

HELMETED HORNBILL (*RHINOPLAX VIGIL*): STATUS REVIEW, RANGE-WIDE CONSERVATION STRATEGY AND ACTION PLAN (2018 – 2027)

Helmeted
Hornbill
Working Group



Recommendations from the Helmeted Hornbill Conservation Strategy and Action Planning Workshop, held in Kubah National Park, Sarawak, Malaysia, 19 – 20th May 2017



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A collaboration between the IUCN Species Survival Commission (SSC) Asian Species Action Partnership, BirdLife International, Helmeted Hornbill Working Group (subgroup of IUCN SSC Hornbill Specialist Group), Hornbill Research Foundation, IUCN SSC Conservation Planning Specialist Group, Sarawak Forestry Corporation, Wildlife Reserves Singapore and Wildlife Conservation Society.

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Recommended citation:

Jain A., Lee J. G. H., Chao N., Lees C., Orenstein R., Strange B. C., Chng S. C. L., Marthy W., Yeap C. A., Hadiprakarsa Y. Y. and Rao M. (Eds) (2018). Helmeted Hornbill (*Rhinoplax vigil*): Status Review, Range-wide Conservation Strategy and Action Plan (2018-2027). IUCN Species Survival Commission Hornbill Specialist Group.

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ACKNOWLEDGEMENTS

The development of this strategy and action plan was made possible by a large number of individuals and institutions who have provided unwavering dedication and commitment. We would like to thank Wildlife Reserves Singapore (WRS) for financially supporting the workshop and the Sarawak Forestry Corporation (SFC) for hosting it at Kubah National Park. In particular, we are grateful for the advice and support provided by Sonja Luz (WRS), and Oswald Braken Tisen, Asmah Musa, Stephen Anthang and staff of Kubah National Park (SFC).

We are extremely grateful to everyone who helped draft sections of this document or provided invaluable comments to earlier drafts: Morten Strange, Pilai Poonswad, Vijak Chimchome, Claudine Gibson, Nigel Collar, Aparajita Datta, Caroline Dingle, Lucy Kemp, Adam Miller, Kanitha Ouithavorn, Chris R. Shepherd, Nancy Gibson, Matthew Lowton, Kanitha Krishnasamy, Madelon Willemsen, N. Sivasothi, Lay Win and Xu Ling.

We acknowledge the contributions from eBird and thank Yeap Chin Aik, Yok Yok Hadiprakarsa, Adam Miller, Bas van Balen, James Eaton, Khaleb Jordan, Thiridawei Aung, Shavez Cheema, Bo Valeur, Vincent Nijman, Vladimir Yu Arkhipov, Teresa Pega, Thattaya Bidayabha, MacAllister Laing Rob, Worawan Simaraj, Funni S. and Lee Harding for submitting sighting records.

Our sincere thanks go to everyone who participated in the workshop and made this strategy possible, as well as all individuals, organisations and donors supporting this effort and subsequent conservation efforts for the Helmeted Hornbill.

FOREWORDS

By Jon Paul Rodriguez,
Chair of the IUCN Species Survival Commission

A recent analysis of threats in the IUCN Red List of Threatened Species™ revealed that overexploitation is the most prevalent driver of the status of threatened and near threatened plants and animals, affecting 72% of those analysed. In turn, illegal wildlife trade, a form of overexploitation, has surged around the world, affecting both the survival of target species, people's livelihoods and national security.

The IUCN Species Survival Commission is a global network of experts that study the drivers of biodiversity loss and identify the conservation actions required to reverse species' declines. The challenge is to assure that the scientific evidence they compile flows into the policy arena and helps guide decision making. However, it is not just about science. Participation of all relevant stakeholders: government; academia; civil society and private sector, is key to achieving successful

conservation outcomes. This is of particular importance for species whose range encompasses several countries, so both the threats and the political context will vary spatially, requiring that proposed solutions are tailored to this heterogeneity.

The *Helmeted Hornbill Conservation Strategy and Action Planning workshop* brought together scientists, practitioners and policy makers from the various countries that share the Sundaic lowlands to summarise the knowledge on this Critically Endangered bird, and to examine the alternative actions needed to achieve its conservation. In a world where resources for conservation are severely limited, creative and intelligent strategies will determine our success in saving species from extinction. Now, we must take the next step and present the strategy to donors and partners, and encourage them to help us turn these proposed activities into conservation action.

By Emeritus Professor Dr. Pilai Poonswad,
Thailand Hornbill Project

My passion for hornbills began when I got involved in hornbill research in 1978. Given their vulnerabilities to threats, especially through the loss of their rainforest habitats and with it the loss of suitable nesting sites, which is still happening today, I was determined to conserve them and their role in forest ecosystems. It was an ambitious study, with 13 hornbill species in Thailand. However, with time, we began to learn more and better understand their ecology, breeding biology and population dynamics.

In 1993, I learnt of the poaching of hornbill chicks in the forests of Budo-Sungai Padi National Park where White-crowned, Helmeted, Rhinoceros, Great, Wreathed and Bushy-crested Hornbills occurred. This event fuelled my drive in countering the poaching of hornbills, and in 1994, we worked and trained ex-poachers and illegal

loggers from several villages to become local research assistants. In their new roles, they helped with collecting feeding and breeding information on the species. This work made me realise the importance of community participation in the conservation of hornbills. With this ideology in mind, a "Hornbill Family Adoption Programme" was launched in 1998, allowing both locals and international members to support hornbill conservation in Thailand.

The unique characteristics of the Helmeted Hornbill, such as possessing the longest breeding cycle and being coveted for its casque, lends to its vulnerabilities and widespread international concern for the species. I support the work put forward by the Helmeted Hornbill Working Group and am warmed by the global attention to the plight of the species and their urgent conservation.

FOREWORDS

By Aparajita Datta and Lucy Kemp,
Co-Chairs of IUCN SSC Hornbill Specialist Group

The IUCN SSC Hornbill Specialist Group, which existed in the eighties, has been revived because the status of hornbills continues to deteriorate. A number of species have become threatened and a growing number, nationally and globally, are now endangered, several of them critically with the majority of threatened species occurring in the Asian region. By calling on the expertise and experience of local and regional experts, the Hornbill Specialist Group will be able to access the political, social and economic support needed to enable activation of priority and positive interventions in support of threatened species. The Hornbill Specialist Group aims to facilitate better networking and training to encourage further research to understand the status, distribution and biology of hornbills across their range countries.

The Helmeted Hornbill *Rhinoplax vigil* is unique among the Asian 'great' hornbills and is a species of immediate concern. No hornbill species has moved so rapidly, within less than a decade, from Near Threatened to Critically Endangered. This has happened for a species named for its vigilance and known for its inconspicuous behaviour. Habitat loss of primary forests has been an important threat factor, but the current major threat is the increased trade in its unique solid casque. With the international backing of the IUCN SSC Hornbill Specialist Group and its global support base across a wide range of countries, the Helmeted Hornbill Working Group can be an effective means of spearheading the actions required for planning the immediate protection, recovery and sustained conservation of this iconic species across its range states - Thailand, Malaysia, Indonesia, Myanmar and Brunei.

EXECUTIVE SUMMARY

The Helmeted Hornbill faces a conservation crisis that requires an urgent response. A conservation planning workshop bringing together a multi-stakeholder group consisting of government agencies, non-government organisations, academia, field experts, donors and a zoological institution was held in Sarawak, Malaysia in May 2017 to construct such a response.

This document outlines a bold, long-term vision to ensure that the unique Helmeted Hornbill thrives in ecologically functional populations across its natural range, valued by local and global stakeholder communities and effectively protected from threats related to poaching, trafficking and habitat loss. It presents a ten-year Conservation Strategy and Action Plan that calls for unprecedented levels of international collaboration and an increase in financial resources to scale up conservation attention aimed at targeted population recovery across the species' range. A key priority is the need to eliminate trafficking and trade in Helmeted Hornbills, their parts and derivatives by ensuring that the CITES Appendix I listing for the species is effectively implemented, banning all commercial trade (including domestic trade) through the implementation of effective national and international regulations, and demand reduction approaches. In addition, it is critically important that Helmeted Hornbill populations and associated habitats are strictly protected across their natural range through effective anti-poaching efforts and on-the-ground protection. Empowerment of local communities and engagement of private sector entities to protect populations also constitute a core part of the strategy. It is imperative that all relevant stakeholders work collectively and collaboratively to achieve the outcomes outlined in this strategy.

To enable timely and effectively implementation of this Strategy and Action Plan, the Helmeted Hornbill Working Group has been formalized under the auspices of the IUCN SSC Hornbill Specialist Group). A clear governance structure is in place, with four working sub-groups focused on illegal trade, habitat protection, research and capacity development. The sub-groups will be responsible for driving implementation of actions in the strategy and for tracking progress.

ACRONYMS AND ABBREVIATIONS

1SBW	1 StopBorneo Wildlife
ASAP	Asian Species Action Partnership (IUCN SSC)
a.s.l	Above sea level
AZA	Association of Zoos and Aquariums
BANCA	Biodiversity and Nature Conservation Association
BCST	Bird Conservation Society of Thailand
BL	BirdLife International
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CITES MA	CITES Management Authority
CITES SA	CITES Scientific Authority
CMA	Conference of Management Authorities
CPSG	Conservation Planning Specialist Group (IUCN SSC)
DNP	Department of National Parks, Wildlife and Plant Conservation, Thailand
EAZA	European Association of Zoos and Aquaria
EIA	Environmental Investigative Agency
FFI	Fauna and Flora International
HCV	High Conservation Value
HH	Helmeted Hornbill
HHWG	Helmeted Hornbill Working Group
HKU	Hong Kong University
HRF	Hornbill Research Foundation
ICCWC	International Consortium on Combating Wildlife Crime
IFAW	International Fund for Animal Welfare
IUCN	International Union for the Conservation of Nature
IUCN SSC	IUCN Species Survival Commission
IHCS	Indonesian Hornbill Conservation Society
KPH	Kesatuan Pengelolaan Hutan - Forest Management Unit (Indonesia)
MGHP	Mabula Ground Hornbill Project
MNS	Malaysian Nature Society
MYCAT	Malaysian Conservation Alliance for Tigers
NCF	Nature Conservation Foundation
NP	National Park
NRDC	Natural Resources Defense Council

ACRONYMS AND ABBREVIATIONS

PAAZA	Pan-African Association of Zoos and Aquaria
PI	Planet Indonesia
RI	Rangkong Indonesia
IUCN SSC	IUCN Species Survival Commission
SEAZA	South East Asian Zoo Association
SFC	Sarawak Forestry Corporation
THP	Thailand Hornbill Project
UM	University of Malaya
WCC	World Conservation Congress (IUCN)
WCO	World Customs Organization
WCS	Wildlife Conservation Society
WG	Working Group
WJC	Wildlife Justice Commission
WRS	Wildlife Reserves Singapore
WWF	World Wide Fund for Nature

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SECTION 1. INTRODUCTION

1.1 Background and the International Policy Context

The Helmeted Hornbill *Rhinoplax vigil* is one of the largest hornbill species in Asia. It occupies lowland forest habitats in Brunei, Indonesia, Malaysia, Myanmar and Thailand and is considered extinct in Singapore. The Helmeted Hornbill's unique solid casque is in high demand across Asia as material for carved jewellery and ornaments. It has been listed on Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) since 1975. This listing prohibits all international commercial trade in parts, products and specimens. However, escalating demand, coupled with inadequate enforcement in several countries, has led to a recent surge in illegal trade. In late 2015 this surge, combined with ongoing habitat loss, led BirdLife International (the IUCN Red List Authority for birds) to change the species' conservation status in the IUCN Red List of Threatened Species™ from Near Threatened to Critically Endangered.

In September 2015, at a meeting convened at Wildlife Reserves Singapore (WRS), the Helmeted Hornbill Working Group (HHWG) was formally created in order to bring global attention to the Helmeted Hornbill crisis. With support from the IUCN SSC Asian Species Action Partnership (ASAP), its aim was to collaborate on the development of a Conservation Strategy for the Helmeted Hornbill and to identify priority actions to address threats to the species across its range.

In September 2016, given the escalating demand for and trade in the species, the IUCN World Conservation Congress (WCC) adopted a Resolution (WCC-2016-Res-009; see **Appendix I**) on *The Conservation of the Helmeted Hornbill*, drafted by the Nature Society (Singapore) and proposed by the Malaysian Nature Society (MNS). The resolution was sponsored by BirdLife International and five BirdLife partners, the Wildlife Conservation Society (WCS), and the Asia Pacific Centre for Environmental Law Singapore (APCEL). The resolution recognises the recent, sharp escalation in the killing of Helmeted Hornbills driven by demand for their solid casques. It further acknowledges that the killing is perpetrated by criminal networks and presents a clear and present threat to the survival of a species already threatened by habitat loss. The resolution urges for ongoing domestic conservation efforts by CITES Parties to be strengthened by international action and support, encouraging relevant governments to address legislative, policy or enforcement gaps, prosecute wildlife criminals effectively and enhance awareness of applicable laws.

The resolution requests the IUCN Director General, Commissions and Members, where possible, through ASAP, its partners or other stakeholders/avenues, to participate in efforts to address threats, support *in situ* conservation, strengthen enforcement action and identify trade routes, build local conservation capacity, strengthen engagement with communities, and raise awareness to reduce demand.



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In September 2016, at CITES CoP 17¹ (Johannesburg, South Africa), Indonesia introduced a draft Resolution on *Illegal trade in the Helmeted Hornbill (Rhinoplax vigil)* [CoP 17 Doc. 69²]. The CITES Secretariat, USA, China, and the EU supported action on the species. A Working Group, chaired by Indonesia, and including Malaysia, Thailand, USA, EU, China, Japan, Indonesian Hornbill Conservation Society (Rangkong Indonesia), Humane Society International (HSI), ASAP and WCS, prepared the final text. The revised resolution, Resolution Conf. 17.11 on *Conservation of and Trade in Helmeted Hornbill*³, was adopted by consensus in Plenary (**Appendix II**) along with three Decisions: Decision 17.264 directed to Parties, Decision 17.265 directed to the Secretariat and Decision 17.266 directed to the Standing Committee⁴.

The resolution notes that wild populations of Helmeted Hornbill in Indonesia have been increasingly threatened since 2011 by poaching to supply demand for raw and carved casques and are now luxury collectable items among Chinese consumers in China and Southeast Asia. It recognises the need for strengthened technical cooperation among all relevant Parties and financial support that would contribute to more effective conservation of the species.

Most relevant to this document, the CITES Resolution calls for the development of an Action Plan for the conservation of the Helmeted Hornbill under the auspices of ASAP, while urging all CITES Parties to take steps necessary to develop and implement the Action Plan.

Decisions 17.264 requests Parties to supply the CITES Secretariat with information on the implementation of the Resolution. Decision 17.265 directs the Secretariat to consult with and assist range States and cooperate with International Consortium on Combating Wildlife Crime (ICWC) partners on measures to reduce and ultimately eliminate poaching and illegal trade, and Decision 17.266 directs the Standing Committee to review the implementation of this decision and report to the next Meeting of the Conference of the Parties, scheduled to be held in 2019 in Colombo, Sri Lanka (see **Appendix III**).

