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## The TRAFFIC Network


Mr Jonathan Barzdo
Head
Wildlife Trade Monitoring Unit
IUCN Conservation Monitoring Centre
219c Huntingdon Road
Cambridge CB3 0DL
UK
Tel: (0223) 277427
Tlx: 817036 SCMU G

Mr Frank Antram
Director
TRAFFIC (Australia)
PO Box 799
Manly 2095 NSW
Australia
Tel: (02) 977 4786
Tlx: 72577 FFASYD

Dr Jean-Pierre d'Huart
Director
TRAFFIC (Belgium)
c/o WWF Belgium
Chaussée de Waterloo 608
B-1060 Brussels
Belgium
Tel: (02) 347 01 11
Tlx: 23986 WWFBEL B

Dr Manfred Niekisch
Director
TRAFFIC (Germany)
WWF Deutschland
Sophienstrasse 44
D-6000 Frankfurt am Main 90
F.R. Germany
Tel: (069) 770677
Tlx: 4 13854 VDTD

Mr Tom Milliken
Director
TRAFFIC (Japan)
6th Fl. #39 Mori Bldg.
2-4-5 Azabudai
Minato-ku
Tokyo 106
Japan
Tel: (03) 434 2221
Tlx: 2423793 AMEOIL J

Mrs Minouk van der
Plas-Haarsma
Director
TRAFFIC (Netherlands)
Postbus 7
3700 AA ZEIST
The Netherlands
Tel: (03404) 19438
Tlx: 76122 WNF NL

Sr Juan Villalba-Macias
Director
TRAFFIC (South America)
Carlos Roxlo 1496/301
Montevideo
Uruguay
Tel: (02) 49 33 84
Tlx: P. BOOTHUY 702 493384

Ms Kathryn Fuller
Director
TRAFFIC (USA)
1255 23rd Street, NW
Washington, DC 20037
USA
Tel: (202) 293 4800
Tlx: 23 64505 PANDA


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## Afghanistan and Somalia Join CITES

Afghanistan and Somalia have become the 90th and 91st Parties to CITES. Afghanistan acceded on 30 October and Somalia on 2 December 1985. These accessions become effective on 28 January and 2 March 1986 respectively.

## Ban Urged on Trade with UAE

All CITES Parties have been urged to prohibit trade in CITES species, with or through the United Arab Emirates, with effect from 28 November 1985. Although the UAE has been a Party to CITES since 1975, it has apparently made no effort to implement the Convention and is a known entrepot, evidently facilitating trade in violation of CITES. The prohibition was requested in the CITES Secretariat's Notification to the Parties No. 366, and is fully endorsed by the Convention's Standing Committee. It is proposed that the trade ban will be effective until the Secretariat is satisfied that the UAE has taken adequate steps to implement CITES.

## Bolivia Extends Export Ban

Bolivia has extended its ban on the export of live animals until 31 July 1986. The regulations also prohibit "the hunting, capture, harassment, transport, sale, transfer and export of live wild animals and their parts ...".

*Sources: TRAFFIC (USA), CITES Secretariat*

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## Tamarins Go Home

Sixteen of the twenty-four Golden-headed Lion Tamarins (Leontopithecus rosalia chrysomelas) being held by a dealer in Belgium, were returned to their native Brazil on 30 November 1985. They are being held at the Primate Rehabilitation Centre near Rio de Janeiro, until they can be released to a protected wild area.

Between fifty and sixty specimens (Traffic Bulletin V(5/6):51, VI(1):1, VI(5):71), appear to have been illegally acquired by dealers in Belgium, France and Japan during the past few years. This is believed to represent between twenty-five and fifty per cent of the wild population of this endangered primate. It is endemic to Brazil and is listed in CITES Appendix I.

The Tamarins were smuggled out of Brazil in 1983 and entered Belgium via Bolivia, in violation of CITES. Belgium was not then party to CITES and took no action to repatriate the animals, in spite of high level protests from the Brazilian Government, H.R.H. Prince Philip, IUCN and WWF.

The repatriation of the sixteen individuals represents the culmination of some two years of diplomatic activity by the Belgian Ministry of Agriculture, World Wildlife Fund-Belgium, the Brazilian Ministry of Foreign Affairs and the Brazilian Institute of Forest Development.

