

AMENDMENTS TO APPENDICES I AND II OF THE CONVENTION

Other Proposals

A. PROPOSAL

Inclusion of *Aceros* spp. [including *A. comatus* (= *Berenicornis comatus* according to Morony *et al.* 1975)], *Anorrhinus* spp., *Anthracoceros* spp., *Buceros* spp., *Penelopides* spp. and *Ptilolaemus* spp. in Appendix II.

B. PROPONENT

The Netherlands.

C. SUPPORTING STATEMENT

1. Taxonomy

11. Class: Aves

12. Order: Coraciiformes

13. Family: Bucerotidae

14. Species: A list of the Australasian species of the genera mentioned in the proposal is given below, together with their common names (English, French, German and, if available, Spanish, respectively). Scientific nomenclature follows Morony *et al.* (1975). Some changes in generic names as proposed by Kemp (1988) and Kemp & Crowe (1985) are given in brackets. Arrangement of *Anthracoceros* ('pieb hornbills') follows the revision of Frith & Frith (1983). A full account of the subspecies recognized is given in annex 1.

Australasian species of the genera *Aceros*, *Anorrhinus*, *Anthracoceros*, *Buceros*, *Penelopides* and *Ptilolaemus*.

(NB: *Aceros narcondami*, *Buceros rhinoceros*, *B. bicornis*, *B. hydrocorax hydrocorax* (all on Appendix II) and *Buceros bicornis homrai* and *Rhinoplax vigil* (Appendix I) are already on CITES appendices and are not further treated in this proposal).

Aceros cassidix (Temminck, 1823)

Celebes hornbill (knobbed hornbill);
calao à cimier; calao de Célèbes;
Helmhornvogel

<i>Aceros corrugatus</i> (Temminck, 1832)	wrinkled hornbill; calao à casque rouge; calao de pico rugosa; Runzelhornvogel
<i>Aceros everetti</i> (Rothschild, 1897)	Everett's hornbill (Sumba hornbill); calao de Sumbal; Sumbahornvogel
<i>Aceros leucocephalus</i> (Vieillot, 1816)	white-headed hornbill (writhed-billed hornbill); calao de Vieillot; Mindanaohornvogel
<i>Aceros nipalensis</i> (Hodgson, 1829)	rufous-necked hornbill; calao à cou roux; Nepalhornvogel
<i>Aceros plicatus</i> (J. R. Forster, 1781)	Blyth's hornbill (Papuan hornbill); calao papou; calao de Papouasie; Papuajahrvogel
<i>Aceros undulatus</i> (Shaw, 1811)	wreathed hornbill; calao festonné; calao de pico surco; Furchenjahrvogel
<i>Anorrhinus galeritus</i> (Temminck, 1831)	bushy-crested hornbill; calao largup; Kurzschofphornvogel
<i>Anthracoceros malayanus</i> (Raffles, 1822)	Malay back hornbill; calao charbonnier; Malaïenhornvogel
<i>Anthracoceros coronatus</i> (Boddaert, 1783)	Indian pied hornbill (Malabar pied hornbill); calao de Malabar; Malabarhornvogel
<i>Anthracoceros albirostris</i> (Shaw & Nodder, 1807)	pied hornbill; calao pie
<i>Anthracoceros montani</i> (Oustalet, 1880)	Sula hornbill (Sulu hornbill); calao de Sulu; Suluhornvogel
<i>Anthracoceros marchei</i> Oustalet, 1885	Palawan hornbill; calao de Palawan; Palawanhornvogel
<i>Berenicornis comatus</i> (Raffles, 1822) (= <i>Aceros comatus</i>)	white-crowned hornbill (long-crested hornbill); calao coiffé; calao de cresta blanca; Langschofphornvogel
<i>Buceros hydrocorax</i> Linnaeus, 1766	rufous hornbill; calao à casque plat; Feuerhornvogel (only subspecies <i>B. h. hydrocorax</i> already in Appendix II)
<i>Penelopides exarhatus</i> (Temminck, 1823)	Temminck's hornbill (Sulawesi hornbill); calao à cannelures; calao de cara amarilla; Celebeshornvogel
<i>Penelopides panini</i> (Boddaert, 1783)	rufous-tailed hornbill (Tarictic hornbill); calao de Manille; calao de Tarictic; Tarikthornvogel
<i>Ptilolaemus tickelli</i> (Blyth, 1855) (= <i>Anorrhinus tickelli</i>)	brown hornbill (brown-backed hornbill, Tickell's hornbill); calao brun; Rostbauchhornvogel (Tokhornvogel)

2. Biological Data

21. General Distribution: The Australasian Bucerotidae occur in India, all countries of continental SE-Asia (marginally north to China), Indonesia, Philippines, Papua New Guinea (including Bismarck Archipelago), and further east to the Solomon Islands. For details on species' distribution, see below under 25.