In November 2017, reports on the measures that were being taken, or considered, to conserve and protect the Helmeted Hornbill from the current and former range states of Indonesia, Malaysia, Myanmar, Singapore and Thailand, were presented to the CITES Standing Committee⁵ at its 69th meeting in Geneva, Switzerland.

¹ https://cites.org/sites/default/files/eng/cop/17/Com_I/SR/E-CoP17-Com-I-Rec-05.pdf

² <https://cites.org/sites/default/files/eng/cop/17/WorkingDocs/E-CoP17-69.pdf>

³ <https://cites.org/sites/default/files/document/E-Res-17-11.pdf>

⁴ <https://cites.org/eng/dec/valid17/81888>

⁵ <https://cites.org/sites/default/files/eng/com/sc/69/E-SC69-61.pdf>

1.2 Strategy Development and Planned Implementation

In response to the call from CITES, in May 2017, a multi-stakeholder group of 35 participants from 28 organisations, including representatives of range-state governments, non-government organisations, field biologists, geneticists and wildlife trade experts, met for a two-day conservation planning workshop in Kubah National Park, Sarawak, Malaysia, to develop a range-wide conservation strategy for the Helmeted Hornbill.

The workshop was a joint initiative organised under the auspices of the Helmeted Hornbill Working Group, supported by the IUCN SSC ASAP, the Hornbill Research Foundation, WCS, BirdLife International and WRS. It was hosted by the Sarawak Forestry Corporation (SFC) and funded by WRS and the SFC. The IUCN SSC Conservation Planning Specialist Group (CPSG)

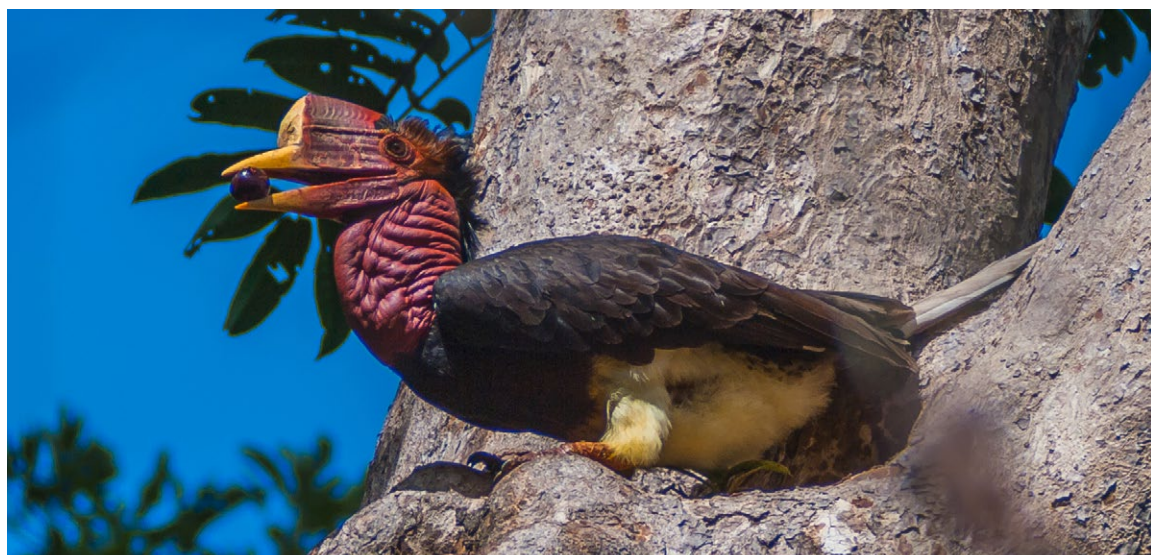
was engaged to provide support with workshop design and to act as a neutral facilitator for the group. Details of the workshop programme and process are provided in **Appendices VI and VII**.

Given the extensive range of the Helmeted Hornbill, it was not possible to involve all relevant stakeholders in the planning workshop. However, it is intended that this initial broad-based planning process will inform and trigger further national and local planning in which key local stakeholders, including local governments, community groups and NGOs, will have a voice. With this in mind, the range-wide Conservation Strategy and Action Plan presented in this document includes both broad action recommendations designed for further consideration and delegation by in-country agencies as well as more specific action recommendations committed to by workshop participants.

This document is intended for use by:

- workshop participants, as a record of the actions, initiatives and collaborations discussed;
- range and consumer country government agencies, to help guide and inform the development of national action plans and initiatives;
- non-governmental conservation organisations and community groups, to guide and inform their priorities and work plans;
- the Helmeted Hornbill Working Group, to help in tracking and supporting progress with the directions and priorities agreed;
- donor organisations to guide priority actions for funding support.

The involvement of local communities and their representatives will be important to the success of Helmeted Hornbill conservation. We encourage all stakeholders and parties to promote gender equality and the empowerment of women and local communities in the implementation of the Helmeted Hornbill Conservation Strategy and Action Plan.



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1.3 Governance and Structure of the Helmeted Hornbill Working Group

No single organisation has the size or reach to ensure the future of this species. Success will require sustained international and interdisciplinary collaboration and communication among a large and diverse coalition of partners. Workshop participants agreed that a formal coordinating body would be essential for a streamlined and effective response to the challenges facing this species, and in particular to enable the implementation of the actions described in this document. The new Helmeted Hornbill Working Group comprises: two coordinators; a facilitator for each range, consumer and transit states; and four thematic sub-groups (Trade; Research; Habitat; Capacity Development), each with a Lead (Figure 1). The consumer states currently include China, Hong Kong and Laos. Hong Kong is also a key transit state (see section 2.4 for details)

The thematic sub-group Leads and Co-Leads are responsible for the components of the Action

Plan relevant to each theme. They will work with other members and state facilitators to ensure that actions are implemented and monitored in both range, transit and consumer states. State facilitators coordinate state-wide conservation actions and act as liaison between the working group and in-state stakeholders. Capacity development is a cross-cutting theme focused on identifying gaps and training needs for the successful implementation of the Action Plan as a whole, and the Capacity Development Lead will work closely with the other sub-group Leads.

In addition to driving and enabling implementation of this strategy, the Working Group will provide ongoing advice and support to government agencies and NGOs working to conserve the species. Overall, the Helmeted Hornbill Working Group will operate as a Working Group under the IUCN SSC Hornbill Specialist Group. The reconstitution of the latter was officially approved in November 2017.

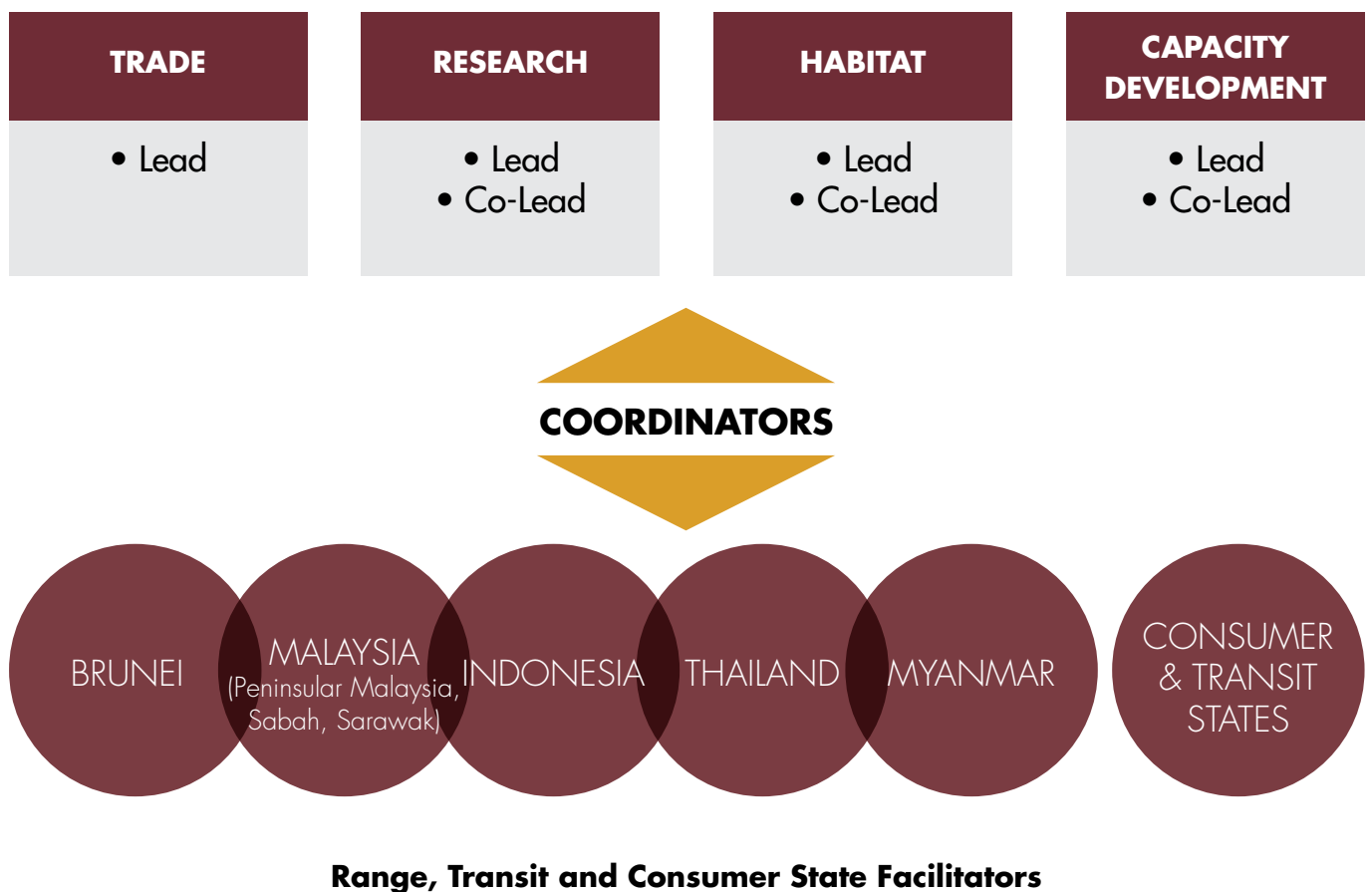


Figure 1: Structure of the Helmeted Hornbill Working Group

SECTION 2. STATUS REVIEW

2.1 General Overview

The Helmeted Hornbill has a relatively short bill with a distinctive red casque (solid in both males and females), stained yellow at the front from preen oil. The male has a bare red neck, while the female has pale bluish skin on the neck and a smaller casque. Juvenile birds have shorter tails, small yellow bills with a low casque and a light greenish-blue head and neck. The call of the male is unique and can be heard over 2 km. Adults are estimated to live for 40 – 50 years. The adult reaches 110 – 120 cm in size, with one or two tail feathers extending an extra 20 – 30 cm beyond the base of the tail (Kinnaird & O'Brien, 2007).

The Helmeted Hornbill has been important to humans for centuries. Its tail-feathers, heads and casques have been used as decorations, and during ceremonies by indigenous communities. Having achieved mythical status, the Helmeted Hornbill is also revered and strongly associated with the afterlife, and is the emblem of West Kalimantan province, Indonesia (Bennett et al., 1997; Kinnaird & O'Brien, 2007).

Today, large-scale hunting of the species, particularly for its casque, driven by growing international trade, poses an immediate threat to its survival.

The workshop participants agreed that the term “ivory” should not be used when referring to Helmeted Hornbill casques to avoid equating them with luxury goods from elephant ivory and the prized social significance this implies. The casque material of the Helmeted Hornbill, even though hard and dense, is made up of keratinous layers that lack blood-vessels (Kinnaird & O'Brien, 2007). It is not true ivory, which comes from the teeth of mammals (dentine) such as elephants, walrus or toothed whales or from the enamel in hippopotamus teeth.



Credit: Yokyok Hadiprakarsa

2.2. Population and Distribution

The Helmeted Hornbill occurs in the Sunda sub-region, in five range states: Myanmar, Thailand, Malaysia (Peninsular Malaysia, Sabah and Sarawak), Brunei, and Indonesia (Kalimantan and Sumatra) (Figure 2). It is absent from Java and smaller offshore islands and

is considered extinct in Singapore (Bucknill & Chasen, 1927). In 2007, Kinnaird and O'Brien calculated the total range of the Helmeted Hornbill to cover 1.3 million km², out of which 796,375 km² had forest cover. Of this, only 13% (107,016 km²) was protected forest, spread across 110 reserves and national parks.



Figure 2. The current distribution range of the Helmeted Hornbill (based on Poonswad et al., 2013)

Its population density can vary greatly based on habitat quality and hunting pressure. In prime habitat, recorded average density varies from 0.19 to 2.6 birds/km² depending on habitat quality and latitude (Table 1). Variation in species encounter rates can be even greater within a small geographic area (e.g., 0.04 – 1.25 individuals/km in south Thailand; Thailand Hornbill Project, pers. comm.). Hunting has been shown to have a huge impact on Helmeted Hornbill populations. In Malaysian Borneo, population density differed greatly from 2.5 birds/km² in non-hunted sites to 0.3 birds/km² at hunted sites (Bennett et al., 1997; Johns, 2004).

Lack of data, particularly from Kalimantan, Sarawak and north Sumatra, means no baseline encounter rates and/

or density estimates are available across the species' range. No range-wide surveys have been implemented to date, and the current global population of the species is unknown. However, efforts to map distribution across the species' range are currently underway. In preparation for the range-wide conservation strategy workshop in May 2017, species sighting records from the 1980s to 2017, from researchers and from citizen scientist observations submitted to eBird (Sullivan et al., 2009), were mapped, and updated distribution maps were produced as resource materials to guide discussions. Gaps in distribution mapping and directions for future research were identified at the workshop. MAXENT^o models are being prepared to predict suitable habitats and areas of high population density (Anuj Jain and Y. Hadiprakarsa unpublished data).

Table 1: Helmeted Hornbill density estimates from published studies (non-exhaustive list)

Location	Region/Country	Helmeted Hornbill density estimate	Source
Mixed lowland dipterocarp forests (2 sites)	Brunei	0.67 – 1 birds/km ²	Charles, J. K. (2005)
Budo Sungai Padi NP	Thailand	1.0 birds/km ²	Thailand Hornbill Project (2004 - 2005)
Hala-Bala WLS	Thailand	1.21 birds/km ²	Gale & Thongaree (2006)
Barito Ulu	Central Kalimantan, Indonesia	0.7 birds/km ²	McConkey & Chivers (2004)
Kutai National Park	East Kalimantan, Indonesia	0.75 birds/km ²	Leighton (1982)
Bukit Barisan NP	Sumatra, Indonesia	2.3 birds/km ²	Kinnard & O'Brien (2007)
Hutan Harapan (previously logged rainforest)	Jambi, Indonesia	0.4 birds/km ²	Marthy et al. (2016)
Crocker Range Park	Sabah, Malaysia	0.19 birds/km ²	Lakim & Biun (2005)
Tawau Hills Park	Sabah, Malaysia	0.6 birds/km ²	Lakim & Biun (2005)
Inarad, Danum, Lg Pa'Sia	Sabah, Malaysia	0.48 birds/km ²	Bennett et al. (1997)
Ulu Segama Forest Reserve	Sabah, Malaysia	0.3 – 2.5 birds/km ²	Johns (2004)
Sungai Tekam Forestry Concession, Pahang*	Peninsular Malaysia	1.1 – 2.6 birds/km ²	Johns (1987, 2004)

* The density of birds varied from 1.1 birds/km² in logged forest to 2.6 birds/km² in primary forest.

