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# Trade of 'captive-bred' birds from the Solomon Islands: a closer look at the global trade in hornbills

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**Abstract:** Southeast Asia is believed to be responsible for an estimated 25% of the global illegal wildlife trade, often involving organised criminal syndicates that spanning throughout Southeast Asia and beyond. Many of the species traded in Southeast Asia are sourced elsewhere before being laundered into the global market. This illegal trade is a major threat to many species of birds, and hornbills are no exception. Increasingly, the origins of species traded internationally are falsely declared. Often, specimens are declared as being captive-bred, when in fact the specimens are wild-caught. This form of fraud is difficult to detect and a lack of monitoring and expertise among enforcement agencies provides an opportunity for unscrupulous dealers to carry out this illegal trade undetected. The Papuan Hornbill *Aceros plicatus* does not lend itself for captive breeding at a commercial scale. In general, hornbills reproduce slowly, have relatively small clutch sizes and take a long time to mature. Yet relatively large volumes of this species have been exported from the Solomon Islands, via Southeast Asia, into the global market, with many of them being declared as captive-bred. From 2002 to 2010, close to 1000 Papuan Hornbills were imported from the Solomon Islands, with more than half being declared as captive-bred. The majority of the hornbills were exported to Singapore. This paper examines this trade, the claims of commercial captive breeding, and sheds light on the large-scale laundering of wild-caught hornbills and other bird species from the Solomon Islands into the global market place.

**Keywords:** *Aceros plicatus*, CITES, laundering, Papuan Hornbill, wildlife trade

## INTRODUCTION

The Papuan Hornbill *Rhyticeros (Aceros) plicatus* has the most easterly distribution of Asia's hornbills, occurring on many islands from the

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Moluccas of Indonesia, across the island of New Guinea and east to the Solomon Islands (Kinnaird and O'Brien 2007). This species is widespread but with a declining population and has been assessed in the IUCN Red List of Threatened Species as Least Concern (BirdLife International 2012). Subsistence hunting occurs in parts of its range (Marshall and Beehler 2007). Commercial trade is not mentioned as a threat to Papuan Hornbills in the IUCN Red List (BirdLife International 2012). It has been included in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) since 1992 (CITES 2013a).

In 2005, we became aware that CITES permits were sought by importers to allow the import of dozens of captive-bred Papuan Hornbills originating from the Solomon Islands into the European Union (EU).

With 177 signatory countries ('Parties'), CITES is the most important global initiative to monitor and regulate international trade of plants and animals. CITES regulates trade of nearly 35,000 species and has reduced threats associated with overharvest of imperilled species for international trade (Phelps et al. 2010). Species are included on one of three appendices, with Appendix I generally precluding trade and Appendix II and III allowing for the regulation of trade. International trade in specimens of Appendix II species is authorized by the granting of an export or re-export permit. CITES does not necessitate import permits for trade in Appendix II-listed species, but some Parties, including the EU Member States, require import permits as part of their stricter domestic measures.

In the case of the import and export of wild-caught CITES-listed species, a Non-Detriment Finding (NDF) should be made by the Scientific Authority (SA) of the exporting country, demonstrating that the trade is not detrimental to the wild population of that species. When dealing with captive-bred individuals an NDF is not needed but it needs to be clear that (a) the individuals are derived from a facility that indeed does produce at least second-generation offspring – that is offspring of parents that themselves were born in captivity and (b) that the individuals are indeed captive-bred and not, for instance, wild-caught or the results of eggs collected from the wild that were merely hatched in the facility.

All countries in the EU are Party to CITES but in 2005 the Solomon Islands were not (they became a Party in 2007). When a Party to CITES imports CITES-listed species from a Non-Party country, it is the responsibility of the SA of the importing country to verify that all CITES regulations are met (Note: The first author is a member of the Dutch Scientific Authority giving him privileged information about the import and export of CITES-listed species into the EU. While some of this information spurred us to do our research, all data collected were derived from publically available sources or were obtained through correspondence with relevant parties and individuals.).

## MATERIALS AND METHODS

We recently analysed the trade of birds from the Solomon Islands over the last decade (2000-2010), using information provided by Parties and from government officials of the Solomon Islands, and found that in that period tens of thousands of birds declared as 'captive-bred' were exported (Shepherd et al. 2012). Many of the species involved are difficult to breed, virtually impossibly so at a commercial scale. We also revealed that there were no commercial bird breeding facilities present in the archipelago, suggesting large scale laundering of wild-caught birds. Here we expand on this analysis by focusing on the international trade of hornbills from the Solomon Islands over a longer time period but putting this in a global context. The aim is to highlight the failings on the part of Parties at all stages of the trade chain, and to suggest a process of reappraisal of the rules and intentions of the export of captive-bred animals under CITES. The data are by and large derived from the CITES trade database (http://www.unep-wcmc-apps.org/citestrade/). Given that the Solomon Islands was not a Party to CITES for the majority of this period and only submitted their first annual report for 2008, all our analyses are based on data provided by importing Parties. To prevent double-counting, we exclude re-exports, viz. where one country imports hornbills only to export them to a third country.