### . . . RECOVERY COMMITTEE FORMED

In March 1985, the International Recovery and Management Committee for Golden-headed Lion Tamarin was formed. Chaired by Dr A. Coimbra-Filho, Director of the Rio de Janeiro Primate Centre, and Mr J. Mallinson, Zoological Director of the Jersey Wildlife Preservation Trust, its initial objectives are: "a) to have all the illegally exported or illegally held Golden-headed Lion Tamarins confiscated or voluntarily replaced in the trusteeship of the Brazilian Government; and b) to establish a viable captive breeding population of Golden-headed Lion Tamarins under scientific management."

Golden-headed Lion Tamarins acquired by Zoo de La Palmyre in France in the late 1970s have successfully bred and the zoo now holds eleven specimens. The Director, Mr C. Caillé, has agreed to co-operate with the new Committee, has voluntarily given ownership of his stock to the Trusteeship of the Brazilian Government and has agreed not to trade in this species. He has also signed an agreement to co-operate in the development of a long-term management programme for the Tamarins which, it is hoped, will ultimately lead to a successful re-introduction programme.

### . . . MEANWHILE IN HONG KONG AND JAPAN

The three Golden-headed Lion Tamarins re-exported from Japan to Hong Kong have meanwhile bred. Eleven others were known to have been imported to Japan, of which one died and one pair has bred. An additional animal is now known to be in Japan, which was either not counted at the point of import or was born there. Two animals purchased by the Japan Monkey Centre at Inuyama, have been inspected by Dr Coimbra-Filho who confirmed what other visitors had found: the two monkeys are kept in a small, dark cage indoors where they never see sunlight, and are fed a poor diet. Judging from their present condition, he believed they would not live long.

Three of the Tamarins are in the Nihon Daira Municipal Zoo in Shizuoka City and the rest remain at an Okinawa facility owned by the Tokyo animal dealer, Aritake Chojuten.

*Sources: Jean-Pierre d'Huart, TRAFFIC (Belgium); Jeremy Mallinson, Jersey Wildlife Preservation Trust; Nature, Vol. 318, November 1985, p. 200.*

## Venezuela Protects Caimans

A one-year ban on the hunting of Spectacled Caiman (Caiman crocodilus) has been adopted by Resolution in Venezuela. The ban is being implemented to allow time for evaluations of the commercial exploitation of this species. It is intended that quotas will be set when population research has been completed. The Ministry of the Environment and Renewable Resources is also concerned that any trade in Spectacled Caiman skins should be of social and economic benefit to the country.

The active part of the Resolution has been freely translated as follows:

Article 1 - On the publication of this resolution, the commercial hunting of the Spectacled Caiman will be suspended throughout the country for a period of one year.

Article 2 - With the prior fulfilment of legal orders, hunting of the above-mentioned species may be authorized for scientific purposes.

Article 3 - Infringement of the present resolution will be punished in accordance with the Wildlife Protection Law.

*Source: Ministry of the Environment and Renewable Resources-Number 61, Caracas, Venezuela, 23 October 1985.*

# The International Trade in Raptors

*by Deborah Barnes and Ginette Hemley*

## INTRODUCTION

Raptors, or birds of prey, have been admired for centuries for their strength, swiftness, and hunting prowess. Their use in the sport of falconry is a long-standing tradition in Asia, the Middle East and Europe, and today extends well beyond the Old World. Human utilization of raptors is not limited to live birds, however, as worldwide demand for eggs, feathers and stuffed birds supports a sizeable international commerce. All raptor trade is subject to tight controls and, because some of the species most desirable for falconry are endangered, considerable controversy has developed over the legislation that controls their movements.

This report presents an overview of world trade during the years 1980-1983 in species of the order Falconiformes and has been extracted from TRAFFIC (USA)'s full, eighty-page report on this subject. The report attempts to put international raptor trade into perspective and to provide a basis for well-informed decisions on raptor trade laws.

All Falconiformes species except those in the Cathartidae* family are listed in either CITES Appendix I or II.