Helmeted Hornbill home range size has not been estimated, and so far no radio or satellite tagging has been attempted. Radio-tracking surveys of the related Great Hornbill (*Buceros bicornis*) from Khao Yai National Park in Thailand show that daily movements of the male can cover 0.7 – 6 km², and up to 7 km² during the breeding season (Poonswad & Tsuji, 1994; Poonswad et al., 2013). The latest GPS tracking data suggests that the Great Hornbill range can be greater than 100 km² (Teampanpong J., pers. comm.). Helmeted Hornbills have a more specialised diet than Great Hornbills, and their home range is consequently likely to be greater.



Credit: Yeap Chin Aik/MNS

2.3 Ecology and Behaviour

The Helmeted Hornbill is found in large expanses of primary Sundaic rainforest, i.e. closed-canopy growth dominated by large dipterocarp trees. It is a low-density species, even in prime habitat (Lum & Poonswad, 2005). It extends into adjacent mature secondary forest, but avoids open areas, disturbed forest and peat swamps (Kinnaird & O'Brien, 2007; Lum & Poonswad, 2005; Poonswad et al., 2013). It appears to prefer hilly terrain away from the coast (300 – 1,100m, occasionally to 1,500m) but there are significant strongholds in some lowland forest areas.

The Helmeted Hornbill has the most specialised diet of any hornbill, largely consisting of fruits. Up to 60% of its diet may consist of six or seven fig species (Poonswad et al., 2013; Kitamura et al., 2011), while a study in Sumatra found that up to 98% of a Helmeted Hornbill's diet may consist of fruits from a single genus of strangler fig (Hadiprakarsa & Kinnaird, 2004). Like other hornbills, Helmeted Hornbills act as important seed-dispersers, essential for a healthy rainforest ecosystem. Males and females have been observed banging their solid casques together, often in flight, near fruiting trees. Aerial jousting probably represents competition for food rather than disputes over status or territory (Kinnaird & O'Brien, 2007). A Helmeted Hornbill will travel large distances to visit good fruiting trees and will mix with other hornbills while feeding, although it will invariably feed almost exclusively in the upper extremes of the canopy (Hadiprakarsa & Kinnaird, 2004). During the breeding season, the male spends about half the day actively hunting food to bring to the nest, including fruits and animal prey (rodents, reptiles, and birds) (Kinnaird & O'Brien, 2007; Poonswad et al., 2013; Kaur et al., 2015).

Like other hornbill species, Helmeted Hornbills form monogamous breeding pairs. The female seals herself in a nest cavity, and is completely dependent on the male for her survival and that of her offspring during this time. The female moults during breeding, shedding her large wing and tail feathers. In the absence of the male during this period (e.g., as a result of hunting), the female would be able to break out of the nest cavity but she might not survive if her new wing feathers have not grown out and the offspring would perish (Poonswad et al., 2013; Kaur et al., 2015).

The Helmeted Hornbill has very particular nest preferences. The nest is made in a natural cavity in a large, living tree. Unlike other nest-sealing hornbills, the Helmeted Hornbill is unable to cling vertically to a tree (P. Poonswad, pers. obs.). It requires a ledge



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near the nest opening, often formed by a large, broken-off branch, where the male can land and perch while it feeds the female and chick (Thiensongrusamee et al., 2005; Kinnaird & O'Brien, 2007). Twenty years of systematic breeding surveys in southern Thailand (Thailand Hornbill Project, 1994 – 2014) have confirmed that a significant proportion of Helmeted Hornbill nests are lost due to windstorms, and that suitable nesting trees are a critical factor in the survival of this species. Competition for good nesting sites from other large sympatric hornbills also seems to be a factor affecting reproductive success. Great and Rhinoceros Hornbills *Buceros bicornis* and *B. rhinoceros*, both seemingly more tolerant of fragmented forest edge habitat, are known to take over nests previously occupied by Helmeted Hornbills (P. Poonswad 2017, pers. comm.). A similar trend in nesting failure is known from southern Sumatra (Y. Hadiprakarsa pers. obs. from 2000 – 2003). However, systematic breeding surveys are needed across the range to better establish nest densities, nesting success and nesting preferences. Wild Helmeted Hornbills are not known to have accepted artificially produced nest boxes, and there are no reports of successful breeding in captivity.

Helmeted Hornbills have been recorded nesting from March to July in southern Thailand, with up to 87% of nests in species of Dipterocarpaceae (Poonswad et al., 2013). They have one of the longest breeding cycles of any hornbill, with nesting periods varying from 90 – 183 days in Southern Thailand (Poonswad et al., 2012) to 154 – 167 days in Peninsular Malaysia (Chong, 2011). Clutch size tends to be 1 – 2 eggs, but only one chick fledges from a nest.

Kinnaird and O'Brien (2007) classify the Helmeted Hornbill as non-territorial because it disappears entirely from large forest tracts for several months at a time. However, the species may be best classified as territorial during the breeding season, but somewhat nomadic, with a large home range outside the breeding season, during which time the Helmeted Hornbill roams in search of fruiting trees (Poonswad et al., 2013).

2.4. Threats to Survival

International Trade

Helmeted Hornbills are hunted to supply strong demand for their solid casques. This may have been partially fuelled by the Chinese ban on commercial ivory sales in 2017 (Adhiasto D., pers. comm.). A single casque can fetch more than USD 1,000 on the black market in China, a price five times higher than that for elephant ivory (EIA, 2015a; Hughes, 2015). Poachers, carvers, traders and end consumers are all components of an illegal trade chain involving the species. Recent seizures of Helmeted Hornbill products

reveal the staggering scale of the illegal casque trade. Between 2010 and 2017, a minimum of 2,878 Helmeted Hornbill casques, skulls and products, worth almost USD 3 million, were confiscated in at least 59 separate seizure incidents (Chng et al., unpublished data; EIA, 2016). Indonesia and China were most heavily implicated, with 2,871 casques (99.75% of global seizures) seized over the past seven years and suspected key trade hubs operating within these countries (Figure 3). A combination of transit types (air, road and sea) was involved.

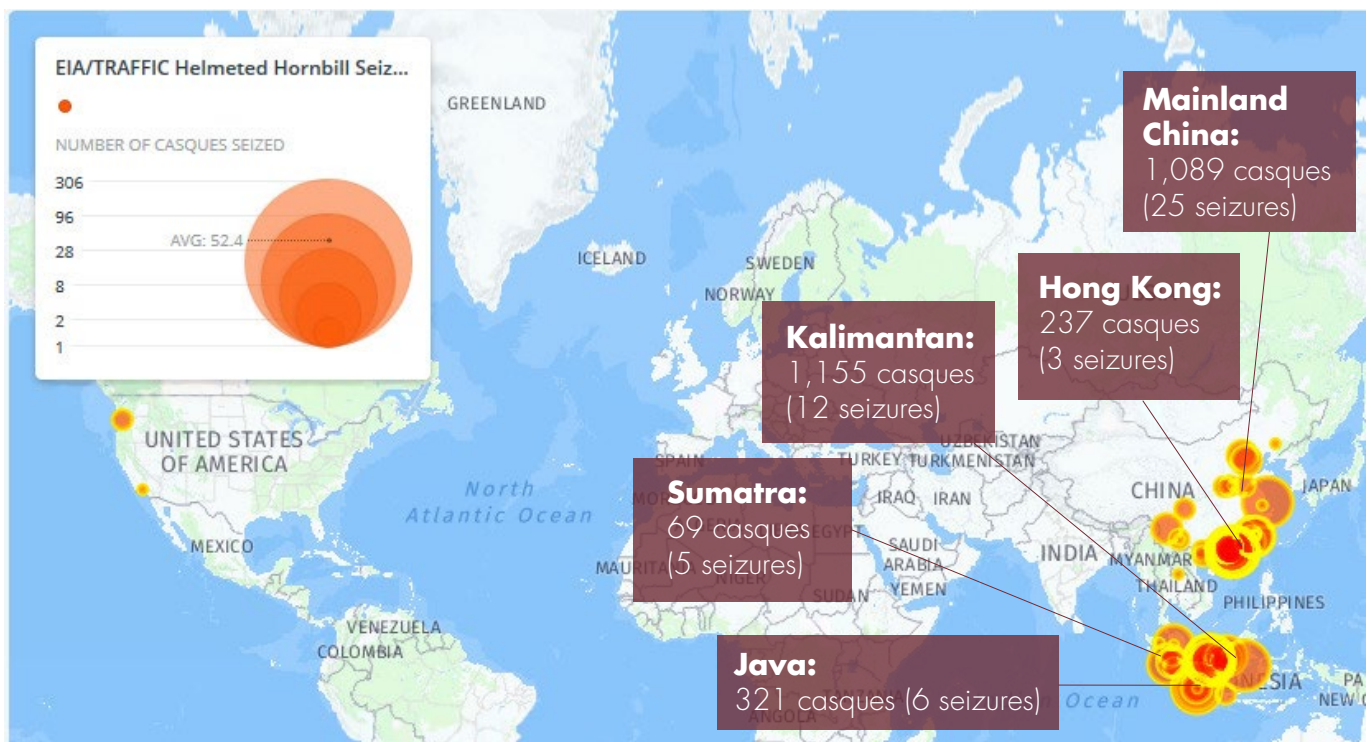


Figure 3: Locations of Helmeted Hornbill seizures between 2010 and April 2017. The size of the dot indicates the number of casques seized; key seizure locations have also been noted (Source: EIA)

The population is currently believed to be undergoing rapid decline as a consequence of extensive poaching in Indonesia (Kalimantan and Sumatra), with poaching now spreading to Malaysia and other range states as populations are decimated in Indonesia (BirdLife International, 2017; Krishnasamy et al., 2016). Currently, West Kalimantan appears to be the largest target area for poachers, accounting for 65% of all Indonesian seizures (Beastall et al., 2016; EIA, 2016).

In 2013, an estimated 500 hornbills per month were being poached in that province alone (Hadiprakarsa et al., 2013; Bale, 2016). Hunting in Kalimantan is believed to be largely driven by outsiders of Javanese or Sumatran descent (Adhiasto, D., pers. obs.). Severe poaching activities have also been recorded in forested areas, protected or otherwise, in western and northern Sumatra. The apparently high levels of poaching may be partly due to the higher levels of detection of

trapping activity in Indonesia, compared to other range countries. During confiscations, suspects confessed to selling hundreds of Helmeted Hornbill casques to Chinese middlemen from birds poached in protected areas in Sumatra, along with other wildlife parts (e.g. pangolin scales) (WCS, 2015). Jakarta's Soekarno-Hatto International Airport appears to be the main exit point for casques leaving Indonesia for international destinations (largely mainland China and Hong

Kong). Key exit airports from Kalimantan appear to be Pontianak and Balikpapan. In recent years, multiple seaports are also being used as the main domestic and international exit points (Y. Hadiprakarsa unpublished data). Casques are also known to be smuggled from Kalimantan to Kuching in Malaysia (USDOJ, 2015). Casques and products (bracelets, rings and pendants) were recorded in market surveys in Jakarta in 2015 (Y. Hardiprakarsa, unpublished data).

In China, there appear to be two hotspots where most seizures have occurred (Figure 4): The south-central region comprising Shenzhen (Guangdong) and Hong Kong, which represents more than 60% of seizures and is likely the entry point for most casques, and Fujian, Jiangsu and Shandong provinces in Eastern China. Putian and Xianyou in Fujian are traditional Helmeted Hornbill casque carving centres, the likely reason casques have been seized here. Although seizures indicate clear key import hubs in China and a carving industry centered in Putian, which imports raw casques, the demand from Chinese end buyers does not appear to be concentrated in any one province. Chinese expatriates or visitors to other states are part of the demand base (EIA, 2015b; Krishnasamy et al., 2016). Lao PDR appears to be an important trade state catering to Chinese buyers (mainly tourists), most sellers being Chinese nationals and persons involved in selling elephant ivory (EIA, 2016; Krishnasamy et al., 2016). Carved casques were recorded in 2014 at the Mong La market on the Myanmar–China border for the first time in 15 years of monitoring for elephant ivory and other animal products (Beastall et al., 2016).

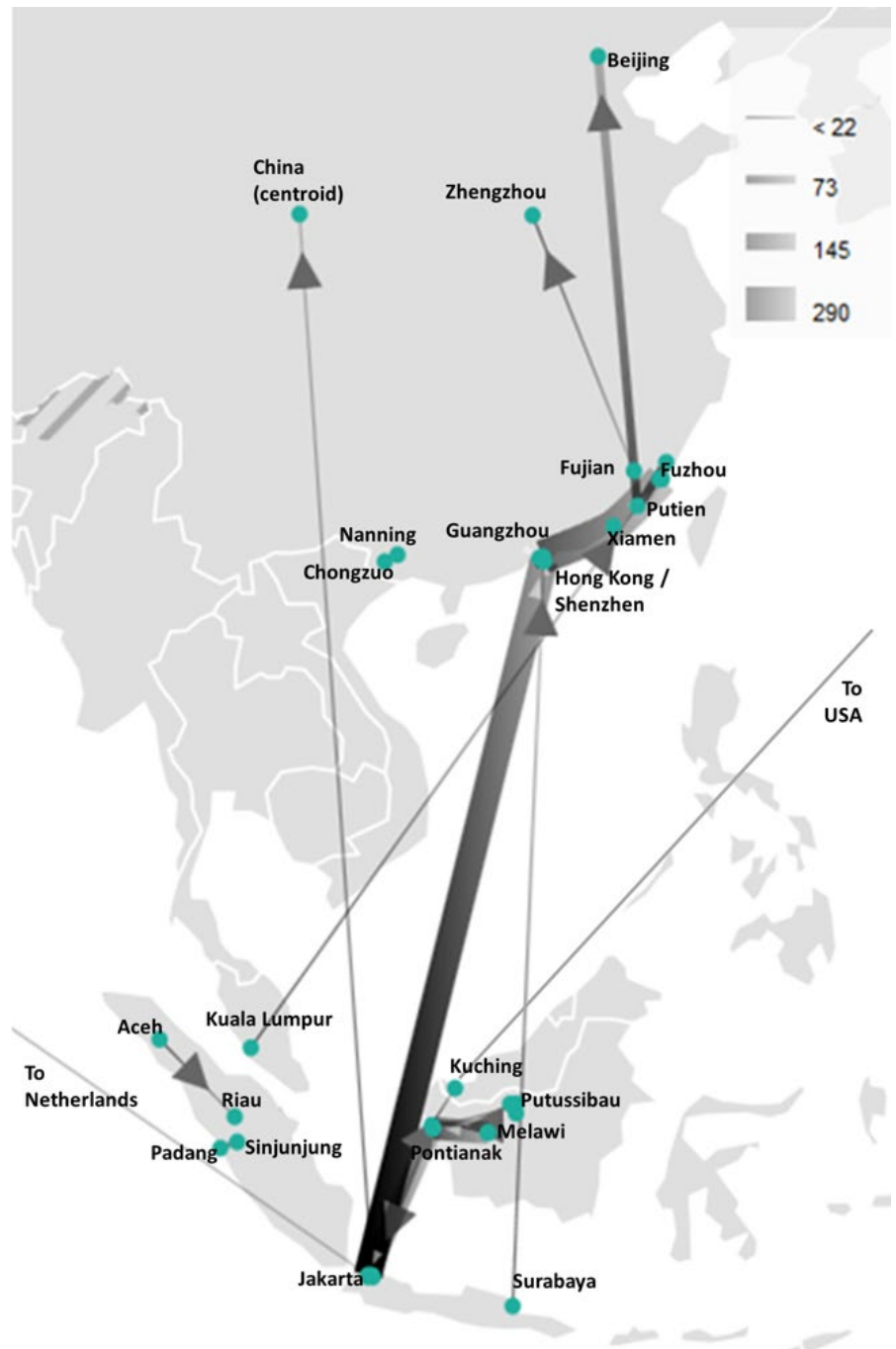


Figure 4: Routes of confiscated Helmeted Hornbill shipments, for cases where this information was available, with the thickness of the lines corresponding with the volume of the shipment. Centroids are used for countries where specific location information was not available.

