pers. comm.).

Cluster/forest complex level

The Bird Conservation Society of Thailand (BCST) is collaborating with the Department of National Parks, Wildlife and Plant Conservation (DNP), Thailand, in the Khao Sok and Khlong Saeng forest complex (5,000 km²) to train park rangers to identify all hornbill species and include monitoring them as part of their normal patrol activities (Plate 4). At present, hornbills are only recorded in national parks and wildlife sanctuaries popular with birdwatchers—Khao Sok National Park, Khlong Saeng Wildlife Sanctuary and Sri Phang Nga National Park. New surveys are being planned with the forest department in parts of the forest complex where information is sparse. These will not only improve population estimates of all hornbill species in this large forested area but also serve as important baselines for long-term monitoring.

Site level

Across the Helmeted Hornbill's range, forest departments and NGOs have put in place several site-level hornbill monitoring plans which also engage the local indigenous communities. At the Belum-Temengor Forest Complex in Perak, Peninsular Malaysia, MNS has been spearheading hornbill conservation through the MNS Hornbill Conservation Project since 2004 (Yeap *et al.* 2016). The project engages the local Orang Asli communities living in this forest landscape to



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Plate 4. BCST and BirdLife International organised a Helmeted Hornbill workshop for Department of National Parks staff of Khao Sok and Khlong Saeng forest complex in Thailand, July 2018.

search for and monitor nesting hornbills (Plate 5). More recently, it has started monthly transect-based monitoring of hornbills at a few key locations in Royal Belum State Park and Temengor Forest Reserve. The project is further developing and mentoring the MNS Hornbill Guardian Orang Asli teams in their hornbill field survey skills. These teams also function as ‘eyes and ears’ on the ground in detecting any hornbill poaching in this landscape.

In Sabah, the NGOs HUTAN/KOCP and Gaia, with the support of Sabah Wildlife Department and Sabah Forestry Department, have been monitoring all species of hornbill populations in the Kinabatangan area by systematic monthly boat surveys since 2013 and, in a collaborative effort with international partners, have also introduced several artificial nest boxes (including those suitable for Helmeted Hornbills) into the forest.

In Kalimantan, Planet Indonesia creates ‘conservation cooperatives’ to facilitate conservation agreements with villages that provide important community-based services to catalyse the conservation of habitats and species through improving human well-being. In West Kalimantan, six villages partnered with Planet Indonesia have created village-level agreements to protect Helmeted Hornbills and over 50,000 ha of their habitat. Recently, a village-led patrol and research team protected a nest from February–September 2018, when the chick successfully fledged. Planet Indonesia has also been monitoring a population of Helmeted Hornbills first discovered in 2016 outside the species’s known range in Kalimantan and is compiling occupancy and density estimates to better understand how environmental and anthropogenic disturbances impact the species.

In Sumatra, the national park authorities and the Wildlife Conservation Society have monitored



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Plate 5. MNS Hornbill Guardians conducting hornbill surveying and monitoring in Belum-Temengor Forest Complex, Malaysia, 17 April 2018.

hornbill nests at Way Canguk Research Station, Bukit Barisan Selatan National Park, since 2006 (W. Marthy pers. comm.).

Similar collaborative monitoring efforts are in place in Kalimantan by Rangkong Indonesia; in Sabah by IStopBorneo; and in Thailand by the DNP and Thailand Hornbill Project. Brunei also plans to initiate similar monitoring efforts.

All these efforts are meant to combat poaching and secure safe havens for the species. We do not yet know if these efforts are enough—only time will tell. But, for now, the conservation community is making a concerted effort to bring this species back from the brink of extinction. The Helmeted Hornbill, a farmer of the forests, is a bird worth fighting for.

How can you help?

You can help us identify the Helmeted Hornbill’s safe havens by sharing confirmed sight records from around the species range—Brunei, Indonesia, Malaysia, Myanmar and Thailand. Please send your records, with the location (GPS coordinates if available or the nearest landmark) and the month and year of sighting, to anuj.jain@birdlife.org. However please be careful not to publicise these data more widely, particularly not on social media outlets.

[Editors’ note: OBC members and readers are again requested to comply with the code of practice suggested in the guest editorial ‘Conservation and the redaction of locality data’ published in *BirdingASIA* 28 (2017): 3–4.]

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