Many countries, including the USA and those in the European Economic Community (EEC) have laws on raptor trade that are more restrictive than CITES. In the USA, the Endangered Species Act of 1973 (ESA) implements CITES and provides its own set of rules for protection of endangered and threatened taxa. Species listed under the ESA cannot be imported to or exported from the USA without special permits and, in general, trade may occur only for non-commercial purposes. Special regulations allow restricted sale of captive-bred raptors listed under the ESA, while separate rules govern the use of migratory raptors for falconry purposes under the US Migratory Bird Treaty Act. Together, these regulations allow licensed raptor breeders and falconers to purchase, sell or barter certain captive-bred native raptors. Commercial dealing in wild raptors is prohibited in the USA.

## METHODS

The precise volume of international raptor trade is difficult to assess because complete and up-to-date information is lacking. The best available data come from the annual reports of CITES Parties, and have been used as the basis for this report. The Parties to the Convention appear to include most major raptor trading countries. However, although member nations are required to report annual trade in CITES species, only about half of all CITES members submitted reports for 1983, and only twenty-two countries have reports for the four years 1980-1983 considered in this report. Many of the annual reports submitted appear incomplete; in addition, there is generally little correlation between reports. However a standard method was used to provide a minimum estimate of international raptor trade, based on the best available information.

*Golden Eagle (Aquila chrysaetos)* © WWF/Fritz Vollmar

The CITES annual report data included in this analysis were provided in computer tabulations by WTMU. The analysis includes data from sixty Parties reporting transactions in Falconiformes species with CITES party and non-party states during the period 1980-1983.

### Types of Specimens in trade

From 1980-1983, over 150 different Falconiformes species were reported in international trade. As shown in Table 1, these birds entered commerce in a variety of forms.

The majority of species listed in CITES Appendix I were traded as living specimens; an average of just over 200 live birds and forty eggs were reported in trade each year. Smaller amounts of feathers, bodies, specimens, and skins were also traded.

About 1000 live birds of Appendix II-listed species also entered commerce each year. However, reported trade in CITES Appendix II species was dominated by non-living specimens. An average of about 1550 "bodies" and 2630 "specimens" (both presumed to be whole stuffed or mounted specimens) entered commerce each year. Reported trade in feathers was also large, amounting to an average of about 20 400 feathers annually, with an additional quantity reported by weight and as feather "sets". Dead birds were also traded as trophies, while parts and products in trade included claws, feet, skeletons, skulls, and pieces.

### The Live Raptor Trade

Of the roughly 1250 live raptors and forty-five eggs reported entering commerce each year, at least 102 species were involved. Eleven of these species are listed in CITES Appendix I.

It is important to note that a significant proportion of all reported live raptor trade from 1980-1983 occurred in raptors that were not reported at the species level,

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* Cathartidae species (New World vultures) generally are excluded from this analysis because most species are not covered by CITES. Two Cathartidae species, the Andean Condor (Vultur gryphus) and the California Condor (Gymnogyps californianus), are listed in Appendix I. Some trade in the Andean Condor was reported from 1980-1983.

Table 1
Type and Quantity of Raptor Specimens Reported in International Commerce 1980-1983

Appendix II Species (Appendix I Species in brackets)

| Type of Trade | 1980 | 1981 | 1982 | 1983 | Total | Average/Year |
|---|---|---|---|---|---|---|
| Live | 229+ (158) | 1875 (212) | 948 (222) | 1108 (253) | 4160+ (845) | 1040+ (211) |
| Eggs | 4 (47) | 2 (52) | 8 (26) | 0 (45) | 14 (170) | 4 (42) |
| Feathers | 20 (29) | 81696 (84) | 5 (2) | 2 (0) | 81723 (115) | 20431 (29) |
| Sets Feathers | 0 | 200 | 801 | 0 | 1001 | 250 |
| Kg Feathers | 0 | 0 | 419 | 39 | 458 | 114 |
| Bodies | 635 (15) | 532 (12) | 3373 (11) | 1657 (3) | 6197 (41) | 1549 (10) |
| Specimens | 36 (0) | 10426 (1) | 40 (0) | 28 (10+) | 10530 (11+) | 2632 (3+) |
| Pairs of specimens | 0 | 34+ | 0 | 0 | 34+ | 8+ |
| Shipments of specimens | | (1) | | | (1) | |
| Skins | 13 (0) | 8 (2) | 32 (3) | 15 (4) | 68 (9) | 17 (2) |
| Shipments of skins | 0 | 1 | 0 | 0 | 1 | - |
| Trophies | 13 | 1 | 6 | 13 | 33 | 8 |
| Claws | 0 | 10 | 5 | 0 | 15 | 4 |
| Feet | 0 | 2 | 8 | 4 | 14 | 4 |
| Skeletons | 0 | 1 | 5 | 0 | 6 | 2 |
| Pieces | 0 | 0 | 2 | 0 | 2 | 1 |
| Skulls | 0 | 0 | 1 | 0 | 1 | 1 |
| Shells | | 1 | | | 1 | 1 |
| Kg Shells | 0 | 0 | 0 | 3000 | 3000 | 750 |
| Unspecified | 58 (+) | 10+ (+) | 1 (0) | 1 (0) | 70+ (+) | 18+ (+) |