Online trade monitoring of Helmeted Hornbill parts using keyword searches and systematic methods has been limited. Established trade channels and networks between traders, carvers and consumers that facilitate direct sales likely limit the need to sell the casques through online forums. Yet, a minimum of 46 transactions involving Helmeted Hornbill casques were recorded from social media groups in China within one month by just two dealers (Yu and Jia, 2015). Since 2015, online advertisements selling live Helmeted Hornbill chicks and heads have also been recorded from Thailand (Bird Conservation Society Thailand, unpublished data) and Sarawak (Cheema S., pers. obs.).

Evidence suggests that the species is being hunted by organised crime networks. The existence of crime syndicates based in eastern Sumatra have been confirmed by poachers from North and West Sumatra. The syndicates operate networks of (and even supply snares and firearms to) poachers and local traders who also target Sumatran Tigers *Panthera tigris sumatrae* and Sunda Pangolins *Manis javanica* (Martyr, 2014). Similar activities have been reported in Kalimantan, with organised poaching teams carrying out targeted hunts and selling to middlemen (Fischer et al., 2016). The lack of regulation around the use of air rifles in Indonesia is also believed to play a role in facilitating the trade (WCS, 2015). Some seizures within Indonesia involved the arrest of Chinese nationals in possession of

Traditional hunting

Some indigenous tribes in Borneo revere the Helmeted Hornbill, while others have traded low numbers of hornbill casques to Chinese traders for over a thousand years (Bennett et al., 1997). This trade dwindled in the twentieth century before picking up again on an unprecedented scale over the past decade (Beastall et al., 2016). Helmeted Hornbills are also hunted, but to a much lesser extent, for their long central tail feathers. Traditional hunting for feathers, by the

Habitat loss and degradation

Habitat loss, degradation and fragmentation are of particular concern for Helmeted Hornbill populations outside of protected areas, where the species' habitat is under increasing pressure from logging activities and development. Forest cover within the Helmeted Hornbill's range is estimated to have decreased by approximately 12% between 2000 and 2012 (Tracewski et al., 2016). Due to its specific nest site requirements and specialised diet, the species is likely



Credit: Ding Li Yong

Helmeted Hornbill parts and products, demonstrating that individuals from the main demand state are visiting source states to facilitate this trade (Hadiprakarsa et al., 2013; Krishnasamy et al., 2016). There have also been recent seizures in Malaysia (Cheng, 2016) and Thailand (Thai PBS, 2017).

It is well known that seizure numbers and hotspots only indicate where successful enforcement has taken place, and that much higher volumes are expected to be smuggled and traded without detection. Seizure numbers also underestimate actual bird deaths caused due to poaching because they do not account for unfledged chicks, which die if the provisioning male parent is killed, or for nesting females, which may not survive the death of their partner and are unlikely to breed again for years if they do (Poonswad et al., 2013; Collar, 2015; Beastall et al., 2016).

indigenous people, particularly the Iban and Orang Ulus in Borneo, are believed to be responsible for local extinctions of Helmeted Hornbill subpopulations by as early as 1997. Bennett et al., (1997) had estimated that only one Helmeted Hornbill could be hunted for feathers per 84.2 km² of forest before hunting became unsustainable. Traditional hunting for feathers remains of some concern, but this trade seems to have been stable for decades.

to be highly affected by the loss of suitable nesting and feeding trees. Tall, live dipterocarps are particularly targeted for logging operations and logging can also reduce the abundance of food trees (Meijaard et al., 2005; Collar, 2015). Forest patch size is important for large-bodied species such as the Helmeted Hornbill, and fragmentation is detrimental to their survival (Hadiprakarsa et al., 2007). Fragmentation also increases the amount of forest edge, where damaging forest fires are more likely to occur (Cochrane, 2001).

2.5. Legal Framework for Protection

The Helmeted Hornbill, with its parts and derivatives, is afforded legal protection under international (CITES) and national legislation. All Helmeted Hornbill range states and known transit and consumer states are CITES signatories. However, weak implementation and enforcement of CITES-related domestic legislation is associated with the growing illegal trade.

The species is completely protected from hunting and trade in all range states except for Sabah (Malaysia), where hunting is allowed with a licence, and Myanmar, where possession of parts as souvenirs or traditional custom is allowed under registration with the local forest department. Penalties for violating national laws include imprisonment for six months (Brunei and Sabah) or up to seven years (Malaysia and Myanmar). Maximum fines, generally low compared with the value of the casque on the black market, range from USD 36 (Myanmar) to USD 230,000 (Malaysia) (see [Appendix IV](#) for details). The species is also protected in mainland China and Hong Kong, where substantial levels of trade have been recorded, but not in Lao PDR where non-native CITES-listed species (including Helmeted Hornbills) are not covered under domestic law.

Finally, because the species has been listed in CITES Appendix I, which prohibits international commercial trade, since 1975, legal trade records in the CITES database (1975 – 2015) consist only of non-commercial trade or trade under one of the exemptions in CITES Article VII, including trade in confiscated or pre-convention items, trade for educational purposes or as museum specimens, or non-commercial trade as personal or household effects.



Credit: Dewantara/WCS

SECTION 3.

CONSERVATION STRATEGY AND ACTION PLAN

This section outlines the 2018-2027 Conservation Strategy and Action Plan for the Helmeted Hornbill. The contents reflect the recommended directions and priorities agreed to by participants at the 2017 Helmeted Hornbill Conservation Strategy and Action Planning Workshop. In summary, this Section includes:

- A long-term VISION for the future of the Helmeted Hornbill
- GOALS that represent the vision in operational terms
- A series of OBJECTIVES for achieving the goals
- ACTION STEPS to be taken in pursuit of these objectives, including recommendations on where and how action should be taken and who would be ideally placed to take it.

Organisations listed as potential implementers or supporters of this Strategy and Action Plan are predominantly those represented at the conservation planning workshop. Implementation of the recommended actions described here will be tracked through the HHWG. A five-year review of progress will be undertaken in 2022.



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3.1 Vision and Goals

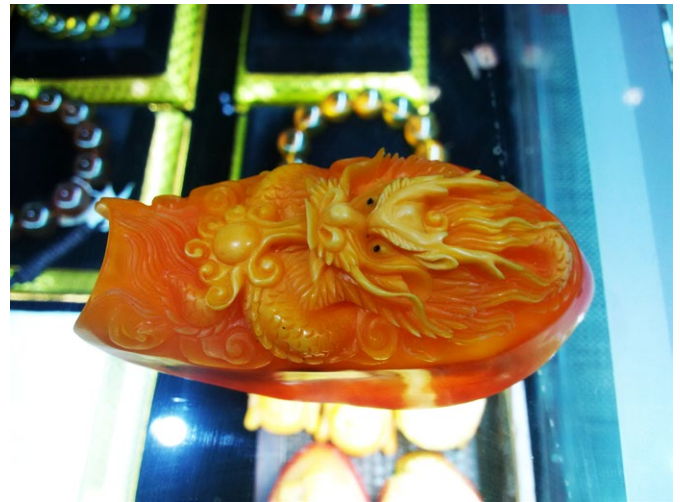
LONG-TERM VISION:

The unique Helmeted Hornbill thrives in viable, ecologically functional populations in forests, both intact and managed, within its natural range. These wild hornbills are cherished by local and global communities and are protected from threats such as poaching, trade and habitat loss through international collaboration.

GOAL 1

To eliminate trade in Helmeted Hornbills, their parts and derivatives, ensuring that:

- all commercial trade is prevented through effective enforcement of national and international policies and legislation;
- demand for Helmeted Hornbill products is eliminated across all consumer communities/countries through targeted behaviour change campaigns



Credit: Kanitha Krishnasamy/TRAFFIC



Credit: Kanitha Krishnasamy/TRAFFIC

GOAL 2

To strictly protect Helmeted Hornbill populations and their habitats throughout their natural range, ensuring that:

- Helmeted Hornbill habitats are permanently and appropriately protected, restored and sustainably managed through effective anti-poaching efforts and on-ground protection;
- local communities are encouraged and empowered to protect and conserve their resident Helmeted Hornbill populations.



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GOAL 3

To collect and share information needed to maintain viable Helmeted Hornbill populations, and to recover those impacted by trade and other threats, throughout the species' natural range, ensuring that:

- Key habitats, based on population strongholds, are identified and appropriately protected;
- Populations are actively monitored to detect thresholds of concern that should trigger remedial action.

3.2 Objectives and Actions 2018 – 2027

GOAL 1

To eliminate trade in Helmeted Hornbills, their parts and derivatives.



Credit: Dewantara/WCS

Objective 1.1:

Ensure that national and international legislation, awareness among key agencies, and platforms for information-sharing and coordination among enforcement agencies in range, transit and consumer states, are sufficient to prevent poaching and illegal trade.

Rationale: The range, transit and consumer states involved in the trade have varying levels of protection for Helmeted Hornbills, and not all parties have legislation that allows them to implement CITES to full capacity. Penalties are too low in most countries (lower than the profit margin), maximum penalties are not imposed, and minimum penalties do not always exist. Judiciary capacity and/or motivation is often lacking as prosecutors and judges are not familiar with the ecological importance and illegal trade value of the species. Capacity for species identification, and knowledge about its ecological role and conservation status is low.

Action	Deliverable	Timeline	Parties Involved
<p>1.1.1 Identify relevant stakeholders in the HH trade and share information that can provide the basis for law enforcement actions across range, transit and consumer states.</p> <p>High priority</p>	<p>Summary report outlining relevant stakeholders completed, and actionable intelligence information shared with law enforcement agencies.</p>	<p>< 1 year (ongoing)</p>	<p>NGOs (TRAFFIC, Monitor, WCS)</p> <p>Government agencies (CITES MAs)</p> <p>International law enforcement agencies (Interpol, ICCWC, ASEAN-WEN)</p>
<p>1.1.2 Map all current and potential trade routes and hubs for enforcement purposes, and investigate/monitor areas of highest-volume HH trade where multi-agency collaboration and action should be promoted.</p> <p>High priority</p>	<p>Trade routes and hubs identified, and monitoring mechanisms/systems put into place; enforcement recommendations implemented.</p>	<p>Ongoing (long-term)</p>	<p>NGOs (TRAFFIC, EIA, Monitor)</p> <p>Government agencies (CITES MA, customs)</p> <p>International law enforcement agencies (Interpol, ICCWC, ASEAN-WEN)</p>
<p>1.1.3 Analyse legislation related to HH in all relevant states, identifying strengths and weaknesses in levels of species protection provided by laws, penalties and levels of court involved; compile and analyse all existing agreements relevant to combatting cross-border trade of HH and improve cross-border law enforcement.</p> <p>High priority</p>	<p>Report of analysis completed; MOUs (new or adapted) in place among source, transit and consumer countries.</p>	<p>< 1 year</p>	<p>NGOs (TRAFFIC, Monitor)</p> <p>Government agencies</p>

Action	Deliverable	Timeline	Parties Involved
1.1.4 Produce advocacy/lobbying plan for strengthening weak legislation as it pertains to HH; communicate importance of implementing CITES Resolution 17.11 to all relevant government agencies.	Advocacy/lobbying plan implemented; strengthened legislation in place; CITES Resolution 17.11 fully implemented (see Action 1.1.8)	Ongoing	Range, transit and consumer state facilitators NGOs Government agencies
1.1.5 Compile a record and ongoing inventory of existing stockpiles of confiscated specimens; Investigate and implement best policies for managing stockpiles.	Policy review report completed with recommendations; monitoring and inventory systems for stockpiles in place.	1 – 3 years	NGOs Government agencies (MAs) CITES Standing Committee ⁷
1.1.6 Ensure that issues relating to illegal trade in HH are discussed at other relevant platforms and agencies (e.g. WCO, Interpol, ASEAN-WEN).	Recommended actions presented to relevant bodies.	Ongoing	NGOs (CMA, TRAFFIC China, Wildlife Trade Group HK, Monitor) International law enforcement agencies (Interpol, ICCWC, ASEAN-WEN)
1.1.7 Ensure development of a National Task Force in each state for implementing the HH Action Plan, including government officials, NGOs and other stakeholders.	National Task Forces created and operational.	< 1 year	Range, transit and consumer state facilitators Government agencies
High priority			
1.1.8 Encourage and assist CITES Parties, funding and donor agencies to comply and cooperate in the implementation of CITES Resolution Conf. 17.11 (<i>Conservation of and Trade in Helmeted Hornbill</i>)	Resolution Conf. 17.11 fully implemented by all relevant CITES Parties, with funding from international funding and donor agencies	< 1 year (ongoing)	Range, transit and consumer state facilitators/in-country NGOs Range, consumer and transit states Government agencies (CITES SA and MA) International donor and funding organisations Law enforcement agencies (eg Interpol, ICCWC) CITES Secretariat
Objective 1.2: Develop, activate and support a network of forensics experts that prioritises Helmeted Hornbill-related crime and supports investigations and legal actions through a standardised and coordinated approach at national and international levels.			
Rationale: There is no knowledge of genetic variation throughout the species' range, making it difficult to pin-point source populations, and there are no policies that encourage or require sharing information or genetic samples among parties. Forensic analyses can be used as a key tool to combat illegal wildlife trade, but the value of this tool has not yet been realised for Helmeted Hornbills (also see action item 3.2.5).			
1.2.1 Recognise the importance of, formalise and integrate wildlife forensics into legal proceedings and policy across relevant states.	Wildlife forensic policies adopted and implemented.	1 – 5 years (ongoing)	NGOs (TRACE, TRAFFIC, Monitor) Academic/research institutions Government agencies

⁷ CITES Decision 17.170 directed to the Standing Committee states that "The Standing Committee shall, with the assistance of the Secretariat, review the existing provisions agreed by the Parties concerning controls on stocks of specimens of CITES-listed species. It shall consider their objectives and implementation, and the resource implications for Parties and the Secretariat, and shall report its conclusions and recommendations at the 18th meeting of the Conference of the Parties" [<https://cites.org/eng/dec/valid17/81859>]

Action	Deliverable	Timeline	Parties Involved
1.2.2 Develop a wildlife forensic network among range states and relevant consumer and transit states. High priority	Wildlife forensic network created and operational	< 3 years	NGOs (TRACE) Government agencies International law enforcement agencies (Interpol, ICCWC, ASEAN-WEN)
1.2.3 Ensure standardised forensic protocols in place across range and non-range states.	Standardised forensic protocols adopted	< 3 years	NGOs (TRACE, Society of Wildlife Forensics) Government agencies (CITES SA)
1.2.4 Encourage relevant agencies (e.g., CITES MA, SA, customs) to collaborate on forensic analyses through protocols for sharing samples among states.	MoUs developed and adopted; inclusion of HH in existing MoUs designed to use forensics to combat illegal wildlife trade	< 1 year	NGOs (TRACE) Academic/Research institutions (HKU) Government agencies (CITES MA, SA) International law enforcement agencies (Interpol, ICCWC, ASEAN-WEN)

Objective 1.3:

Enhance intelligence-led enforcement across different states and territories by increasing coordination, capacity, detection and prosecution success rates.