## RESULTS AND DISCUSSION

### The hornbill trade from Solomon Islands in a global context

Over the period 1995 (the first record of the Solomon Islands exporting hornbills) to 2011 (the last year for which records are available, albeit incomplete) a total of 1080 Papuan Hornbills were imported from the Solomon Islands. To put this in context, over that period the entire international trade in CITES-listed hornbills (18 species exported from 22 countries) amounted to 1498 individuals. Thus for almost two decades the Solomon Islands dominated the global trade in hornbills, in most periods accounting for over 70 % of the exports (Figure 1).

The very high proportion of trade should have sent warning signs up the CITES chain of command, and should have led to individual Scientific Authorities from importing countries questioning this trade. However, more surprising than absolute numbers is the sheer number of hornbills declared as captive-bred that have been exported from the Solomon Islands.

**Trade in captive-bred hornbills**

All species of hornbills have a specialised breeding strategy, where the females seal themselves into a nest cavity and remains there until the eggs hatch and the chicks become well grown (Kinnaird and O'Brien 2007). During this period, the male provides food for the female and her offspring (Kinnaird and O'Brien 2007). Clutch sizes are typically small, between two to five eggs, and the period until fledging lasts between 10 to 20 weeks. While many zoos have been successful in breeding several species, it has never been in large numbers and it is difficult to see breeding hornbills as a viable commercial option.

Under CITES there are clear differences between captive-bred (source code C) and captive-born (source code F) stock. In brief, captive-bred refers to at least second generation offspring of parents bred in a controlled captive environment (or first generation offspring from a facility that is managed in a manner that has been demonstrated as capable of reliably producing second-generation offspring in a controlled environment); it does not include individuals born in captivity to wild-caught parents. Captive-born refers to individuals born in captivity to one or two wild-caught parents, *i.e*. the first generation of offspring born in a captive environment.

According to the CITES trade database, over two-thirds of the international trade in hornbills comprises captive-bred ('second generation offspring') individuals and less than 5% comprises captive-born ('first generation offspring') (CITES 2013b). If true, this indicates that breeders hold on to their first generation offspring, and only export progeny from subsequent generations, or at least that a large number of facilities have demonstrated that they are capable of producing second generation offspring. Apart from wild-caught hornbills, the Solomon Islands only ever exported captive-bred hornbills (no captive-born), 688 birds in total. This amounts to almost 70% of all captive-bred hornbill exports globally, greatly exceeding all other countries.

With respect to captive-bred or captive-born hornbills, while most countries in individual years export single birds or pairs (63% of transactions) the Solomon Islands are responsible for 10 out of 18 transactions involving 10 or more birds. In certain years the Solomon Islands exported 40, 50 and up to 480 captive-bred hornbills. The only other countries that claimed to be capable of breeding similar large numbers over this period were Singapore (80 birds exported in 2006, in other years one to seven birds were exported) and Ivory Coast (44 birds exported in 2005, no exports in other years) but these were isolated incidents (Shepherd et al. 2012).

**Where do all the hornbills go to and who are the major players**

Table 1 provides an overview of the global export of captive-bred individuals of the four most heavily traded species. It is evident that the number of Papuan Hornbills in trade exceeds that of the other species, with most of this trade deriving from the Solomon Islands. Singapore stands out as an important exporter, with significant numbers exported of each of the four species. It is also an important importer, again of all four species. It is relevant to note that these figures exclude re-exports (birds imported from one country and then exported to another).

Over the period 1995-2011 Singapore additionally re-exported six *R. undulatus* and 32 *R. plicatus*, almost all to Japan: this makes Singapore globally the largest re-exporter of hornbills. The EU countries are an important importer of captive-bred hornbills, although no single country stands out. The United Arab Emirates, however, does stand out as a significant importer of hornbills. Most of their imports come from Singapore, although in 2009 they imported 15 captive-bred *Aceros* hornbills (species not known) from Bahrain. Bahrain is not a Party to CITES and it is unclear how they obtained the founder population.

## CONCLUSION

We conclude that the dominant role of the Solomon Islands in the global trade of hornbills for over 15 years should have led to closer inspection of these exports. The fact that during this period the Solomon Islands were not a Party to CITES should have made this a priority.