(+) designates additional unknown quantity

Source: CITES annual reports

i.e. they were reported simply as "Falconiformes spp." Much of this trade was recorded by Japan, whose imports from China accounted for almost half of all reported live raptor commerce.

It should also be noted that, although CITES data provide a good guide to the scope of the international raptor trade, methods of reporting can bias the data and complicate analysis. Often only one of the two countries involved in a transaction may report it, or the countries may report it differently. In the case of the raptor trade between China and Japan, the former often reported trade to the species level, while the latter reported most trade as "Falconiformes spp.". Some of these different taxa designations probably refer to the same transactions but total quantities reported by these two countries differed significantly.

For the purposes of this report we have used the data on trade reported at species level. The raptors most commonly reported in trade as live specimens are listed in Table 2 (in order of quantity in trade).

### Northern Goshawk (Accipiter gentilis)

The Northern Goshawk, listed in Appendix II, had the highest reported trade of all raptors. The species ranges widely throughout North America, Europe and Asia, and while trade averaged 228 a year during the four years, seventy-seven per cent of all reported trade occurred in 1981 when Japan imported 700 birds for commercial purposes from China. The other notable importer was the UK (average 31 birds a year). The major exporters other than China were F.R. Germany (23 a year), and Finland (14 a year). Very few of the Northern Goshawks in trade were reported as captive-bred.

### Peregrine Falcon (Falco peregrinus)

The Peregrine Falcon occurs worldwide and is included in Appendix I. Two subspecies - F. p. anatum (from North America) and F. p. peregrinus (from Asia, Europe, and the Middle East) - are listed as "endangered" under the US Endangered Species Act, while a third subspecies, F. p. tundrius (from North America), is listed as "threatened". All other wild populations of Peregrine Falcons in the lower forty-eight states of the USA are considered "endangered by similarity of appearance" under the US ESA.

An average of about 150 live Peregrine Falcons were reported in trade each year; about half of the total were declared as captive-bred. Thirty per cent of all specimens in trade were reportedly for breeding, introduction to the wild, zoological, or scientific purposes. In addition, eighty per cent of the 148 raptor eggs reported in commerce were Peregrine eggs. These were reportedly used for breeding, introduction to the wild, and scientific purposes.

From 1980-1983, F.R. Germany was apparently the single largest exporter of live Peregrine Falcons entering trade, an average of forty a year. Most of these were reportedly captive-bred. F.R. Germany tended to export relatively small shipments of falcons to a large number of different countries.

Canada was also a major exporter, exporting an average of thirty live birds and two eggs a year. The USA appeared to be Canada's main market and both countries dealt primarily with eggs and reportedly captive-bred birds for scientific purposes.

There has also been a notable Peregrine Falcon movement from Sweden to Denmark, mostly of eggs, totalling 102 over the four years. This reflects the joint

breeding programme for reintroduction to the wild, involving these two countries as well as Finland and Norway. Denmark, in turn, exported 102 live birds and eight eggs. Two-thirds of the birds went to Sweden for reintroduction, while the other third, reported as captive-bred, was exported to F.R. Germany for commercial purposes.

The UK imported and exported about sixteen live Peregrines a year, mostly not reported as captive-bred.