22. Habitat and Food: All Australasian species live in forests; most are largely frugivorous birds depending on differential fructification of large trees. Especially the larger species use large foraging areas, family groups covering great distances during the year but also on one day (e.g. *Aceros undulatus*, Kemp & Kemp, 1975). In addition, insects and small reptiles and amphibians are also taken. (Sanft, 1960; Kemp, 1979.)
23. Reproduction: All Australasian hornbills nest in natural holes in trees (sometimes in rocks). The nest entrance is sealed with mud except for a narrow vertical slit; the female remains in the nest, breeding and moulting flight feathers while being fed by the male through the slit. Hence, hornbills are dependant on the availability of large trees for their nests, so felling and logging directly influences the distribution and occurrence of these birds. The larger species usually have clutches of 2 eggs; often only one chick survives. Breeding takes c. 1-2 months. In dry areas, breeding usually occurs during rain-periods, in forest areas breeding cycles are usually not related to a particular period but are often associated with fruiting periods of food-trees. (Sanft, 1960; Kemp, 1979.)
24. Population: For details for species, see 25.

Data are scarce, for some species lacking altogether. Most species are confined to lowland tropical forest and are dependent on year-round cycle of various fruiting trees. Populations occur usually in low densities. In Thailand, of the 13 taxa all but one (status undetermined) are either vulnerable, threatened or endangered (Round, 1988; Poonswad & Tsuji, 1989). In Peninsular Malaysia, though most species are present in all states, distribution is very scattered, and birds are only observed in small groups. Hence, overall density of all species is low (Siti Hawa Yatim, in litt.). In Malaysia (Sarawak), populations of all eight species are substantially declining through the destruction of their forest habitat (Francis Gombek, in litt.). In Indonesia, all species are listed as rare by Hadipoetranto (in litt.). Seven species are listed on the 'ICBP World checklist of threatened birds' (Collar & Andrew, 1988) and 'IUCN Red list of threatened animals' (IUCN, 1990). Two of these are already in CITES appendices (*Aceros narcondami* and *Rhinoplax vigil*); the remaining five are *Aceros corrugatus*, *A. everetti*, *A. nipalensis*, *A. subruficollis* (here still considered as a race of *A. plicatus*) and *Anthracoceros montani*.

25. Details on Distribution, Habitat and Population per Species: For a full account of subspecies recognized, see Annex 1.

Aceros cassidix (Temminck, 1823)

Distribution: Indonesia (Sulawesi) (*cassidix*); Indonesia (Butung and Muna, off southern (Sulawesi)(*brevirostris*).

Habitat: Lowlands to 1000 m; tall rainforest on Sulawesi, woodland patches on Butung and Muna.

Population: Indicated as common in central Sulawesi by White & Bruce (1986).

Aceros corrugatus (Temminck, 1832)

Distribution: Brunei Darussalam, Indonesia (Kalimantan), Malaysia (Sabah and Sarawak) (*corrugatus*); Indonesia (Sumatra and Batu islands), Malaysia, Thailand (*megistus*).

Habitat: Resident in forests at low altitudes, mostly coastal forests.

Population: Close to extinction in Thailand, local in Peninsular Malaysia, scarce and local or rare on Borneo (Brunei, Indonesia and Malaysia); common on Sumatra but as bird of lowland forest vulnerable to deforestation, and listed as rare by Hadipoetranto (in litt.) and Suwelo & Martodihardjo (1991) (Kemp & Kemp 1975; Wells, 1985; Collar & Andrew, 1988; Round, 1988; Poonswad & Tsuji, 1989; Laurentius Ambu, in litt.). Listed on ICBP list of threatened birds (Collar & Andrew, 1988), on the 'NCC World checklist of threatened birds' (Norton *et al.*, 1990) and on the 'IUCN Red list of threatened animals' (IUCN, 1990).

Aceros everetti (Rothschild, 1897)

Distribution: Indonesia (Sumba).

Habitat: Primary forests.

Population: Restricted to a few remaining wood areas on the island of Sumba. Local and uncommon (White & Bruce, 1986) and listed as vulnerable by Suwelo & Martodihardjo (1991). Due to the very restricted range certainly to be considered at risk. Listed on ICBP list of threatened birds (Collar & Andrew, 1988), on the 'NCC World checklist of threatened birds' (Norton *et al.*, 1990) and on the 'IUCN Red list of threatened animals' (IUCN, 1990).

Aceros leucocephalus (Vieillot, 1816)

Distribution: Philippines (Camiguin, Mindanao) (*leucocephalus*); Philippines (Panay, Guimaras, Negros) (*waldeni*).

Habitat: Primary forests, usually above 800 m.

Population: Still considered fairly common in forests by Dickinson *et al.* (1991) but in view of the deplorable situation of lowland evergreen forests in the Philippines (Dickinson *et al.* 1991), this species may certainly be considered at risk.

