



Metadata

Sources

The data presented in the Hornbills in Trade Database (HiTDB) has been carefully compiled from a wide range of data sources, including peer-reviewed literature, published and unpublished trade notes by professionals in the fields of ornithology, aviculture and conservation, direct online and physical trade observations, and expert opinion. It includes all species in the Bucerotiformes order (hornbills, ground hornbills, hoopoes and woodhoopoes). Only trade records from 2006 onwards were included in the HiTDB dataset. This was done to enable the analysis of recent trade trends and to provide an up-to-date presentation of the changed trade landscape since the implementation of the EU import ban on wild birds in 2005. All used sources are indicated in the HiTDB search results and can be accessed in the 'References' document on the HiTDB website.

The HiTDB covers data pertaining to the trade of live hornbills and their derivatives such as bills, meat, and skins. It indicates species' presence in trade but does not specify trade volumes. Instead, it estimates the conservation concern based on known trade volumes.

If you have any questions regarding the HiTDB methodology and sources, feel free to contact us through the contact form on the HiTDB website or directly at info@hitdb.org.

Variables

The HiTDB includes several different variables that should be interpreted as follows:

Common names: all English species names follow the HBW and BirdLife Taxonomic Checklist Version 7.0, available at: <http://datazone.birdlife.org/species/taxonomy>.

Scientific names: all scientific species names follow the HBW and BirdLife Taxonomic Checklist Version 7.0, available at: <http://datazone.birdlife.org/species/taxonomy>.

IUCN Red List status: indicates a species' current conservation status according to the IUCN Red List of Threatened Species, available at: <https://www.iucnredlist.org/>. Comprises the following classifications: LC = Least Concern; NT = Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered; CR(PE) = Critically Endangered - Possibly Extinct; EX = Extinct; DD = Data Deficient; NE = Not Evaluated.

CITES status: indicates a species' current status under the Convention on International Trade of Endangered Species of Fauna and Flora (CITES). For more information on CITES and its appendices, see <https://cites.org/>. Comprises the following classifications: Appendix I; Appendix II; Appendix III (<country of listing>), not listed.

Trade evidence: Indicates if any trade (domestic and/or international) has been recorded for a species since 2006. Records may concern wild-caught or captive-bred birds. Comprises the following categories: "yes"; "possible"; "no".

- **yes:** there are known domestic or international trade records for the species since 2006.

- **possible:** there have not been domestic or international trade records for the species since 2006, but unrecorded trade may exist based on: 1. the fact that the species has shortly before 2006 been present in domestic and/or international trade; 2. indications of demand for the species; or both.
- **no:** there are no known current or recent (including before 2006) domestic or international trade records for the species.

Commodity: in case of evidence of trade (domestic and/or international), this variable indicates the commodity type(s) traded. Comprises (any given combination of) the following categories: "**bill**", "**live**", "**meat**", "**skin**"; "**unspecified**".

- **bill:** whole bills or any products derived from bills.
- **live:** live animals.
- **meat:** meat for human consumption.
- **skin:** whole skins or any products derived from skins.
- **unspecified:** traded commodity type not specified in available data sources.

Proportion wild-caught: in case of evidence of trade (domestic and/or international), this variable indicates the estimated proportion of wild-caught individuals in trade for a species. Estimations are based on direct observations and/or expert opinion. Comprises the following categories: "**all**"; "**majority**"; "**minority**"; "**none**"; "**unknown**".

- **all:** 100%; all recorded domestic and/or international trade in the species involves wild-caught individuals and no known captive breeding is known to occur.
- **majority:** >50%; most recorded domestic and/or international trade in the species involves individuals of wild-caught origin but some captive breeding is known to occur.
- **minority:** <50%; most recorded domestic and/or international trade in the species involves captive-bred individuals but some capture of wild birds is known to occur.
- **none:** 0%; all recorded domestic and/or international trade in the species involves captive-bred individuals and no known capture of wild birds is known to occur.
- **unknown:** no reliable estimation can be made at this time.
- **n.a.:** not applicable for this species.

Conservation concern due to domestic trade: in case of evidence of domestic trade, this variable indicates the estimated threat level of such trade to a species' conservation status and survival in the wild. Estimated threat levels are based on a combined assessment of a species' current population status, IUCN Red List of Threatened Species classification, recorded trade volumes, and expert opinion. Comprises the following categories: "**low**"; "**moderate**"; "**high**"; "**extreme**"; "**unknown**".