### Common Kestrel (Falco tinnunculus)

The Common Kestrel, an Appendix II species, occurs throughout Asia, Europe and Africa. An average of fifty-eight of these raptors were reported in commerce each year, and ten per cent of the total traded were reported as captive-bred. Sixty-four per cent of all reported trade in the Common Kestrel occurred in 1981 when Japan imported 150 live birds for commercial purposes from China (Table 3). Most of the remaining trade involved the UK, Canada, the USA, Bangladesh, and Saudi Arabia.

### American Kestrel (Falco sparverius)

The American Kestrel occurs throughout the Americas. An average of thirty-three live specimens of this Appendix II species were reported in commerce each year. Peru was the major supplier, exporting primarily to F.R. Germany, Belgium, and Japan. Sixteen American Kestrels, or twelve per cent of all trade in the species, were reportedly traded illegally, and confiscated upon attempted importation. Ten of these birds originated in Mexico and were bound for the USA, while another six originated in Peru and were re-exported from the Netherlands to F.R. Germany where they were seized. Most of the American Kestrels reported in commerce were not reported as captive-bred.

### Tawny Eagle (Aquila rapax)

The Tawny Eagle, found in Eastern Europe, Asia, and Africa, is listed in Appendix II. On average, twenty birds were reportedly traded each year. Tanzania, the main exporter, supplied over half of the total, mostly to F.R. Germany, the primary importer. Small quantities came from the German Democratic Republic, the USSR, Botswana, and Austria. Only nine eagles were reported as captive-bred, all exported from the German Democratic Republic.

### Common Buzzard (Buteo buteo)

The Common Buzzard, which ranges throughout Europe, Asia and Africa, is listed in Appendix II. An average of twenty birds a year were reported in commerce, none of which was reported as captive-bred. Ninety per cent of all reported trade in this species occurred in 1982 when Austria imported seventy Common Buzzards from Czechoslovakia. Only eight other live Common Buzzards were reported in commerce over the entire four year period.

### Gyrfalcon (Falco rusticolus)

Until March 1981, all populations of Gyrfalcon, a subarctic species, were listed in Appendix I. The North American population of the species was moved to Appendix II at the third meeting of the Conference of the Parties to CITES in 1981, but was recently transferred back to Appendix I at the fifth Conference of the Parties (effective 1 August 1985). Since Old and New World Gyrfalcon populations have been treated differently under CITES, they are considered separately in this report.

During the four years, an average of nineteen Appendix I Gyrfalcons entered trade each year, and two-thirds of these were reported to be captive-bred. F.R. Germany was the primary exporter, smaller numbers

Table 2
Raptor Species most Commonly Traded as Live Specimens*
(1980-1983)

| Species | | Live Birds Total | Live Birds Avg/yr | CITES Status | Natural Range |
|---|---|---|---|---|---|
| Northern Goshawk | Accipiter gentilis | 910 | 228 | II | N. America, Eurasia |
| Peregrine Falcon | Falco peregrinus | 612 | 153 | I | Worldwide |
| Common Kestrel | Falco tinnunculus | 233 | 58 | II | Africa, Eurasia |
| American Kestrel | Falco sparverius | 131 | 33 | II | Americas |
| Tawny Eagle | Aquila rapax | 81 | 20 | II | E. Europe, Asia, Africa |
| Common Buzzard | Buteo buteo | 78 | 20 | II | Eurasia, Africa |
| Gyrfalcon | Falco rusticolus+ | 77 | 19 | I | Subarctic regions |
| Saker Falcon | Falco cherrug | 70 | 18 | II | E. Europe, Asia, N.Africa |
| Bateleur | Terathopius ecaudatus | 60 | 15 | II | Africa, Asia Minor |
| N. American Gyrfalcon | Falco rusticolus+ | 57 | 14 | II | Subarctic, N.America |
| White-tailed Eagle | Haliaeetus albicilla | 55 | 14 | I | Eurasia, Greenland |
| Golden Eagle | Aquila chrysaetos | 52 | 13 | II | Eurasia, N.Africa, N.America |
| Bald Eagle | Haliaeetus leucocephalus | 48 | 12 | I | N.America |
| Hooded Vulture | Necrosyrtes monachus | 40 | 10 | II | Africa |
| Harris' Hawk | Parabuteo unicinctus | 39 | 10 | II | Americas |

* Some countries did not report transactions to the species level, so this information should be considered a minimum representation of reported trade. + New and Old World populations of Gyrfalcon have been treated differently under CITES and are considered separately in this report.