Aceros nipalensis (Hodgson, 1829)

Distribution: China (south-west), India (Assam), Lao PDR, Myanmar, Nepal (probably extinct), Thailand, Viet Nam.

Habitat: Resident in forests, above 3000 ft.

Population: Probably extinct from its type locality in Nepal (Inskipp & Inskipp, 1985). In India, formerly widespread, now declining (Ali & Ripley, 1984). In Thailand, restricted to two forest reserves in the south-western part of the country (Round, 1988), status threatened (Round, 1988; Poonswad & Tsuji, 1989). Listed on ICBP list of threatened birds (Collar & Andrew, 1988), on the 'NCC World checklist of threatened birds' (Norton *et al.*, 1990) and on the 'IUCN Red list of threatened animals' (IUCN, 1990).

Aceros plicatus (J. R. Forster, 1781)

Distribution: Indonesia: Ceram and Ambon (*plicatus*), northern Moluccas, north-western Irian Jaya (*ruficollis*). Papua New Guinea: mainland (*jungei*), Bismarck Archipelago (*dampieri*), Bougainville and Buka (*harterti*). Solomon Islands: Shortland islands (*harterti*), eastern Solomon Islands (*mendanae*).

A. (p.) subruficollis occurs in Indonesia (Sumatra, Kalimantan), Malaysia (peninsula), Myanmar (south) and Thailand (south-west).

Habitat: Resident in primary forests up to 3000 ft.

Population. Used to be common in New Guinea (Rand & Gilliard, 1967) but now uncommon to rare in many areas because of extensive hunting pressure (Coates, 1985). In Indonesia, all subspecies listed as rare (Hadipoetranto, in litt.) or uncommon (Suwelo & Martodihardjo, 1991). Common on New Britain (*dampieri*) (Orenstein, 1976). Status of *A. (p.) subruficollis* is not well known as this taxon only recently has been split and properly defined (cf Kemp, 1988). It is listed on the IUCN Red List as indeterminate (IUCN, 1990) and it is listed on the 'NCC World checklist of threatened birds' (Norton *et al.*, 1990). In Indonesia, this taxon is also listed as indeterminate (Suwelo & Martodihardjo, 1991). In Thailand, however, *A. (p.) subruficollis* is considered threatened (Round, 1988; Poonswad & Tsuji, 1989). In Malaysia (peninsula), although regularly seen in the past, this species has not been observed for some time (Siti Hawa Yatim, in litt.).

Aceros undulatus (Shaw, 1811)

Distribution: Indonesia (Sumatra, Java, Bali), Malaysia (central and southern peninsula) (*undulatus*); China (south-west), India, Kampuchea, Lao PDR, Malaysia (northern peninsula), Myanmar, Thailand, Viet Nam (*ticehursti*); Brunei Darussalam, Indonesia (Kalimantan), Malaysia (Sabah and Sarawak) (*aequabilis*).

Habitat: Lowland and hill forests.

Population: In India not uncommon but heavily persecuted (Ali & Ripley, 1970). In Thailand status vulnerable (Round, 1988; Poonswad & Tsuji, 1989). On Java and Bali very local and restricted (MacKinnon, 1990; Suwelo & Martodihardjo, 1991). On the island of Borneo (Brunei, Indonesia and Malaysia)

scarce, sometimes locally common (Smythies, 1968; Kemp & Kemp, 1975), in Sabah declining (Laurentius Ambu, in litt.). On Sumatra, Kalimantan, Java and Bali listed as rare by Hadipoetranto (in litt.).

Anorrhinus galeritus (Temminck, 1831)

Distribution: Brunei Darussalam, Indonesia (Sumatra, Kalimantan, Natuna islands), Malaysia (peninsula, Sabah and Sarawak), Myanmar (Tenasserim), Thailand (peninsula).

Habitat: Resident in forests, up to 4000 ft.

Population. In Thailand status vulnerable (Round, 1988; Poonswad & Tsuji, 1989). On Borneo (Brunei, Indonesia and Malaysia) formerly widely distributed (most abundant hornbill of lowland forest according to Smythies (1968), Gore (1968), Kemp & Kemp, 1975), now in Sabah, Kalimantan and on Sumatra rare and declining (Laurentius Ambu, in litt.; Hadipoetranto, in litt.) or uncommon (Suwelo & Martodihardjo, 1991).

The arrangement of the genus *Anthracoceros* follows the revision of Frith & Frith (1983), which has important consequences for the treatment of *A. albirostris*, *A. coronatus* and '*A. malabaricus*'. See for further details Annex 1.