- **low:** recorded domestic trade levels are unlikely to pose a threat to the species' conservation status and survival in the wild.
- **moderate:** recorded domestic trade levels may pose a threat to the species' conservation status and may (in the future) pose a threat to the species' survival in the wild, especially where it concerns local or regional populations.
- **high:** recorded domestic trade levels are likely to pose a threat to a species' conservation status and survival in the wild.
- **extreme:** recorded domestic trade levels pose a serious and immediate threat to a species' conservation status and survival in the wild.
- **unknown:** no reliable estimation can be made at this time.
- **n.a.:** not applicable for this species.

Conservation concern due to international trade: in case of evidence of international trade, this variable indicates the estimated threat level of such trade to a species' conservation and survival in the wild. Estimated threat levels are based on a combined assessment of a species' current population status, IUCN Red List of Threatened Species classification, recorded trade volumes, and expert opinion. Comprises the following categories: "**low**"; "**moderate**"; "**high**"; "**extreme**"; "**unknown**".

- **low:** recorded international trade levels are unlikely to pose a threat to the species' conservation status and survival in the wild.
- **moderate:** recorded international trade levels may pose a threat to the species' conservation status and may (in the future) pose a threat to the species' survival in the wild, especially where it concerns local or regional populations.
- **high:** recorded international trade levels are likely to pose a threat to a species' conservation status and survival in the wild.
- **extreme:** recorded international trade levels pose a serious and immediate threat to a species' conservation status and survival in the wild.
- **unknown:** no reliable estimation can be made at this time.
- **n.a.:** not applicable for this species.

Reported population declines due to trade: in case of evidence of trade (domestic and/or international), this variable indicates if there is published peer-reviewed literature in which it is stated that such trade has a negative effect on the wild populations of a species. Comprises the following categories: "**yes**", "**no**", "**no, but plausible**".

- **yes:** published peer-reviewed literature that mentions domestic and/or international trade as a reason for wild population declines has been found.

- **no:** published peer-reviewed literature that mentions domestic and/or international trade as a reason for wild population declines has not been found.
- **no, but plausible:** published peer-reviewed literature that mentions domestic and/or international trade as a reason for wild population declines has not been found, but the species in question is classified as globally threatened according to the IUCN Red List and trade is considered a conservation concern (see "**conservation concern due to domestic trade**" and see "**conservation concern due to international trade**" variables above).
- **n.a.:** not applicable for this species.

Level of difficulty of captive breeding: indicates the extent to which a species can be reliably bred in captivity. Assessments are based on expert knowledge, personal observations of zookeepers and private breeders, and published literature. Assessments include practical as well as technical considerations. Comprises the following categories: "**very hard**"; "**hard**"; "**normal**"; "**easy**"; "**unknown**".

- **very hard:** breeding success is non-existent or occasional (unrepeated or inconsistent).
- **hard:** breeding success is possible in specialised settings and with considerable effort or resources.
- **normal:** consistent breeding success is possible with normal effort.
- **easy:** consistent breeding success is possible with little effort.
- **unknown:** no reliable assessment can be made at this time.

Captive breeding effort: indicates the nature of known captive breeding efforts for a species. Without a coordinated breeding plan, the maximisation of genetic diversity and demographic stability of a population cannot be ensured. Assessments are based on expert knowledge. Comprises the following categories: "**coordinated**"; "**frequent**"; "**irregular**"; "**rare**"; "**unknown**".

- **coordinated:** well established coordinated captive breeding programme with planning for commercial-, and sometimes conservation-, purposes.
- **frequent:** frequent uncoordinated commercial and/or hobbyist captive breeding, with steady (seasonal) availability.
- **irregular:** repeated uncoordinated commercial and/or hobbyist breeding, with significantly fluctuating but reoccurring availability over time.
- **rare:** rare and opportunistic commercial and/or hobbyist breeding, often over limited time, with low or no availability.
- **unknown:** no reliable assessment can be made at this time.

Selective breeding for altered phenotypes: indicates the presence of active selective breeding for altered phenotypes (abnormal size and/or colour morphs not regularly found in nature) in the captive population of a species. Individual spontaneous mutations are not considered relevant here. Assessments are based on expert knowledge, trade records, and published literature. Comprises the following categories: "yes"; "no"

- **yes:** selective breeding for altered phenotypes has been recorded.
- **no:** selective breeding for altered phenotypes has not been recorded.

Subspecies in trade: indicates subspecies in trade (domestic and/or international). Only subspecies for which explicit trade evidence exists are included. Comprises the following categories: "<subspecies name(s)>", "no"

- **<subspecies name(s)>:** displayed subspecies are known to be in trade.
- **no:** no subspecies-level trade data is currently available.
- **n.a.:** not applicable for this species (species not in trade or monotypic).

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