Source: CITES annual reports

coming from Canada and the USA. Gyrfalcons from F.R. Germany were generally reported as captive-bred and traded for commercial purposes, while those from the USA and Canada were more often declared as being for breeding or scientific purposes and not as bred in captivity. Pakistan and Saudi Arabia, the two major importers, were reportedly supplied solely by F.R. Germany. Other importers included the United Arab Emirates, the UK, and the USA.

For the years 1981 to 1983, an average of about fourteen North American (Appendix II) Gyrfalcons entered commerce each year. Canada, the primary supplier, exported an average of twelve Gyrfalcons each year, mostly reported to be captive-bred. Most of these were sent to Saudi Arabia and the United Arab Emirates, the principal consumers.

### Saker Falcon (Falco cherrug)

The Saker Falcon, listed in Appendix II, is native to Eastern Europe, Asia and North Africa. Reported trade involved an average of eighteen birds a year, mostly in rather small consignments. F.R. Germany was the major trader of Saker Falcons, but most of its exports originated in the United Arab Emirates, Pakistan, and Tanzania. These re-exports were received by Austria and Israel. Other exporters included Mongolia, the USSR, and the UK, while importers included the USA, Austria, Canada, and Saudi Arabia. Seventeen per cent of the Saker Falcons (twelve birds) reported in commerce were stated to be captive-bred.

*Bateleur (Terathopius ecaudatus)*

### Bateleur (Terathopius ecaudatus)

The Bateleur, listed in Appendix II, is an African species. It was not reported in international trade in 1980 or 1981, but during the following two years, at least fifty birds were traded. Tanzania was the primary supplier and the only African country reported as exporting this species, all forty-seven going to F.R. Germany, from where small quantities were exported within Europe. None of the Bateleurs was reported as captive-bred.

Table 3
Exports of Dead Raptor Specimens from China to Japan (1980-1983)

| Species | (Av. No. Specimens /Year) |
|---|---|
| Besra (Accipiter virgatus) | 50 specimens |
| Golden Eagle (Aquila chrysaetos) | 7575 feathers |
| Tawny Eagle (Aquila rapax) | 25 " |
| White-tailed eagle (Haliaeetus albicilla) | 15 " |
| Falconiformes spp.* | 119 bodies<br>12732 feathers<br>114 kg feathers<br>200 sets feathers |

* species are not specified, but it is likely that some of these transactions overlap with the species-specific entries listed above.

Source: CITES annual reports

### White-tailed Eagle (Haliaeetus albicilla)

The White-tailed Eagle, native to Europe, Asia and Greenland, is listed in Appendix I. On average, fourteen of these eagles were reported in commerce each year. Eighteen per cent of the total reported in trade were declared as captive-bred, and most were apparently traded for purposes of reintroduction to the wild. Two-thirds of all trade in this species occurred from Norway to the UK for reintroductory purposes.

### Golden Eagle (Aquila chrysaetos)

The Golden Eagle occurs throughout Asia, Europe and North America and is listed in Appendix II. The species was traded by a large number of countries in relatively small consignments - an average of thirteen entered commerce each year. The primary supplier was China, exporting about half of the total reported in trade. Most of these went to F.R. Germany, while the remainder of China's exports went to Japan. F.R. Germany and Austria were also notable exporters/re-exporters. Only four Golden Eagles, or eight per cent of the total reported trade, were declared as captive-bred, two from the German Democratic Republic and two from the UK.

### Bald Eagle (Haliaeetus leucocephalus)

The Bald Eagle of North America is included in Appendix I and all populations in the lower forty-eight states of the USA are listed as 'endangered' or 'threatened' under the US Endangered Species Act. An average of twelve of these eagles entered trade each year, with more than half of all specimens (twenty-six birds total) exported from Canada to the USA for breeding purposes. The German Democratic Republic and F.R. Germany also exported Bald Eagles, supplying the only specimens reported as bred in captivity - nine birds. The primary importer was the USA.