Anthracoceros albirostris (Shaw & Nodder, 1807)

Distribution: Bangladesh, China (south-east), India (Himalayan foothills, eastern Bengal, Assam), Kampuchea, Lao PDR, Malaysia (northern peninsula), Myanmar, Nepal, Thailand, Viet Nam; also Mergui archipelago (to Myanmar), Phuket, Terutau and Pulau Batang (to Thailand), Langkawi (to Malaysia) (*albirostris*); Indonesia (Tambelan islands, Sumatra, Rhio archipelago, Mansalar islands, Mentawai islands, Batu islands, Pagi islands, Nias, Java, Kalimantan, northern Natuna islands), Malaysia (southern peninsula, Sabah and Sarawak), Singapore, Thailand (extreme south) (*convexus*).

Habitat: Secondary, usual coastal forest. Sometimes primary forest.

Population: In Nepal, declining through forest destruction (Inskipp & Inskipp, 1985). In Thailand status vulnerable (Poonswad & Tsuji, 1989). On Borneo (Brunei, Indonesia and Malaysia) uncommon (Smythies, 1968), vulnerable (Kemp & Kemp, 1975) and declining (Laurentius Ambu, in litt.), on Kalimantan, Sumatra and Java rare according to Hadipoetranto (in litt.).

Anthracoceros coronatus (Boddaert, 1783) [= *A. malabaricus* (Gmelin, 1788)]

Distribution: India (centre and west), Sri Lanka.

Habitat: Forests of low altitudes.

Population: No data available.

Anthracoceros malayanus (Raffles, 1822)

Distribution: Indonesia (Sumatra, Bangka and Belitung islands, Kalimantan), Malaysia (peninsula, Sabah and Sarawak), Thailand (southern peninsula).

Habitat: Resident in forests, low altitudes.

Population: In Thailand status threatened (Round, 1988; Poonswad & Tsuji, 1989). In Indonesia (Kalimantan and Sumatra) rare (Hadipoetranto, in litt.). In Malaysia (Sabah) declining (Laurentius Ambu, in litt.).

Anthracoceros marchei Oustalet, 1885

Distribution: Philippines (Calamian, Palawan, Balabac, Busuanga).

Habitat: Primary forests.

Population: Still considered common in forests by Dickinson *et al.* (1991) but in view of the deplorable situation of lowland evergreen forests in the Philippines (Dickinson *et al.*, 1991) and the restricted island range, this species is certainly at risk.

Anthracoceros montani (Oustalet, 1880)

Distribution: Philippines (Jolo, Tawitawi).

Habitat: Hill forests.

Population: Restricted to two island groups. Probably common in interior parts of islands but in view of the restricted island range, the species is very vulnerable to deforestation and as the situation of lowland evergreen forests in the Philippines is very deplorable (Dickinson *et al.*, 1991), this species is certainly to be considered at risk. Listed on ICBP list of threatened birds (Collar & Andrew, 1988), on the 'NCC World checklist of threatened birds' (Norton *et al.*, 1990) and on the 'IUCN Red list of threatened animals' (IUCN, 1990). Also listed as threatened by Miranda (1989).

Berenicornis comatus (Raffles, 1822) (= *Aceros comatus*)

Distribution: Indonesia (Sumatra, Kalimantan), Malaysia (peninsula, Sabah and Sarawak), Myanmar (southern Tenasserim), Thailand (peninsula), Viet Nam.

Habitat: Resident in primary forests at low elevations, sometimes higher.

Population: In Thailand status vulnerable (Round, 1988; Poonswad & Tsuji, 1989). On Borneo (Brunei, Indonesia and Malaysia) widely distributed but scarce and not often seen (Smythies, 1968; Gore, 1968; Kemp & Kemp, 1975), now on Sabah, Sarawak, Kalimantan and Sumatra rare and declining (Laurentius Ambu, in litt., Hadipoetranto, in litt., Suwelo & Martodihardjo, 1991).

Buceros hydrocorax Linnaeus, 1766 (the subspecies *B. h. hydrocorax* is already listed in CITES Appendix 1)

Distribution: Philippines: Luzon, Marinduque (*hydrocorax*), Samar, Leyte, Bohol, Panaon (*semigaleatus*), Mindanao (*mindanensis*), Basilan (*basilanicus*).

Habitat: Forests from sea level up to 1500 m.

Population: Still considered common in forests by Dickinson *et al.* (1991) but in view of the deplorable situation of lowland evergreen forests in the Philippines (Dickinson, *et al.*, 1991), this species may certainly be considered at risk. The subspecies *B. h. hydrocorax* is listed on the 'NCC World checklist of threatened birds' (Norton *et al.*, 1990)

Penelopides exarhatus (Temminck, 1823)

Distribution: Indonesia: northern Sulawesi (*exarhatus*), central, southern and south-eastern Sulawesi (*sanfordi*).

Habitat: Lowlands up to 1100 m, in lower forests.

Population: Common according to White & Bruce (1986). Hadipoetranto (, in litt.) lists both subspecies as rare.