Rationale: Enforcement efforts are most effective where they are well coordinated, underpinned by good intelligence, supported by sufficient capacity and where detection and prosecution rates are high. These elements are not currently in place for Helmeted Hornbills.

1.3.1 Develop and/or disseminate identification keys for HH parts and derivatives, in local languages, for law enforcement at local, national and international levels. Ensure HH keys are included in enforcement tools and training. Strengthen existing networks for enforcement officials (e.g., ASEAN-WEN) and species experts, to assist with species identification and enforcement support, across relevant range and non-range states. High priority	Detection capabilities are increased through the widespread availability and use of identification keys and methods to authenticate seized casques.	1 – 3 years (ongoing)	Range, transit and consumer state facilitators NGOs (TRAFFIC, BirdLife, Monitor, WCS, PI) Government agencies (Customs, CITES MAs and SAs) Academic/Research institutions/independent researchers
1.3.2 Develop awareness-raising materials (books, banners, presentation slides) to support enforcement agencies across relevant range and non-range states.	Awareness-raising materials are circulated to enforcement agencies in relevant states and are being used.	Ongoing	Government agencies (CITES MA) NGOs (WCS Indonesia, IHCS/RI)

Action	Deliverable	Timeline	Parties Involved
<p>1.3.3 Promote awareness of avenues for members of the public to report illegal HH trading activity in all transit and consumer locations particularly at key exit and entry points.</p> <p>High priority</p>	<p>Illegal activity reported by public leads to increased detection capabilities.</p>	<p>< 1 year (ongoing)</p>	<p>NGOs (PI, WCS, TRAFFIC, MYCAT and other NGOs that manage wildlife crime hotlines)</p> <p>Government agencies (Customs, CITES MAs and SAs)</p> <p>Academic/Research institutions / independent researchers</p> <p>International law enforcement agencies (Interpol, ICCWC, ASEAN-WEN)</p>
<p>1.3.4 Investigate and shut down markets and operators in wildlife trade hotspots openly selling HH products (e.g., Mong La Border in Myanmar, in Lao PDR and in China).</p> <p>High priority</p>	<p>More confiscations leading to arrests; open domestic sale and trade reduced or eliminated.</p>	<p>Ongoing</p>	<p>NGOs (TRAFFIC China, WCS, Monitor)</p> <p>Government agencies</p> <p>International law enforcement agencies (Interpol, ICCWC, ASEAN-WEN)</p>
<p>1.3.5 Run training sessions for law enforcement officials to improve enforcement success.</p> <p>High priority</p>	<p>Training is in place in all relevant enforcement agencies.</p>	<p>Ongoing</p>	<p>NGOs (WCS, PI, TRAFFIC)</p> <p>Government agencies (Customs, CITES MAs and SAs)</p> <p>Academic/Research institutions</p> <p>International law enforcement agencies (Interpol, ICCWC, ASEAN-WEN)</p>
<p>1.3.6 Conduct intelligence-led investigations to disrupt trade and criminal networks operating across borders; improve intelligence-sharing and coordination among law enforcement agencies at local, state and international levels.</p> <p>High priority</p>	<p>Intelligence packages and information disseminated to enforcement authorities; efficient communication network; more confiscations leading to arrests.</p>	<p>Ongoing</p>	<p>NGOs (TRAFFIC, PI, WCS)</p> <p>IGOs (WCO, Interpol, ASEAN-WEN)</p> <p>Government agencies (enforcement authorities)</p> <p>Working groups (ICCWC)</p>
<p>1.3.7 Monitor and improve judicial response to HH poaching and illegal trade, including success of prosecutions and imposition of appropriate penalties (bigger fines, jail terms) by producing information guides on HH for judiciary, and, potentially, training / information on genetic evidence for prosecutors.</p> <p>High priority</p>	<p>More arrests leading to successful prosecutions of high level criminals with appropriate penalties.</p>	<p><1 year (ongoing monitoring of prosecutions)</p>	<p>NGOs (TRAFFIC, WCS, NRDC, TRACE, MONITOR)</p> <p>Academic/Research institutions (HKU)</p> <p>Government agencies</p>
<p>1.3.8 Research motivations and levels of awareness amongst carvers and traders to develop a targeted communication strategy across range, transit and consumer states.</p>	<p>Motivations of carvers and traders understood; communication strategy developed and implemented; carvers and traders are engaged.</p>	<p>TBD</p>	<p>NGOs</p> <p>Academic/Research institutions</p>

Action	Deliverable	Timeline	Parties Involved
<p>1.3.9 Monitor online traders/new trading methods; develop mechanisms for systematic information sharing on online trade among researchers; shut down and arrest illegal online traders; encourage e-commerce companies to implement a self-policing policy across range, transit and consumer states.</p> <p>High priority</p>	<p>Key online traders identified and monitored. Intelligence disseminated to law enforcement. Information shared among researchers. Increased number of enforcement incidents.</p>	Ongoing	<p>NGOs (TRAFFIC, WCS, EIA, Monitor)</p> <p>Private companies (e-commerce)</p> <p>Government agencies (enforcement authorities)</p> <p>International law enforcement agencies (Interpol, ICCWC, ASEAN-WEN)</p>
<p>1.3.10 Engage corporate sector (e.g. logistic and transport companies, including airlines) to support enforcement agencies in the detection and interception of illegal shipments of HH parts across range, transit and consumer states.</p>	<p>Number of transport companies trained to identify HH products. Increased enforcement incidents. Increased number of casques confiscated.</p>	1 – 5 years (ongoing)	<p>NGOs (TRAFFIC)</p> <p>Transport companies</p>
<p>Objective 1.4: Eliminate consumption across consumer groups by implementing targeted, evidence-based behaviour change interventions.</p> <p>Rationale: The chain of trade in casques from the source, through transit, to consumers, threatens the viability of Helmeted Hornbill populations. There is both a “push” from criminal elements and a “pull” from consumers that sustains the demand, and transit mechanisms enable the movement from source to consumer. We assume that work done to mitigate the “push” will be more effective as the “pull” weakens through targeting behaviour change.</p>			
<p>1.4.1 Conduct consumer research to identify -</p> <ol style="list-style-type: none"> 1) the purchasers of HH products; 2) their motives and 3) the profiles of the most prolific buyers. 	<p>Motivations and profiles of consumers are identified. Most prolific group(s) of buyers are identified as the target audience for behaviour change programmes.</p>	1 – 3 years (ongoing)	NGOs (TRAFFIC)
<p>1.4.2 Develop and implement targeted consumer behaviour change programmes to reduce demand.</p>	<p>Consumer groups are reached through the programme and their behaviour changed; demand for hornbill specimens measurably reduced.</p>	1 – 5 years	<p>Range and consumer state facilitators</p> <p>NGOs (TRAFFIC)</p> <p>Government agencies</p>
<p>1.4.3 Develop monitoring & evaluation surveys to quantify the impact of demand reduction campaigns. Use survey results to improve the effectiveness of existing awareness campaigns.</p>	<p>Impact of campaigns is evaluated. Impact increases over time as a result of the feedback.</p>	1 – 10 years	NGOs (TRAFFIC)
<p>1.4.4 Enhance law enforcement (penalties and prosecutions) of buyers and sellers of illegal Helmeted Hornbill products, in consumer states.</p> <p>High priority</p>	<p>Buyers and sellers are arrested and successfully prosecuted; deterrent effect is created.</p>	1 – 5 years (ongoing)	<p>NGOs (TRAFFIC, Monitor, WCS)</p> <p>Government agencies (enforcement authorities)</p> <p>International law enforcement agencies (Interpol, ICCWC, ASEAN-WEN)</p>

GOAL 2

To strictly protect Helmeted Hornbill populations and their habitats throughout their natural range



Credit: Yeap Chin Aik/MNS

Objective 2.1:

Improve Protected Area Management through increased on-ground patrolling, anti-poaching and reforestation efforts

Rationale: Ineffective management of Protected Areas leads to destruction, degradation, and fragmentation of Helmeted Hornbill habitat due to encroachment by activities such as subsistence agriculture, illegal extraction of timber and other forest products, and new (e.g. in Myanmar) and growing (e.g. in Indonesia) settlements.

Action	Deliverable	Timeline	Parties Involved
<p>2.1.1 Identify priority HH sites not covered by anti-poaching efforts; initiate new anti-poaching efforts, complemented by intelligence-led investigations into hunters and key poaching networks across range states, focusing on Kalimantan and Sumatra.</p> <p>High priority</p>	All priority HH sites are covered by coordinated, successful anti-poaching efforts	1 – 2 years (ongoing)	<p>Range state facilitators</p> <p>Government agencies</p> <p>NGOs (MNS, MYCAT, IHCS, Burung Indonesia, WCS, FFI, Planet Indonesia)</p>
<p>2.1.2 Ensure sufficient frequency and capacity of anti-poaching efforts at existing sites; strengthen systematic patrolling activities (e.g. by using SMART); focus on engaging both local communities and Protected Area management authorities; and complement this with intelligence-led investigations into hunting operations and key poaching networks.</p> <p>High priority</p>	Illegal activities inside protected areas are significantly reduced or eliminated.	5 – 10 years (ongoing)	<p>Range state facilitators</p> <p>Government agencies</p> <p>NGOs (MNS, MYCAT, IHCS, Burung Indonesia, WCS, FFI, Planet Indonesia)</p> <p>Site-based local communities</p>
<p>2.1.3 Develop partnerships with communities around priority HH areas and in buffer zones; provide incentives for forest management that benefit HH (e.g. exploring partnership finance models, conservation agreements, and other local binding contracts between villages related to forest management)</p>	Partnership agreements & management plans	5 – 10 years	<p>Range state facilitators</p> <p>Government agencies</p> <p>NGOs</p> <p>Site-based local communities</p>
<p>2.1.4 Identify need for and implement reforestation programmes in buffer zones and Protected Areas, within priority HH landscapes</p>	Increased number of hectares of forest restored	5 years	<p>Range state facilitators</p> <p>Government agencies</p> <p>NGOs</p> <p>Site-based local communities</p>
<p>2.1.5 Engage with Protected Area managers to gain information on presence/absence of HH; communicate on specific HH habitat needs to ensure that these are incorporated into PA management plans</p> <p>High priority</p>	PAs with HHs identified; HH habitat needs incorporated into PA management plans	1 – 3 years	<p>Range state facilitators</p> <p>Government agencies</p> <p>NGOs</p>

Objective 2.2:

Develop, improve and enforce appropriate regulations and management of Helmeted Hornbill habitat outside Protected Areas.

Rationale: Human land use activities that occur outside Protected Areas are inadequately managed and may result in detrimental impacts on Helmeted Hornbills and their habitats. Current National (and sub-National) policies related to spatial planning, land use management and environmental and wildlife protection in Helmeted Hornbill range states are generally inadequate to protect this species and its habitat. Conservation tools such as High Conservation Value Forest (HCVF) and other suitable equivalents have yet to be effectively developed and used to conserve this species.

Action	Deliverable	Timeline	Parties Involved
<p>2.2.1 Evaluate current (state-level) policies for wildlife management under different land uses and make recommendations relevant to HH conservation.</p> <p>High priority</p>	Evaluation reports prepared and recommendations made.	1 – 3 years	<p>Range state facilitators</p> <p>Government agencies</p> <p>NGOs</p> <p>Academic/Research institutions</p> <p>Private companies</p>
2.2.2 Assess the extent of current logging, oil palm, mining and other land-use concessions that overlap with priority HH habitats.	Assessment reports prepared.	2 years	<p>Range state facilitators</p> <p>Government agencies</p> <p>NGOs</p> <p>Academic/Research institutions</p> <p>Private companies</p>
2.2.3 Understand the limitations of the High Conservation Value ⁸ mechanism (HCV 2017) for HH conservation; make recommendations for its improvement and implementation in forestry and plantation landscapes.	Evidence-based evaluation of HCV mechanism as a tool in HH conservation; recommended improvements; reflection of these in policy revisions.	≤ 5 years	<p>Range state facilitators</p> <p>Government agencies</p> <p>NGOs</p> <p>Private companies</p>
2.2.4 Determine whether existing EIAs are effective in safeguarding HHs; if not, identify improvements.	Review of EIA procedures; revised pre-land-use protocols.	1 – 3 years	<p>Range state facilitators</p> <p>Government agencies</p> <p>NGOs</p> <p>Academic/Research institutions</p>
<p>2.2.5 Ensure that HH conservation is part of each relevant land-use management plan within the species' range.</p> <p>High priority</p>	Creation of an active species conservation team (including all relevant stakeholders) in the management plan SOP.	3 – 5 years	<p>Range state facilitators</p> <p>Government agencies</p> <p>NGOs</p> <p>Private companies (land managers)</p>
2.2.6 Advocate for and support increased government patrolling and improved surveillance of illegal logging, including closure of unused logging roads.	Surveillance and patrol reports increased.	Ongoing	<p>Range state facilitators</p> <p>Government agencies</p> <p>NGOs</p>

⁸ <https://www.hcvnetwork.org/about-hcvf>

Action	Deliverable	Timeline	Parties Involved
2.2.7 Work with all development stakeholders to mitigate and manage detrimental impacts of forest conversion on HH.	Creation of an active species conservation team including all active stakeholders.	3 – 5 years	Range state facilitators Government agencies NGOs Private companies
2.2.8 Increase law enforcement against small-scale, illegal land conversion (plantations, shifting cultivation).	Reduction in illegal land conversion activities.	3 – 5 years	Range state facilitators Government agencies NGOs
2.2.9 Provide incentives (e.g. interest-free loans, certification) to small-scale, legal land conversion managers, to encourage best practices for HH conservation.	Number of potential nest trees or fruiting trees used by HH maintained within productive landscapes.	1 – 10 years	Range state facilitators Government agencies NGOs Academic/Research institutions
2.1.10 Engage communities in sustainable forestry management in buffer zone forests, particularly community managed forests that neighbour HH priority areas.	Community forestry management plans developed, adopted and implemented.	5 – 10 years	Range state facilitators Government agencies NGOs Communities

Objective 2.3:

Empower local communities to be conservation stewards for Helmeted Hornbill.