### Hooded Vulture (Necrosyrtes monachus)

Reported trade in the Hooded Vulture, an African Appendix II species, averaged about ten a year. None was reported as captive-bred. Tanzania was the major supplier, while F.R. Germany and Austria re-exported Hooded Vultures which reportedly originated in Tanzania, Nigeria and Switzerland. F.R. Germany was also the major importer of Tanzania's vultures, and exported birds to other European countries.

### Harris' Hawk (Parabuteo unicinctus)

The Harris' Hawk, listed in Appendix II, ranges from the USA through South America. Reported trade averaged about ten specimens a year; the major suppliers were Mexico and the USA. The UK was the primary consumer. Four Harris' Hawks purportedly entered trade illegally and were confiscated en route from Mexico to the USA. Nine birds, most of which came from the USA, were listed as captive-bred.

### Dead Specimens

Dead bodies of raptors, and raptor products enter trade for a variety of purposes. Whole specimens, body parts and skins are often used for scientific study or museum display, while raptor feathers are sometimes used for costumes and decoration. In addition, CITES data show that a considerable number of dead raptors are traded commercially as stuffed or mounted specimens.

Most reported international trade in dead raptors from 1980 to 1983 occurred along three main trade routes. Trade from China to Japan dealt largely with feathers. Golden Eagle feathers appeared to be the most popular; in 1981, 30 300 Golden Eagle feathers were exported from China to Japan. Also in 1981, 100 Tawny Eagle feathers and sixty White-tailed Eagle feathers entered trade from China to Japan. In addition, a substantial feather trade between these two countries was reported in unspecified Falconiformes species. Japan reports importing about 51 000 feathers, 800 sets of feathers, and about 460 kg of feathers which were not reported to the species level; however, it is likely that at least some of these transactions overlap with those described above.

The trade from China to Japan also included 200 Besra specimens and 476 bodies of unspecified species in 1981.

The second main evident trade route was from China to F.R. Germany. Whole dead raptors declared as being for commercial purposes constituted most of this trade (Table 4). Substantial reporting discrepancies exist between China's and F.R. Germany's trade figures. In 1981, F.R. Germany reported receiving 5857 raptor specimens from China, while China reportedly exported only 2013 specimens to F.R. Germany. Similarly, in 1982 F.R. Germany reported importing 1566 bodies while China reported supplying 1841 bodies to F.R. Germany.

Whole dead raptors, reportedly for commercial purposes, made up all of the trade along the third main route, from Czechoslovakia to F.R. Germany (Table 5). The Common Buzzard was by far the most heavily traded species along this route.

Much of the remaining trade in dead specimens can be accounted for by US imports. The USA consumed all reported trade in eggshells, skeletons, and skulls, and also imported most of the claws and feet reported, two-thirds of the trophies, and just under half of the skins. These products were reported as being for a variety of different purposes: scientific research, museum display, personal or commercial. A number of specimens primarily from Mexico and the Philippines, were reportedly traded illegally and were confiscated by US port officials. In 1983 the USA reportedly imported 3000 kg of White-headed Vulture (Trigonoceps occipitalis) eggshells from the Philippines, although the species occurs only in Africa. However, this amount is so large, that it seems likely to be a reporting error.

Table 4
Exports of Dead Raptor Specimens from China to F.R. Germany (1980-1983)