Penelopides panini (Boddaert, 1783)

Distribution: Philippines: Masbate, Panay, Guimaras, Negros (*panini*), Ticao (*ticaensis*), Samar, Leyte, Bohol (*samarensis*), Dinagat, Mindanao (*affinis*), Basilan (*basilanica*), Mindoro (*mindorensis*); Luzon, Marinduque (*manillae*), Polillo (*subnigra*).

Habitat: Tropical lowland rainforest up to 1000 m.

Population: Still considered fairly common in forests by Dickinson *et al.*, (1991) but in view of the deplorable situation of lowland evergreen forests in the Philippines (Dickinson *et al.*, 1991), this species may certainly be considered at risk.

Ptilolaemus tickelli (Blyth, 1855) (= *Anorrhinus tickelli*)

Distribution: Myanmar (Tenasserim), Thailand (north- and south-west) (*tickelli*); China (south-west), India (Assam), Lao PDR, Myanmar (east), Thailand, Viet Nam (*austeni*).

Habitat: Resident in forests, up to 6000 ft.

Population: In India within range not uncommon (Ali & Ripley, 1970). In Thailand status vulnerable (Round, 1988; Poonswad & Tsuji, 1989).

3. Trade Data

31. National Utilization:

Aceros cassidix: Skull and helmet are used in some areas of Sulawesi (Indonesia) for decorative purposes (White & Bruce, 1986).

Aceros everetti: Birds are often trapped and offered for sale at local hotels on Sumba (Indonesia) (Collar & Andrew, 1988).

Aceros plicatus: Bill is valued as adornment by some tribal groups on the island of New Guinea (Coates, 1985).

Aceros undulatus: In India persecuted everywhere for food and feathers (Ali & Ripley, 1970).

Anthracoceros coronatus. Taken as nestling to be reared as pet in India (Ali & Ripley, 1970).

Anthracoceros malayanus: Kept as a pet on Borneo (Indonesia/Malaysia) (Smythies, 1968).

In Peninsular Malaysia, hornbills are hunted illegally for food and casques, and feathers used for ornaments or fetishes (Siti Hawa Yatim, in litt.).

32. Legal International Trade: Australasian hornbills are legally protected in many of their countries of origin. To appear in legal international trade, licences would be required for all species exported from these countries (see 41). As only five (sub)species are listed in the appendices to CITES, it is not possible to verify whether these licences were in fact obtained by the exporters of these birds. A very incomplete survey of European, American and Asian animal traders revealed that at least 11 taxa of Australasian hornbills were recently offered for sale worldwide (Koen Brouwer, in litt., own data): *Berenicornis comatus* (some in 1990, more than 10 early 1991), *Ptilolaemus tickelli*, *Penelopides panini* (present with traders in Singapore during 1987-1991), *P. panini manillae*, *P. exharatus*, *Aceros corrugatus* (more than 100 in 1990/91; a trader in Singapore had c. 50 birds in June 1991), *A. leucocephalus*, *A. cassidix* not recently), *A. undulatus*, *A. plicatus* (more than 10 in 1990, tens present with traders in Singapore during 1987-1991), *A. (p.) subruficollis* (tens present with traders in Singapore during 1987-1991), *Anorrhinus galeritus* (three young birds with a trader in Singapore, September 1991), *Anthracoceros malayanus* (more than 10 in 1989/91), *A. coronatus/albirostris*, *A. marchei* [recently (1991) offered by Int. Animal Exchange, US; Brouwer 1991], *Buceros bicornis* (present with traders in Singapore, in Europe only trade with captive-bred birds), *B. hydrocorax* (present with traders in Singapore during 1987-1991), *B. rhinoceros* (hundreds present with traders in Singapore during 1987-1991). Prices noted in the Netherlands: *A. plicatus* (\$ 1100 a pair), *A. corrugatus* (\$ 1000 a pair). Other prices noted: *Aceros leucocephalus* (\$ 1750 a pair), *A. plicatus* (\$ 1750 a pair), *Anthracoceros malayanus* (\$ 1400 a pair), *A. coronatus/albirostris* (\$ 525).

From 1970-1974, 127 hornbills were imported, 310 were in transit in the U.K. (involving a total of 8 species from Africa, India, Singapore and Thailand) (Inskipp, *sine dato*).

From 1980-1984 and 1986-1988, the following minimum numbers of Australasian hornbills were imported into the USA (combined data Nilsson, 1985 and TRAFFIC USA, 1991): *Anorrhinus galeritus* (1), *Aceros undulatus* (12), *A. plicatus* (5), *A. cassidix* (5), *A. corrugatus* (13), *A. leucocephalus* (4), *Anthracoceros malayanus* (8), *A. coronatus* (13), *A. albirostris* (6), *Buceros hydrocorax* (19), *B. rhinoceros* (15), *B. bicornis* (18), unidentified sp. (26).

In 1989, the following imports of Australasian hornbills into the U.K. were noted (MAFF 1990): *Aceros corrugatus* (1), unidentified sp. (40).