The export of large numbers of second generation captive-bred hornbills (source code C) relative to the number of first generation captive-born (source code F) may indicate that captive-born or wild-caught hornbills were being falsely declared and exported as captive-bred.

The Scientific Authorities of all hornbill exporting countries, especially those exporting significant numbers of hornbills, such as Ivory Coast, Singapore and the Philippines should ensure that a proper NDF has been made, regardless of whether the birds are claimed to be captive-bred of wild caught. In the case of claimed captive-bred birds, they should determine whether captive breeding has indeed taken place, and that wild-caught birds are not being laundered into the international trade, falsely declared as being captive-bred.

Singapore's role as a major importer of captive-bred and wild-caught hornbills, as a re-exporter of captive-bred and wild-caught hornbills, and as an exporter of captive-bred hornbills, with birds originating from a

wide range of locations (Solomon Islands, Taiwan, Ivory Coast) stands out. Given Singapore's prominence in the global hornbill trade, the SA of Singapore perhaps could have been more cautious in allowing the flow of hornbills through their territory. Imports from unlikely source countries for second-generation captive-bred Asian hornbills, such as Ivory Coast, should have been scrutinised to make sure they indeed did conform to the rules and intentions of CITES.

As major importers, the EU and the United Arab Emirates should have been more prudent in checking the origin of the birds they imported. Especially imports from non-CITES Parties, such as the Solomon Islands prior to 2005 and Bahrain need to be accompanied with all relevant documentation.

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**Table 1.** Global exports of captive-bred hornbills over the period 1995-2011. Listed are the four most heavily traded species, the main exporters and the main importers. Between brackets is the proportion of captive-bred individuals declared in the imports. All data were obtained from the importing countries, excluding re-exports. Range countries are underlined, noting that *A. corrugatus* and *B. rhinoceros* have become extinct from Singapore.

| Species | Total | Main exporters | Total | Main importers | Total |
|---|---|---|---|---|---|
| *Rhyticeros plicatus* | 780 (62) | Solomon Islands | 688 (64) | Singapore | 640 (72) |
| | | | | EU | 156 (9) |
| | | | | South Africa | 34 (100) |
| | | Singapore | 30 (100) | United Arab Emirates | 30 (100) |
| | | Philippines | 13 (100) | United Arab Emirates | 13 (100) |
| *Aceros corrugatus* | 85 (88) | Singapore | 41 (100) | United Arab Emirates | 30 (100) |
| | | | | EU | 11 (100) |
| | | Ivory Coast | 20 (100) | Singapore | 20 (100) |
| | | Philippines | 18 (100) | EU | 18 (100) |
| *Buceros rhinoceros* | 41 (84) | Ivory Coast | 12 (100) | Singapore | 12 (100) |
| | | Indonesia | 8 (100) | Sri Lanka | 8 (100) |
| | | Singapore | 8 (100) | United Arab Emirates | 8 (100) |
| *Rhyticeros undulatus* | 42 (91) | Singapore | 27 (100) | United Arab Emirates | 20 (100) |
| | | Taiwan | 6 (100) | Singapore | 6 (100) |

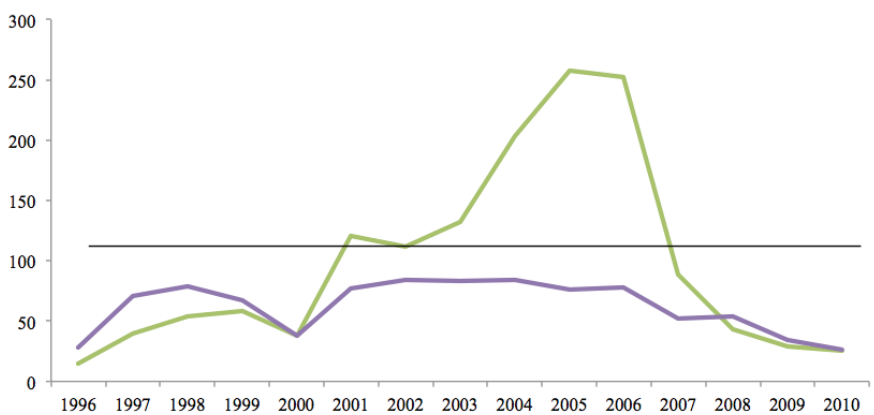


**Figure 1.** Global international trade in CITES-listed hornbills (3-year running mean, data from importing countries) showing the total number of individuals (green) and the percentage of this comprising imports from the Solomon Islands (purple): mostly the Solomon Islands account for over 70% of the global trade in hornbills. The horizontal line indicates the 100% mark.