Rationale: Consumer demand for Helmeted Hornbill products creates a trade in hunted birds that has decimated many wild populations and continues to threaten the survival of remaining ones. Empowerment of local communities living in or near forest landscapes as conservation stewards can be an effective strategy in combatting poaching of Helmeted Hornbills (e.g., as shown in Thailand). To date there are limited examples of the application of this strategy for Helmeted Hornbills, but there are opportunities for expansion.

2.3.1 Identify key drivers behind poaching; develop behaviour change and empowerment programmes (e.g. alternative sustainable livelihood opportunities) at HH poaching hotspots across range states. High priority	Key drivers identified and addressed; poaching reduced; measurable benefits to households that have stopped poaching.	5 – 10 years (ongoing)	Range state facilitators Government agencies NGOs (IHCS, Burung Indonesia, Planet Indonesia, TRAFFIC)
2.3.2 Identify and utilise alternative local legislation such as village-level or customary Indigenous law, to increase enforcement of anti-poaching regulations.	Village/customary laws compiled and applied to conservation practices.	5 – 10 years (ongoing)	Range state facilitators Government agencies NGOs Site-based local communities
2.3.3 Increase awareness of HH conservation through Communication, Education and Public Awareness (CEPA) activities aimed at local communities and other related stakeholders, in important HH habitats and urban transit centres. High priority	CEPA campaign implemented and evaluated.	5 – 10 years (ongoing)	Range state facilitators Government agencies NGOs Communities

Action	Deliverable	Timeline	Parties Involved
2.3.4 Create awareness materials including a guide book, and conduct training and consultations to empower local communities to be ambassadors for HH conservation, including schools and universities, focusing on HH poaching hotspots across range states.	Guide book produced and circulated; programme of training workshops established and operating.	5 – 10 years (ongoing)	Range state facilitators Government agencies NGOs
2.3.5 Create community-partnered nest protection programmes in important HH areas.	Programmes in place; target number of nests protected.	2 years (ongoing)	Range state facilitators Government agencies NGOs Site-based local communities
2.3.6 Encourage local communities to inform government authorities of illegal land-use activities (e.g. poaching, encroachment and logging); create community stewardship and forest guardian programmes.	Active communication framework established with local communities.	5 – 10 years (ongoing)	Range state facilitators Government agencies NGOs Site-based local communities Private companies
2.3.7 Utilise citizen science programmes to gather data and intelligence related to HH occurrences and illegal activities in range states	Number of HH occurrences and illegal activities fully documented.	1 – 2 years (ongoing)	Government agencies NGOs

GOAL 3

To collect and share the information needed to maintain viable Helmeted Hornbill populations, and to recover those impacted by trade and other threats, throughout the species' natural range

Objective 3.1:

Understand the global distribution, number and size of Helmeted Hornbill populations, identify priority areas and viability thresholds, and mobilise monitoring efforts to track and respond to potential declines.

Rationale: Currently available information on HH distribution is patchy and dated. As a result, our knowledge is inaccurate and imprecise, making it difficult to identify HH priority areas for targeted conservation action. Similarly, abundance data are dated and have not been systematically collected across the species range. Without better information we are unable to estimate global population numbers or to monitor potential declines.

Action	Deliverable	Timeline	Parties Involved
3.1.1 Develop data-sharing MoU for all relevant partners/organisations. High priority	Signed MoU	< 1 year	NGOs (THP, IHCS/RI, BL) Government agencies IUCN SSC ASAP
3.1.2 Update existing distribution map (sensitive / detailed information not to be publicly shared). <ul style="list-style-type: none"> Collate existing population estimates. Create a species distribution and population model for HH based on sighting density, habitat data and threat analysis. Produce global population estimates using the above information. Agree on HH priority areas. Agree on viability thresholds. High priority	Updated distribution map; report of known population estimates; agreed viability thresholds; map with agreed priority areas, areas of recent declines and high threat; global population estimate.	1 year (ongoing)	NGOs (BL, IHCS/RI, MNS, NCF, THP) Range state facilitators Government agencies Academic/Research institutions Private companies and birdwatchers
3.1.3 Develop standardised protocols for future HH population and distribution surveys. Circulate to stakeholders and conduct training. High priority	Development, circulation and adoption of standardised protocols.	< 1 year	NGOs (THP, IHCS/RI, BL, MNS, NCF India, WCS, HUTAN, MGHP) Academic/Research institutions
3.1.4 Conduct distribution surveys in priority areas (see 3.1.2) where there are knowledge gaps, and establish a monitoring plan for each. High priority	All priority areas surveyed and monitoring plans in place.	1 – 2 years	Range state facilitators NGOs (THP, IHCS/RI)
3.1.5 Identify representative sites for future monitoring (based on 3.1.2, expert opinion and funding availability). High priority	List of representative sites prepared for monitoring.	< 1 year	NGOs (BL, IHCS/RI, MNS, THP)

Action	Deliverable	Timeline	Parties Involved
<p>3.1.6 Conduct long-term systematic population surveys at representative sites.</p> <p>High priority</p>	Density estimates and trends identified at representative sites.	1 – 3 years	<p>Range state facilitators</p> <p>NGOs (NCF India, BL, MNS, IHCS/RI, THP, HUTAN)</p>
<p>Objective 3.2: Implement a coordinated research strategy to identify gaps in knowledge and improve our understanding of Helmeted Hornbill breeding and feeding ecology, dispersal patterns, population demography, genetic structure and ex situ management.</p> <p>Rationale: Our current understanding of the species' biology (including feeding, breeding, movement, population demography and genetics) is limited and based on information from only a few sites. This makes it difficult to identify with certainty the specific requirements and vulnerabilities of the species and, therefore, to ensure that these are addressed in plans for its conservation.</p> <p>The capture of wild adult Helmeted Hornbills for <i>ex situ</i> management is not currently recommended by the HHWG. However, the need for and feasibility of, establishing a captive programme for the species (either for husbandry research or as an assurance programme) will be assessed periodically by the HHWG and relevant stakeholders, following the IUCN SSC Guidelines on the Use of <i>Ex situ</i> Management for Species Conservation, and informed by viability assessments of wild populations. The species is not widely held in captivity and its <i>ex situ</i> needs are poorly known. Should a captive breeding programme be recommended in future, husbandry knowledge and experience will be essential to its success. Being ready for this possibility is considered important but will take time and will require access to captive birds. It was agreed that as a matter of urgency, research should be undertaken to better understand and communicate the captive requirements of the species using existing captive birds and any additional live birds acquired through confiscation or found injured. Institutions in possession of such birds are encouraged to contact the HHWG immediately to obtain protocols for care and management, and for the collection of biological samples (currently being developed by the HHWG).</p>			
3.2.1 Compile existing data; identify gaps in knowledge of species biology including demography, variations in breeding and feeding ecology across regions and range states as well as nest competition with other species.	Assessment of current knowledge of species biology	1 year (ongoing)	<p>Range state facilitators</p> <p>NGOs (THP, MNS, HUTAN, IHCS/RI, WCS)</p> <p>Academic/Research institutions</p>
<p>3.2.2 Undertake studies across representative sites to:</p> <ul style="list-style-type: none"> identify potential and existing nest cavities at sites; study the use of refurbished, or modified cavities and artificial nest use; establish home range and dispersal patterns in different habitat types; identify key food plants during breeding/non-breeding seasons create tagging and tracking protocols 	<p>Birds tagged and tracked, nests monitored, breeding and feeding data collected and analysed</p> <p>Protocols developed and adopted</p>	1 – 3 years	<p>Range state facilitators</p> <p>NGOs (THP, MNS, HUTAN, IHCS/RI)</p> <p>Academic/Research institutions</p>
<p>3.2.3 Develop and adopt standardised genetics protocols (e.g. sample collection, extraction and processing) and health sampling protocols (e.g. handling morphometrics, blood collection and disease screening). Identify genetic markers variable across the range of the species.</p> <p>High priority</p>	Protocols developed and adopted	2 years (< 1 year for protocol development)	<p>Range state facilitators</p> <p>Academic/Research institutions (Chulalongkorn University, HKU)</p> <p>Government agencies(DNP Thailand)</p> <p>Zoological institutions (WRS)</p> <p>NGOs (MGHP, TRACE Wildlife Forensics Network)</p>

Action	Deliverable	Timeline	Parties Involved
<p>3.2.4 Create a genetics reference library from known-source birds; create a map of genetic variation across the range of the species based on several DNA markers; identify a regional biobank as a common reference repository. Regulatory frameworks needed to transfer reference materials across borders to be reviewed.</p> <p>High priority</p>	Genetics reference library developed and deposited in agreed-upon regional biobank	2 years	<p>Range state facilitators</p> <p>NGOs (TRACE Wildlife Forensics Network)</p> <p>Government agencies (DNP Thailand)</p> <p>Academic/Research institutions (HKU, Chulalongkorn University)</p> <p>Zoological institutions (WRS)</p>
<p>3.2.5 Collect morphological measurements and genetic samples from confiscated beaks for wildlife forensics. This will help to identify the geographic origin of poached hornbills, identify the sex of poached birds, and assess the impacts of poaching on specific <i>in situ</i> populations.</p> <p>Measurements to be taken using standard morphometric techniques; 3D imaging protocol to be developed to provide more detailed measurements. This should be done range-wide but there is an urgent need for Indonesia and China to collect measurements and DNA samples from all confiscated beaks.</p> <p>High priority</p>	Robust DNA and morphology databank for HH beaks/ casques developed and made available to enforcement agencies	2 years (< 1 year for protocol)	<p>Range state facilitators</p> <p>Government agencies (DNP Thailand)</p> <p>Academic/Research institutions (HKU, Chulalongkorn University)</p> <p>NGOs (IHCS/RI, WCS, TRAFFIC, MGHP. TRACE Wildlife Forensics Network)</p> <p>Zoological institutions (WRS)</p>
<p>3.2.6 Apply the IUCN SSC Guidelines on the Use of Ex situ Management for Species Conservation to agree potential role(s) of <i>ex situ</i> management in the conservation and recovery of this species. Evaluate the feasibility of pursuing those roles using relevant information (including that generated through 3.1.2. This will be periodically reviewed.</p>	Feasibility report on the role of <i>ex situ</i> management	1 – 2 years	<p>Academic/research institutions</p> <p>NGOs</p> <p>Zoological Institutions (WRS)</p> <p>IUCN SSC CPSG</p>
<p>3.2.7 Research into species <i>ex situ</i> needs to develop husbandry and breeding protocols using data collated from existing captive or rescue and confiscated birds. This will allow us to be ready and equipped in the event there is a need for an assurance colony as determined by 3.2.6. Efforts should first be focused on collaborating with institutions currently holding captive populations.</p>	Protocols for captive breeding and management for HH	1 year (ongoing)	Zoological institutions (WRS, SEAZA, Species 360)

Action	Deliverable	Timeline	Parties Involved
3.2.8 Create protocol for handling and keeping live birds confiscated from the trade or rescued/donated.	Protocol adopted; identified zoos and rescue centers to serve as key contact points.	1 – 2 years	Zoological institutions (WRS) NGOs (SSN) CITES-designated Rescue Centres ⁹ Government agencies

Objective 3.3:

Evaluate the use of degraded, converted and fragmented habitat by Helmeted Hornbills and the impact of anthropogenic activities on its populations.

Rationale: Helmeted Hornbill habitat has experienced significant pressure from anthropogenic activities, including land clearing for oil palm expansion and logging which have resulted in habitat loss, degradation and fragmentation. However, our understanding of the use of these human-modified landscapes by Helmeted Hornbills, and the associated impacts on populations, is limited.

3.3.1 Conduct systematic studies focusing on impacts of anthropogenic activities (e.g. land clearance for agriculture, logging and hunting) on HH habitats, populations and nest sites, across representative sites.	Report on anthropogenic impacts produced	4 years	Range state facilitators Government agencies NGOs (IHCS/RI, BL, NCF India, THP)
3.3.2 Conduct a study of community cultural practices, attitudes and local knowledge regarding HH, across representative sites.	Report summarising community practices, attitudes and knowledge relating to HH.	1 – 4 years	Range state facilitators NGOs (IHCS/RI, BL, NCF India, MGHP, THP)

⁹ Article VIII par. 4 of CITES reads in part: "4. Where a living specimen is confiscated as a result of measures referred to in paragraph 1 of this Article... the Management Authority shall, after consultation with the State of export, return the specimen to that State at the expense of that State, or to a rescue centre or such other place as the Management Authority deems appropriate and consistent with the purposes of the present Convention; and... may obtain the advice of a Scientific Authority, or may, whenever it considers it desirable, consult the Secretariat in order to facilitate the decision under sub-paragraph (b) of this paragraph, including the choice of a rescue centre or other place."

REFERENCES

- Bale, R. (2016). These rare birds are being slaughtered for their ivory. National Geographic. 16 March 2017. <http://news.nationalgeographic.com/2016/03/160316-helmeted-hornbill-trafficking-smuggling-red-ivory>. Accessed 23 May 2018
-
- Beastall, C., Shepherd, C.R., Hadipraksarsa, Y. and Martyr, D. (2016). Trade in the Helmeted Hornbill *Rhinoplax vigil*: the 'ivory hornbill'. *Bird Conservation International* 26(2): 137–146.
-
- Bennett, E. L., Nyao i, A. J. and Sompud, J. (1997). Hornbills *Buceros* spp. and culture in northern Borneo: can they continue to co-exist? *Biological Conservation* 82 (1): 41 – 46.
-
- BirdLife International (2017) Species factsheet: *Rhinoplax vigil*. Downloaded from <http://www.birdlife.org> on 12/06/2017.
-
- Bucknill, J. A. S. and Chasen, F. N. (1927). The birds of Singapore Island. Government Printing Office, Singapore.
-
- Chong, M.H.N. 2011. Observations on the breeding biology of Helmeted Hornbill in Pahang, Peninsular Malaysia. *The Raffles Bulletin of Zoology*. Supplement No. 24: pp 163-165.
-
- Charles, J.K. (2005) Relative abundance of hornbills in Brunei Darussalam, Page 145 - 154. In *The Ecology of Hornbills: Reproduction and Populations*. Proceedings 3rd International Hornbill Workshop. Hornbill Research Foundation, Thailand. Pimdee Karnpim Co. Ltd.
-
- Cheng, N. (2016) Dept makes record bust in wildlife parts. 3 September 2016. <http://www.thestar.com.my/news/nation/2016/09/03/dept-makes-record-bust-in-wildlife-parts-hornbill-beaks-also-found-in-rm2mil-seizure/>. Accessed 23 May 2018.
-
- Collar, N. J . (2015) Helmeted Hornbills and the ivory trade: the crisis that came out of nowhere. *BirdingASIA* 24 : 12 – 17 .
-
- Cochrane, M. A. (2001). Synergistic interactions between habitat fragmentation and fire in evergreen tropical forest. *Conservation Biology* 15 (6): 1515 – 1521.
-
- CITES CoP17 Decisions 17.264 – 17.266. Decisions of the Conference of the Parties to CITES in effect after its 17th meeting. Seventeenth meeting of the Conference of the Parties. Johannesburg (South Africa), 24 September – 5 October 2016. <https://cites.org/sites/default/files/eng/dec/valid17/E17-Dec.pdf>. Accessed 9 November 2017.
-
- CITES CoP17 Doc. 69. Illegal trade in the Helmeted Hornbill (*Rhinoplax vigil*). Convention on International Trade in Endangered Species of Wild Fauna and Flora. Seventeenth meeting of the Conference of the Parties. Johannesburg (South Africa), 24 September – 5 October 2016. <https://cites.org/sites/default/files/eng/cop/17/WorkingDocs/E-CoP17-69.pdf>. Accessed 3 October 2017.
-
- CITES SC69 Doc. 61. Illegal trade in the Helmeted Hornbill (*Rhinoplax vigil*): Report to the secretariat. Convention on International Trade in Endangered Species of Wild Fauna and Flora. Sixty-ninth meeting of the Standing Committee. Geneva (Switzerland), 27 November – 1 December 2017. <https://cites.org/sites/default/files/eng/com/sc/69/E-SC69-61.pdf>. Accessed 9 November 2017.