Trade in CITES-listed hornbill species reported to CITES
for 1985-1989 (WCMC 1991).

	1985	1986	1987	1988	1989	1985-89
<i>Buceros bicornis</i>	10	6	162	39	57	274
<i>B. hydrocorax</i>	23	12	2	6	-	43
<i>B. h. hydrocorax</i>	1	-	-	-	-	1
<i>B. rhinoceros</i>	-	3	32	23	55	113
<i>B. r. rhinoceros</i>	-	1	2	5	-	8
TOTAL	34	22	198	73	112	439

The main importing and exporting country was Singapore. From 1985-1989, a minimum of 297 hornbills, mostly *B. bicornis* and *B. rhinoceros* were transitted through Singapore. In many cases no country of origin was known. However, imports into Singapore have mainly taken place from Lao PDR and Myanmar. Some illegal trade in these species is known (e.g., confiscation of 2 *B. rhinoceros* in 1987 in the Netherlands).

One shipment containing *Aceros* spp. (1986, 12 specimens from Singapore to Japan) has been reported to CITES. It is known that several not-listed hornbill species, especially *Aceros* spp., have been traded during the last 5-10 years in significant numbers. Schouten (pers. comm.) estimates that during 1985-1991 a minimum of 650 hornbills have been imported into the EC.

At present, 29 species and 18 subspecies (both Australasian and African) are known to be kept in c. 100 European zoos and/or private collections, involving c. 700 individuals (Brouwer, 1990, 1991). As of 31 December 1987, 22 sub(species) were kept in U.S. zoos, involving c. 390 individuals (Bohmke, 1988).

33. Illegal Trade: Despite full protection in most countries, illegal trade is known from, e.g., Thailand (Round, 1988; Poonswad, in litt.), Malaysia (Siti Hawa Yatim, in litt.), Indonesia (Hadipoetranto, in litt.), although, obviously, no exact data are available.

34. Potential Trade Threats: Successful reproduction in captivity has been recorded in only 4 Australasian and 7 African species in Europe. However, numbers are very small, and only the African Tockus erythrorhynchus seems to be reasonably succesful on a regular basis (Brouwer, 1990). Due to this generally low captive-breeding success, a large demand for fresh wild-caught birds by aviculturists, zoos and private persons (pet trade) will be continuously present. Furthermore, overall mortality during transport and/or during quarantine, based on data in Nilsson (1985) and MAFF (1990), was c. 10% and c. 17%, respectively, but sometimes reaches figures of 43%.

4. Protection Status

41. National: [Data mainly compiled from 'Wildlife Trade Laws of Asia and Oceania' (Gaski & Hemley, 1991).

Bangladesh: *Aceros nipalensis*, *A. undulatus*, *Anthracoceros malabaricus* and *Buceros bicornis* are on Annex 2 of the 'Bangladesh Wild Life (Preservation) Act, 1974' and are hence protected against hunting, capturing and trade. There is no separate legislation for the implementation of CITES.

Bhutan: Not a Party to CITES. No laws specifically protecting wildlife but several versions of such legislation have been drafted. Some protection against hunting and shooting is offered by the 'Bhutan Forest Act, 1969', but only in reserved forests.

Brunei Darussalam: hornbills are protected under 'The Wildlife Protection Enactment, 1978'; capture and export are subject to licences.

China: All hornbills are on annex 2 of 'The Law of Wild Animal Protection of the People's Republic of China, 1988'. This means that key protection is enforced locally (annex 1 means national key protection).

India: The following taxa are fully protected under schedule I of the Wildlife (Protection) Act 1972 (and amendments). *Aceros narcondami*, *A. nipalensis*, *A. undulatus ticehursti*, *Anthracoceros malabaricus* (= *Anthracoceros coronatus*), *Buceros bicornis*, *Ptilolaemus tickelli austeni*. There is no separate legislation for the implementation of CITES.

Indonesia: All hornbills are fully protected (Annex I of the 'Wildlife Protection Ordinance of 1931' and the 'Wildlife Protection Regulation of 1931'. There is no separate legislation for the implementation of CITES.

Lao People's Democratic Republic: Not a Party to CITES. There is no legislation for the protection of wildlife. In 1986, a Decree by the Council of Ministers called for a total ban of trade in wildlife.

Malaysia: All hornbills are protected under the 'Protection of Wildlife Act 76/72', meaning that no trade is allowed and that taking, shooting and keeping wild birds is possible only with special permits (Siti Hawa Yatim, in litt.).

Myanmar: Not a Party to CITES. Hornbills are partially protected within 'reserved forests' or 'sanctuaries' under the 'Burma Wildlife Protection Act 1936', preventing hunting and capture. Outside these areas, hornbills are not protected.

Nepal: *Buceros bicornis* is fully protected by the 'National Parks and Wildlife Conservation Act, 2029 (1973)' and amendments. There is no separate legislation for the implementation of CITES.

Papua New Guinea: The 'International Trade (Fauna and Flora) Act (Chapter 391), 1983' implements CITES. The 'Fauna (Protection and Control) Act (Chapter 154), 1976' does not specifically list hornbills on its Annex I, which means that they are not protected.

Philippines: 'Act 2590, an Act for the Protection of Game and Fish, 1916' does not list hornbills on its annexes. There is no separate legislation for the implementation of CITES.

Singapore: 'The Endangered Species (Import and Export) Act, 1989' implements CITES. Other legislations are the 'Animals and Birds Act, 1965 (Chapter 7)' and the 'Wild Animals and Birds Act, 1965 (Chapter 351)'. Under these, all wild animals, including hornbills, are fully protected.

Solomon Islands: Not a Party to CITES. There is no legislation controlling trade. The only hornbill species of the Solomon Islands, *Aceros plicatus*, is on Annex I of the 'Wild Birds Protection Act, 1914', which provides total protection.

Sri Lanka: The 'Fauna and Flora Protection Ordinance of 1938' prohibits all taking of birds and eggs, except those listed on schedule I (non-protected birds) or schedule II (birds not protected during open season). Hornbills are on neither of these schedules and are hence fully protected.

Thailand: All hornbills are protected by listing on Annex II (protected non-food and non-game animals of the first category; hunting only with special permission) of the 'Wild Animals Reservation and Protection Act, B.E. 2053 (1960)'. There is no separate legislation for the implementation of CITES.

42. International: At present, the following taxa are already in the CITES appendices: *Aceros narcondami*, *Buceros rhinoceros*, *B. bicornis*, *B. hydrocorax hydrocorax* (all in Appendix II) and *Buceros bicornis homrai* and *Rhinoplax vigil* (Appendix I). The Appendix II taxa (for *Buceros rhinoceros* only the nominate subspecies *B. r. rhinoceros*) are on annex C1 of EC (CITES) regulation 3626/82 as amended by regulation 197/90, which gives the same protection regime as for CITES Appendix-I species. All other Australasian hornbill species are not protected under any international legislation.
43. Additional Protection Needs: A major threat to the Australasian hornbills is the loss of large contiguous areas of forest through logging, burning, damming of rivers and through excessive hunting (e.g., see the situation in Thailand, Round, 1985, 1988). Better enforcement of often existing laws regarding trade and hunting is necessary. Attention should be paid to avoiding fragmentation of

forested areas, creating large continuous forest reserves (Round, 1988; Poonswad & Tsuji, 1989). This is especially important since, in general, hornbills often occur in small family groups only, overall densities being rather low. Furthermore, the reproductive output of these relatively large birds is low. Any further drain of the populations by international trade should, therefore, be monitored by listing all species of the present proposal in CITES Appendix II. This argument can further be strengthened by the fact that up to now only five hornbill (sub)species are listed in any of the CITES appendices, which causes a risk of a shift in trade towards the other, non-CITES hornbill species. Also, the listing of all Australasian hornbills in CITES appendices could stimulate the enforcement of the national legislation of the countries of origin.

5. Information on Similar Species

Three taxa of the genus *Buceros* are already listed in CITES Appendix II (see 42.). Listing of all Australasian species is absolutely necessary for look-alike reasons, as customs officers and other enforcement personnel have difficulties in identifying the various genera. At present, of *Buceros hydrocorax* only the nominate subspecies *B. h. hydrocorax* is in Appendix II. Now all Australasian hornbill taxa are proposed to be listed in Appendix II. This includes the remaining subspecies of *Buceros hydrocorax* which are only separable from the nominate subspecies by specialists. Consequently, the look-alike criterion is *a fortiori* applicable to these taxa.

Hornbill species from the Afrotropical region (23 species) also occur in trade (Koen Brouwer, in litt.; own data): *Bycanistes bucinator* (c. 10 in 1991), *B. subcylindricus*, *Bucorvus abyssinicus* (tens with traders in the Netherlands and Belgium 1989/90), *B. leadbeateri*, *Tockus erythrorhynchus* (large numbers, more than 100 in 1990), *T. flavirostris*, *T. deckeni*, *T. deckeni jacksoni*.

From 1980-1984 and 1986-1988 (into USA) and in 1989 (into UK) the following imports of African hornbill species were noted (combined data Nilsson, 1985; MAFF, 1990; TRAFFIC USA 1991): *Bycanistes brevis* (21), *B. bucinator* (25), *Tockus alboterminatus* (20), *T. erythrorhynchus* (168), *T. nasutus* (11), *T. flavirostris* (8), *T. deckeni* (47), *Bucorvus leadbeateri* (26), unidentified sp. (58).

The African species can be distinguished from the Australasian species although not easily. For look-alike reasons, listing of all Bucerotidae could therefore be considered.