- EIA (2015a). Seeing 'red' – the often hidden colour of wildlife contraband. Environmental Investigation Agency. <https://eia-international.org/seeing-red-the-often-hidden-colour-of-wildlife-contraband>
- EIA (2015b). Sin City: illegal wildlife trade in Laos' Golden Triangle SEZ Special Economic Zone. Environmental Investigation Agency, London, UK.
- EIA (2016) Illegal trade seizures: Helmeted Hornbills – mapping the crimes. <https://eia-international.org/illegal-trade-seizures-helmeted-hornbills>
- Fischer, J. H., Boyd, N. S., Maruly, A., Van der Kaaden, A-S., Husson, S. J. and Sihite, J. (2016). An inventory of the avifauna of the Bukit Batikap Protection Forest, Central Kalimantan, Indonesia. *Forktail* 32: 26 - 35.
- Gale, G.A. and Thongaree, S. (2006). Density estimates of nine hornbill species in a lowland forest site in southern Thailand. *Bird Conservation International*. Pp 57-69.
- Hadiprakarsa, Y., Kinnaird M. F., Iqbal M. and O'Brien T. G.. (2007). Effects of forest fragmentation on hornbills across the southern Sumatran landscape. In A. Kemp, M. Kemp, and P. Poonswad (eds.). *The Active Management of Hornbills and their Habitats for Conservation*. Proceedings of the 4th International Hornbill Conference, Mabula Game Lodge, Bela- Bela, South Africa.
- Hadiprakarsa, Y. and Kinnaird, M. F. (2004). Foraging characteristics of an assemblage of four Sumatran hornbill species. *Bird Conservation International* 14:S53-S62.
- Hadiprakarsa, Y. , Irawan, R. and Adhiasto, D. (2013). Helmeted Hornbill head trafficking: what do we know about it? Indonesia Hornbill Conservation Society, Titian Foundation and Wildlife Conservation Society – Indonesia Program. The 6th International Hornbill Conference, April 24-26 2013, Manila, Philippines.
- HCV (2017). What are High Conservation Values? <https://www.hcvnetwork.org/about-hcvf>. Accessed 25 November 2017.
- Hughes, A. (2015). Not just rhinos: hornbill horns fetch stunning prices in illegal wildlife trade. Alliance of Leading Environmental Researchers and Thinkers. <http://alertconservation.org/issues-research-highlights/2015/8/18/not-just-rhinos-hornbill-horns-fetch-stunning-prices-in-illegal-wildlifetrade>. Accessed November 30 2015.
- Johns, A.D. (1987). The Use of Primary and Selectively Logged Rainforest by Malaysian Hornbills (Bucerotidae) and Implications for their Conservation. *Biological Conservation* 40: 179-190.
- Johns, A.G. (2004). Timber Production and Biodiversity Conservation in Tropical Rain Forests. UK: Cambridge University Press.
- Kaur, R., Singh, S. and Ahmad A. M. (2015). The breeding biology of the Great Hornbill *Buceros bicornis*, Rhinoceros Hornbill *Buceros rhinoceros* and Helmeted Hornbill *Rhinoplax vigil* in the Temengor Forest Reserve, Perak, Malaysia. *Malayan Nature Journal* 67 (2): 240 – 257.
- Kinnaird, M. and T. O'Brien. (2007). *The Ecology and Conservation of Asian Hornbills: Farmers of the Forest*. University of Chicago Press, Chicago. 315 pp.
- Kitamura, S., Thong-Aree, S., Madsri S., and Poonswad, P. (2011). Characteristics of Hornbill-dispersed Fruits in Lowland Dipterocarp Forests of Southern Thailand. *The Raffles Bulletin of Zoology* 2011. Supplement No. 24: 137-147.
- Krishnasamy, K., Leupen, B. and O.C. Or. (2016). Observations of the Helmeted Hornbill Trade in Lao PDR. TRAFFIC, Malaysia. 24 pp.
- Lakim, M.B. and Biun A. (2005) A preliminary survey of hornbills within National Parks of Sabah, Malaysia. Pages 51-54. In *The Ecology of Hornbills: reproduction and populations*. Proceedings of the 3rd International Hornbill Workshop. Hornbill Research Foundation, Thailand.

- Leighton, M. (1982). Fruit resources and patterns of feeding, spacing and grouping among sympatric Bornean hornbills (Bucerotidae). Unpublished Ph.D. dissertation, University of California, Davis.
-
- Lum, S. and P. Poonswad (eds.). (2005). The Ecology of Hornbills: reproduction and populations. Proceedings of the 3rd International Hornbill Workshop. Hornbill Research Foundation, Thailand. 248 pp.
-
- Martyr, D. J. (2014) Kerinci Seblat Sumatran Tiger protection and conservation. Cambridge, UK : Flora & Fauna International. http://www.21stcenturytiger.org/assets/21tiger/Project_PDFs/Indonesia/Kerinci_Seblat_tiger/FFI_KerinciSeblatFinalreport2013.pdf
Accessed January 2014.
-
- Marthy, W., Clough, Y. and Tscharnkte (2016). Assessing the biodiversity value of degraded lowland forest in Sumatra, Indonesia. *Kukila* 19: 1- 20.
-
- McConkey, K. R., and Chivers, D. J. (2004). Low mammal and hornbill abundance in the forests of Barito Ulu, Central Kalimantan, Indonesia. *Oryx* 38:439-447.
-
- Meijaard, E., Sheil, D., Nasi, R., Augeri, D., Rosenbaum, B., Iskandar D., Setyawati, T., Lammertink, M., Rachmatika, I., Wong, A., Soehartono, T., Stanley, S. and O'Brien, T. (2005). Life after logging: Reconciling wildlife conservation and production forestry in Indonesian Borneo. CIFOR, Indonesia.
-
- Poonswad, P., Kemp, A.C. and Strange, M. (2013). Hornbills of the World: A Photographic Guide. Draco Publishing and Hornbill Research Foundation. 212 pp.
-
- Poonswad, P. Thiensongrusamee, P. and Mudsri, S. (2012). Basic Conservation approaches and the fate of hornbills in Thailand: a prototype for future bird-people relationships. *Journal of Ornithology*, Volume 153 (Supplement 1): pp 49-60.
-
- Poonswad, P. and Tsuji, A. (1994). Ranges of males of the Great Hornbill *Buceros bicornis*, Brown Hornbill *Ptilolaemus tickelli* and Wreathed Hornbill *Rhyticeros undulatus* in Khao Yai National Park, Thailand. *Ibis* 136 (1): 79 – 86.
-
- Sullivan, B.L., Wood, C.L., Iliff, M.J., Bonney, R.E., Find, D. and Kelling, S. (2009). eBird: a citizen-based bird observation network in the biological sciences. *Biological Conservation* 142: 2282-2292.
-
- Thai PBS. (2017). Three arrested for commercial trade of dead protected wildlife online. June 30, 2017. <http://englishnews.thaipbs.or.th/three-arrested-commercial-trade-dead-protected-wildlife-online/>
Accessed 3 October 2017.
-
- Thiensongrusamee P., Poonswad P. and Hayeemuida S. (2005) Characteristics of Helmeted Hornbill nests in Thailand. In The Ecology of Hornbills: reproduction and populations. Proceedings 3rd International Hornbill Workshop. Hornbill Research Foundation, Thailand.
-
- Tracewski, L., Butchart, S.H.M., Di Marco, M., Ficetola, G.F., Rondinini, C., Symes, A., Wheatley, H., Beresford, A.E. and Buchanan, G.M. (2016). Toward quantification of the impact of 21st-century deforestation on the extinction risk of terrestrial vertebrates. *Conservation Biology* 30 (5): 1070 - 1079.
-
- USDOJ (2015). "Operation Pongo" Leads to Arrest of Two Malaysian Men on Federal Charges of Smuggling Wildlife into the U.S. Department of Justice, U.S. Attorney's Office, District of Oregon. 7 December 2015. <https://www.justice.gov/usao-or/pr/operation-pongo-leads-arrest-two-malaysian-men-federal-charges-smuggling-wildlife-us>.
Accessed 13 October 2017.
-
- WCS (2015). Traders of one of Indonesia's most hunted bird species arrested. WCS News Releases. <http://newsroom.wcs.org/NewsReleases/tabid/13614/articleType/ArticleView/articleId/6830/Traders-of-One-of-Indonesias-Most-Hunted-Bird-Species-Arrested.aspx>. Accessed 3 October 2017.
-
- Yu, X. and Jia, W. (2015). *Moving targets: tracking online sales of illegal wildlife products in China*. TRAFFIC, Cambridge, UK.

APPENDIX I.

IUCN motion WCC-2016 Res-009 Conservation of the Helmeted Hornbill

1 September 2016

NOTING that the Helmeted Hornbill (*Rhinoplax vigil*) is found in Southeast Asia and listed on Appendix I of CITES;

ACKNOWLEDGING that there has been a recent sharp escalation in the killing of this species, driven by demand and perpetrated by criminal networks, which presents a clear and present threat to its survival in range states;

RECOGNISING that the killing of the species is driven by demand for its solid casque ('hornbill ivory') used in the manufacture of ornaments ('derivative items') that are available in parts of Asia through conventional retailers and online market places;

NOTING that urgently needed conservation action is being undertaken under the auspices of the IUCN Species Survival Commission through the Asia Species Action Partnership (ASAP) and that, in line with best available scientific knowledge, BirdLife International, the Global Red List Authority on Birds, raised the species' threat status on the IUCN Red List from Near Threatened to Critically Endangered in November 2015;

RECALLING IUCN Resolution 5.027 Conservation of tropical Asia's threatened species (Jeju, 2012) and the concern expressed therein with regard to populations of large birds including hornbills;

NOTING that the species is further threatened by habitat loss;

RECOGNISING that the species is of cultural significance to local communities, provides key ecological functions, is a galvanizing symbol in the conservation of Southeast Asia's tropical forests and that the trade represents a loss of national patrimony and resources;

RECOGNISING, in light of Aichi Target 12, that range states require urgent international action and support to supplement domestic efforts to prevent the extinction of the species and to ensure that its conservation status is improved and sustained;

ACKNOWLEDGING the current enforcement efforts of relevant states; and

RECOGNISING that support for such efforts should be premised on collaborative engagement and mutual respect;

The World Conservation Congress, at its session in Hawaii, United States of America, 1-10 September 2016:

1. **REQUESTS** the Director General, Commissions and Members, where possible, through ASAP, its partners or other stakeholders/avenues, to participate in and/or support efforts to:
 - a. monitor threat levels; identify interalia trade routes, networks, methodologies and participants; aid investigations, gather evidence and evaluate emerging trends;
 - b. support and expand *in situ* conservation;
 - c. strengthen the role of and engage with local communities, conservationists and agencies and support enforcement action;
 - d. raise awareness through increased communications, publicity, education, public engagement, and demand reduction campaigns within remaining parts of the native range and end users;
 - e. provide technical advice, build capacity and facilitate knowledge sharing and cooperation amongst stakeholders; and
 - f. engage shops and online market places in containing, curtailing and/or seeking to eliminate the sale of derivative items;
2. **REQUESTS** the Director General to write to the Secretary General and Chair of the Standing Committee of CITES to request urgent steps to address the increased international trade in hornbill ivory;
3. **ENCOURAGES** relevant governments to:
 - a. further enforcement to prevent illegal harvesting;
 - b. further enforcement to prevent the import, export, transit, carriage, display, sale and/or acquisition of hornbill ivory and derivative items;
 - c. address legislative, policy or enforcement gaps, prosecute participants at all levels of the trade network and enhance awareness of applicable laws; and
 - d. engage and cooperate with other relevant States in bringing enforcement action, evidence gathering and knowledge sharing; and
4. **URGES** donor organisations to support conservation actions.
State and agency Members of the United States voted against the motion with Amendment 1, which was adopted by the World Conservation Congress.

Source: https://portals.iucn.org/library/sites/library/files/resrefiles/WCC_2016_RES_009_EN.pdf. Accessed 9 November 2017.