Only other group which hornbills could possibly be confused with are the toucans (Piciformes, Ramphastidae) which are, however, of Central- and South-American origin. They are easily separated from hornbills by their zygodactylous feet. At present, there is only one toucan species listed in the CITES appendices [*Ramphastos sulphuratus* in Appendix III (Guatemala)].

6. Comments from Countries of Origin

Being sought.

7. Additional Remarks

The result of this proposal will be that all Australasian hornbill (sub)species will be listed in the CITES appendices. As most of the hornbill (sub)species are difficult to identify, this will surely enhance the control of the trade in these birds.

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Annex 1 Australasian hornbill species of the genera Aceros, including A. comatus (= Berenicornis comatus in Morony et al 1975), Anorrhinus, Anthracoceros, Buceros, Penelopides and Ptilolaemus not listed on the CITES appendices.

Aceros cassidix (Temminck, 1823)

Subspecies: A. c. cassidix (Temminck, 1823)

A. c. brevirostris van Bemmelen & Voous, 1951 (Buton Hornbill)

Aceros corrugatus (Temminck, 1832)

Subspecies: A. c. corrugatus (Temminck, 1832)

A. c. megistus (Oberholser, 1912) (= A. c. rugosus (Beggie, 1834))

Aceros everetti (Rothschild, 1897)

Aceros leucocephalus (Vieillot, 1816)

Subspecies: A. l. leucocephalus (Vieillot, 1816)

A. l. waldeni (Sharpe, 1877)

Latter separated as full species by Kemp (1988)

Aceros nipalensis (Hodgson, 1829)

Aceros plicatus (J. R. Forster, 1781)

Subspecies: A. p. plicatus (J. R. Forster, 1781)

A. p. ruficollis (Vieillot, 1816)

A. p. jungei (Mayr, 1937)

A. p. dampieri (Mayr, 1934)

A. p. harterti (Mayr, 1934)

A. p. mendanae (Hartert, 1924)

A. p. subruficollis (Blyth, 1843) (Plain-pouched Hornbill)

Latter separated as full species by Kemp (1988)

Aceros undulatus (Shaw, 1811)

Subspecies: A. u. undulatus (Shaw, 1811)

A. u. aequabilis Sanft, 1960

A. u. ticehursti (Deignan, 1941)

Latter treated as subspecies of A. subruficollis by Kemp (1988), which itself is treated here as subspecies of A. plicatus.

Anorrhinus galeritus (Temminck, 1831)

Subspecies: A. g. galeritus (Temminck, 1831)

[A. g. carinatus (Blyth, 1845)]

[A. g. minor (Mayr, 1938)]

Latter two taxa not accepted by Kemp (1988)

The genus Anthracosceros has been revised by Frith & Frith (1983), which has important consequences for the treatment of A. albirostris, A. coronatus and 'A. malabaricus'.

Anthracosceros malayanus (Raffles, 1822)

Anthracosceros coronatus (Boddaert, 1783)

This taxon includes A. malabaricus (Gmelin, 1788), following the revision of Frith & Frith (1983).

Anthracosceros albirostris (Shaw & Nodder, 1807)

Subspecies: A. a. albirostris (including leucogaster (Blyth, 1841)) (Northern Pied Hornbill)

A. c. convexus (Temminck, 1831) (Southern Pied Hornbill)

Anthracosceros montani (Oustalet, 1880)

Anthracosceros marcheii Oustalet, 1885

Berenicornis comatus (Raffles, 1822) (= Aceros comatus)

Buceros hydrocorax Linnaeus, 1766

Subspecies: B. h. hydrocorax Linnaeus, 1766 (Already on appendix II)

B. h. semigaleatus Tweeddale, 1878

B. h. mindanensis Tweeddale, 1877

B. h. basilanicus (Hachisuka, 1934)

The latter included in B. h. mindanensis by Sanft (1960) and Kemp (1988).

Penelopides exarhatus (Temminck, 1823)

Subspecies: P. e. exarhatus (Temminck, 1823)

P. e. sanfordi (Stresemann, 1932)

Penelopides panini (Boddaert, 1783)

Subspecies: P. p. panini (Boddaert, 1783)
P. p. ticaensis Hachiuska, 1930

P. p. samarensis Steere, 1890

P. p. affinis Tweeddale, 1877

P. p. basilanica Steere, 1890

These three taxa combined under separate species P. affinis by Kemp (1988)

P. p. mindorensis Steere, 1890

Separated as full species by Kemp (1988)

P. p. manillae (Boddaert, 1783) (= P. p. manilloe (Auct.))

P. p. subnigra McGregor, 1910

These two taxa combined under separate species as P. manillae by Kemp (1988)

Ptilolaemus tickelli (Blyth, 1855) (= Anorrhinus tickelli)

Subspecies: P. t. tickelli (Blyth, 1855)

P. t. austeni (Jerdon, 1872) (Assam Brown-backed Hornbill)

The latter separated as full species by Kemp (1988).