CITES CoP17 Resolution Conf. 17.11 Conservation of and Trade in Helmeted Hornbill

RECALLING that the helmeted hornbill (*Rhinoplax vigil*) is included in Appendix I of the Convention, and that all commercial international trade in its parts and derivatives has been regulated by the Convention since 1975;

RECOGNIZING that the helmeted hornbill is of cultural and symbolic significance to local communities in Southeast Asia;

AWARE that the helmeted hornbill is highly vulnerable to overexploitation due to its extensive habitat requirements, naturally low population densities, relatively low reproductive rate, and habit of flocking at fruiting trees where it may be easily shot by hunters;

NOTING WITH CONCERN that the wild population of the helmeted hornbill in Indonesia has been increasingly threatened since 2011 by poaching to supply demand for raw and carved casques, the source of 'hornbill ivory' or 'red ivory';

NOTING ALSO that this increase in poaching has been paralleled by an increase in demand for, and in the black market price of, hornbill ivory as a luxury collectable item in China and among Chinese consumers in Southeast Asia;

NOTING that, in response to recent large-scale poaching, the threat status of the species was formally upgraded in 2015 from Near Threatened to Critically Endangered on the IUCN Red List; **AWARE** that, as populations become depleted in Indonesia, poachers are likely to shift their attention to other range States;

NOTING IN ADDITION the work under the auspices of the IUCN Species Survival Commission through the Asian Species Action Partnership (ASAP), including the development of an Action Plan for the conservation of the helmeted hornbill;

CONCERNED that without urgent and integrated conservation and law enforcement measures, as well as coordinated efforts on the part of both consumer and range States, the species may be in imminent danger of extinction;

CONSCIOUS that effective enforcement, raising awareness of the issue, education and demand reduction, and cooperation with local communities are critically important complements to effective in situ conservation of the species, including control of large-scale poaching;

COMMENDING the initiatives by Indonesia to facilitate cooperation in conservation of the helmeted hornbill and to address illegal hunting of the species; and

RECOGNIZING, however, that strengthened technical cooperation among all relevant Parties, including range and actual or potential consumer States, as well as financial support, would contribute to more effective conservation of the helmeted hornbill;

THE CONFERENCE OF THE PARTIES TO THE CONVENTION

1. **URGES** all Parties, especially consumer and range States, to:

- a) adopt as a matter of urgency comprehensive legislation, enforcement controls and effective penalties, with the aim of prohibiting any hunting for helmeted hornbill, eliminating poaching of helmeted hornbill and illegal trade in its parts and derivatives;
- b) prohibit the display, domestic sale and acquisition of helmeted hornbill specimens, including online sales, including parts and derivatives, except for bona fide purposes, including conservation, scientific research, cultural activities, education and forensic investigation; Conf. 17.11 Conservation of and trade in helmeted hornbill Resolution Conf. 17.11 – 2
- c) designate highest legal protection status for the helmeted hornbill and, in relation to subparagraphs 1 a) to b) above, increase current enforcement efforts and prosecutions and address legislative and enforcement gaps;
- d) undertake cross-border cooperation between neighbouring range States for the management of contiguous habitat; strengthen enforcement controls, including anti-poaching measures in helmeted hornbill range States; collate and share information among law enforcement agencies and INTERPOL related to incidents of poaching, trafficking and illegal sale (including online sale), of helmeted hornbills and their parts and derivatives;
- e) monitor the impact of hunting pressure on hornbill populations;
- f) undertake public education campaigns to increase awareness of local people about the conservation of helmeted hornbill and its habitat, as well as to reduce demand for helmeted hornbill specimens, including parts and derivatives, and to promote awareness of applicable laws, particularly within the carving industry; and
- g) take any other steps necessary for helmeted hornbills range States to develop and implement the Action Plan for the conservation of the helmeted hornbill; and

2. **CALLS UPON** all governments, donor and funding organizations, and relevant intergovernmental and non-governmental organizations, as a matter of urgency, to support efforts to implement the Action Plan, eliminate poaching and illegal trade in helmeted hornbill, including by:

- a) providing funding to relevant Parties and, for the purposes of this Resolution, to the CITES Secretariat and other relevant partners of the International Consortium on Combating Wildlife Crime; and
- b) providing assistance with enforcement, training, capacity building and education, population monitoring, and the gathering and exchange of scientific, technical and legal information and expertise.

Source: <https://cites.org/sites/default/files/document/E-Res-17-11.pdf>. Accessed 9 November 2017.

CITES decisions 17.264 to 17.266, in SC69 Doc. 61: Illegal Trade in the Helmeted Hornbill

Decision 17.264

Directed to Parties: Range States and transit and consumer Parties should provide information to the Secretariat about their implementation of Resolution Conf. 17.11.

Decision 17.265

Directed to the Secretariat:

Subject to the availability of external funding, the Secretariat shall:

- a) consult the range States of the Helmeted Hornbill concerning their measures to conserve and protect this species, including relevant conservation actions, legal and regulatory measures, outreach and education activities, cross-border cooperation and actions to combat poaching and illegal trade;
- b) assist Parties to develop and implement measures, including legislative and enforcement measures and regional and sub-regional initiatives, to halt or reduce, and ultimately, eliminate illegal trade in helmeted hornbills;
- c) work closely with partners of the International Consortium on Combating Wildlife Crime (ICWC) to support the implementation of this Decision; and
- d) report to the Standing Committee on the implementation of this Decision.

Decision 17.266

Directed to the Standing Committee: The Standing Committee shall review the implementation of this Decision on the basis of the Secretariat's reports and report at the 18th meeting of the Conference of the Parties on the implementation of this Decision, with any recommendations for further action.

Extracted from: <https://cites.org/sites/default/files/eng/com/sc/69/E-SC69-61.pdf>. Accessed 25 November 2017.

APPENDIX IV.

Legal Protection of Helmeted Hornbill by Range, Key Consumer and/or Trade States

	Legislation	Protected status	Penalty for violation		
			Activity	Imprisonment	Fine
Range states					
Brunei	Wildlife Protection Act (1981)	Yes	Hunting, killing, capture or export	1 year	BND 2,000 (USD 1,417)
			Sale or possession	6 months	BND 1,000 (USD 708)
Indonesia	Conservation Act 5 (1990), Government regulation 7 (1999)	Yes	Capture, possession, destruction, trade, domestic transport or export	5 years	IDR 100 million (USD 7,490)
Malaysia	International Trade of Endangered Species Act (2008)	Yes	Import, export, transit and/or possession based on per animal, recognizable part or derivate of scheduled species - Individuals	7 years	For individuals - MYR 100,000 (USD 23,000) to MYR 1 million (USD 230,000); double fines for corporations
	Pen. Malaysia & Federal territories Wildlife Conservation Act (2010).	Yes	Any form of hunting, possession or trade, import or export	3 years	Male - MYR 100,000 (USD 23,000); Female/ juvenile - 3 times the fine
	Sabah Wildlife Conservation Enactment (1997)	Partially	Hunting allowed with license or based on quota. Violation results in penalty	6 months - 5 years	MYR 50,000 (USD 11,500) to MYR 100,000 (USD 23,000)
	Sarawak Wildlife Protection Ordinance (1998)	Yes	Any form of hunting, possession or trade, import or export	2 years	MYR 25,000 (USD 5,750)
Myanmar	Forest Department Notification No. 583/94 (revised 2014)	Partially	Possession as souvenir/worn as traditional custom requires registration with township forest department. Violation leads to penalty	7 years	MMK 50,000 (USD 36)
Thailand	Wild Animal Reservation and Protection Act B.E. 2535 (1992)	Yes	Hunting, possession and trade	2 years	THB 20,000 (USD 575)
			Import or export	4 years	THB 40,000 (USD 1,150)
Non-range states where significant levels of trade have been recorded					
Mainland China	Wild Animal Protection Law (2016). Classified as first-class protected species	Yes	Possession of goods (imprisonment calculated based on product market value)	5 - 10 years	None
Hong Kong	Protection of Endangered Species of Animals and Plants Ordinance (2006; revised 2015)	Yes	Any form of import or export by land/sea	2 years	HKD 5,000,000 (USD 640,000)
Lao PDR	Wildlife and Aquatic Law (2007)	No	Trade of non-native species not covered by national legislation	None	None

APPENDIX V.

List of Participants and Affiliations



Participants at the Helmeted Hornbill Action Planning Meeting in Kubah National Park, Sarawak, Malaysia - May 2017.

Credit: SANJITPAAL SINGH / JITSPICS.COM®

Below is the list of participants and their affiliations that were present at the action planning workshop and/or are members of HHWG -

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** Organising Committee

Could not attend the strategy planning workshop in May 2017

Workshop Programme and Process

An updated distribution map of the species and a status review, including details of trade and of current conservation projects for the species across its range, were compiled prior to the workshop.

On the first day of the workshop participants were introduced to CPSG's planning philosophy and workshop process, after which participants introduced themselves and explained to the group what they hoped to bring to the workshop. Following a series of brief, scene-setting presentations the group began work on a vision for the future of Helmeted Hornbills. Participants discussed and consolidated ideas and themes around an optimistic future for the species across its range. The conversation was designed to be inclusive, with participants beginning with their own thoughts and going on to share these with an increasingly wide circle of others. The output of this was four vision statements from which a small group of volunteers crafted both an aspirational vision statement and a corresponding set of operational goals. These were presented to the wider group for comment and revision until consensus was reached.

Issues relevant to securing the long-term viability of the Helmeted Hornbill were discussed by the group and a map of the main threats and obstacles was drawn indicating inter-relationships and underlying causes (**Figure A1**). From the issues generated, working groups were formed around the following themes: distribution, ecology and biology; habitat loss, fragmentation and degradation; trade-related law enforcement and policy; and disrupting the trade chain. These groups worked further on the issues relevant to their theme to produce for each: a clear description of the issue, of what causes it, its impact on the Helmeted Hornbill and an analysis of the state of knowledge about the issue – what is known about it, what is assumed and what needs to be known, to enable effective action to be taken. Each group set one or more objectives aimed at addressing the issues described, and recommended action steps or strategies for achieving those objectives. Working group discussions were punctuated by reporting sessions where groups came together to present and discuss their work with the wider group, ensuring regular cross-fertilisation of ideas and reducing unnecessary duplication.

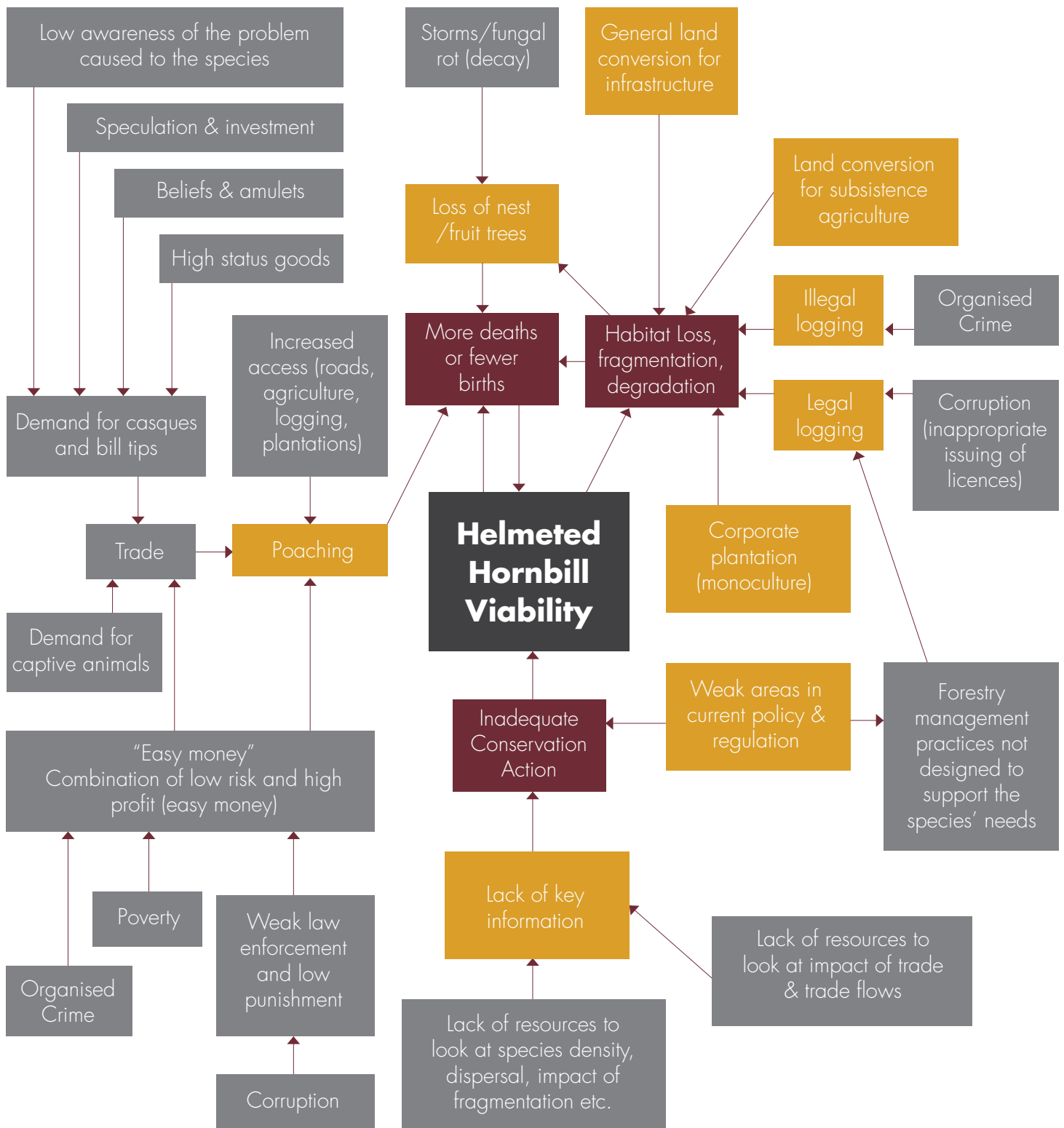
On the evening of the first day participants assembled to discuss possible structures for an implementing body for the Helmeted Hornbill conservation strategy and the consolidated results of these discussions were presented for approval by the group at the end of Day 2. Also during the final session on Day 2, participants used a simple “sticky dot” prioritisation system to identify the most important and most urgent objectives of the strategy (**Table A1, Appendix VII**), to ensure their emphasis in the resulting plan. An editing team was agreed, who would be responsible for documenting the agreed strategy. The group included both a representative from each working group and also a government representative from each country present.

Following the workshop, information on the status review was updated (see **Section 2**) and a representative team of editors developed the draft strategy and action plan for review by the wider group.



Credit: Yeap Chin Aik/MNS

Figure A1. Issues potentially impacting on the viability and conservation of Helmeted Hornbills, their underlying causes and inter-relationships (as identified by workshop participants).



Factors constraining population growth



Issues impacting population growth factors



Underlying causes of threats to population growth

APPENDIX VII.

Scored and Ranked Objectives on the Challenges to the Conservation of the Helmeted Hornbill

These objectives were developed by the working groups and prioritised according to their overall importance to, and urgency with which they need to be addressed, to facilitate effective Helmeted Hornbill conservation. The results of this prioritisation exercise are shown in **Table A1**.

Table A1: Prioritisation of participants scored objectives according to perceived importance and urgency for Helmeted Hornbill conservation.

Objective	Urgency score	Importance score	Combined Rank
Increase understanding of Helmeted Hornbill distribution and priority sites for the species	22	14	1 (36)
Prevent or eliminate poaching of Helmeted Hornbills through law enforcement and local empowerment	19	10	2 (29)
Improve Protected Area management	15	9	3 (24)
Disrupt transit from source to consumer by enhancing enforcement through pre-emptive deterrence measures and interventions, and through increased prosecution	15	8	4 (23)
Reduce consumption by implementing evidence-based behaviour change interventions for consumers	5	10	5 (15)
Increase understanding of Helmeted Hornbill abundance	4	11	5 (15)
Increase awareness and capacity (trade law enforcement and policy)	6	5	6 (11)
Make CITES work effectively in all countries	2	7	7 (9)
Understand land-use outside Protected Areas and its impact on Helmeted Hornbills	1	6	8 (7)
Increase understanding of Helmeted Hornbill biology	3	3	9 (6)
Optimise/enhance existing platforms for collaborations (trade law enforcement and policy)	1	4	10 (5)
Increase understanding of anthropogenic impacts on Helmeted Hornbills	1	4	10 (5)
Develop forensic networks	1	3	11 (4)
Develop or improve relevant regulations and management of non-Protected Areas for Helmeted Hornbills and ensure enforcement.	2	2	11 (4)
Ensure there is adequate legislation across all parties (trade law enforcement and policy)	0	1	12 (1)

Helmeted
Hornbill
Working Group