| Species | Av. No. Specimens/Yr* | Av. No. Bodies/Yr* |
|---|---|---|
| Northern Goshawk (Accipiter gentilis) | 900 | 130 |
| Common Kestrel (Falco tinnunculus) | 75 | 316 |
| Eurasian Sparrowhawk (Accipiter nisus) | 262 | 90 |
| Accipiter spp. | 294 | 0 |
| Rough-legged Buzzard (Buteo lagopus) | 222 | 25 |
| Common Buzzard (Buteo buteo) | 190 | 32 |
| Grey-faced Buzzard (Butastur indicus) | 5 | 100 |
| Black Kite (Milvus migrans) | 75 | 0 |
| Chinese Goshawk (Accipiter soloensis) | 50 | 2 |
| Northern Hobby (Falco subbuteo) | 28 | 14 |
| Japanese Sparrowhawk (Accipiter gularis) | 38 | 4 |
| Shikra (Accipiter badius) | 38 | 0 |
| Crested Honey Buzzard (Pernis ptilorhynchus) | 21+ | 0 |
| Tawny Eagle (Aquila rapax) | 10 | 0 |
| European Honey Buzzard (Pernis apivorus) | 8 | 0 |
| Cinereous Vulture (Aegypius monachus) | 8 | 0 |
| Golden Eagle (Aquila chrysaetos) | 6 | 0 |
| Crested Serpent Eagle (Spilornis cheela) | 5 | 0 |
| Besra (Accipiter virgatus) | 4 | 0 |
| Griffon Vulture (Gyps fulvus) | 3+ | 0 |
| Hen Harrier (Circus cyaneus) | 0 | 3 |
| Circus spp. | 2 | 0 |
| Greater Spotted Eagle (Aquila clanga) | 0 | 1 |
| Marsh Harrier (Circus aeruginosus) | 0 | 1 |

* The terms "specimens" and "bodies" probably refer to whole, stuffed raptors. In 1981 CITES reports the term "specimen" was usually used while in 1980, 1982, and 1983, the term "body" prevailed.

\+ Designates additional unknown quantities reported.

Source: CITES annual reports

Table 5
Exports of Dead Raptor Specimens from Czechoslovakia to F.R. Germany (1980-1983)

| Species | Av. No. Specimens/Yr* | Av. No. Bodies/Yr* |
|---|---|---|
| Common Buzzard (Buteo buteo) | 286 | 521 |
| Northern Goshawk (Accipter gentilis) | 20 | 90 |
| Rough-legged Buzzard (Buteo lagopus) | 2 | 10 |
| Eurasian Sparrowhawk (Accipiter nisus) | 0 | 9 |
| Common Kestrel (Falco tinnunculus) | 0 | 4 |

* The terms "specimens" and "bodies" probably refer to whole, stuffed raptors. In 1981 CITES annual reports, the term "specimen" usually was used while in 1980, 1982 and 1983, the term "body" prevailed.

Source: CITES annual reports

## INTERNATIONAL DEMAND

The demand for raptors for falconry appears to remain fairly constant. Berry (1983) states that there are between 2500 and 3000 falconers in the USA. He estimates that the potential US demand for live raptors is approximately 1100 birds a year. Joseph Platt, head of the Dubai Wildlife Research Centre, claims that about 3000 raptors are trained each year in Arab countries. Of these, 1000 are kept for a second season, so that the estimated demand for raptors in Arab countries is approximately 2000 a year. In F.R. Germany, according to one estimate, the demand for live raptors is about 1000 birds a year (Anon., 1984b).

Information on the annual demand for raptors in other countries, either for use in falconry or for other purposes, is not readily available. In general, however, the demand is probably much higher than is implied by the CITES annual report figures. This may be partly the result of poor CITES trade reporting, but it also suggests that, in some countries, domestic raptor supplies may be adequate.

The relatively large volume of trade in Peregrine Falcons in recent years can be attributed largely to scientific breeding efforts and the restocking of wild populations.

## COMMERCIAL ASPECTS

The commercial demand for live raptors has been highly publicized recently in North America and Europe because of enforcement efforts to combat illegal trade. The prices paid for raptors vary with demand, availability and bird quality. Very occasionally, tens of thousands of dollars may be paid in the Middle East for an exceptional Gyrfalcon in perfect condition. In general, however, the market for high-priced raptors seems small. Once this market is filled, world prices could be expected to plummet (Ruos, pers. comm.). Also, raptors are often exchanged among falconers or given as gifts. The trade for breeding or reintroduction to the wild is generally not a profit-making enterprise.

Berry (1983) outlines the commercial value of large raptors (Gyrfalcons and Peregrine Falcons) in North America, Europe, and the Middle East, noting that the general prohibition on sales within the USA has resulted in a Canadian monopoly over sales in North America. Prices paid in the UK are lower than in North America and F.R. Germany (Berry, 1983). Prices paid for raptors in Arab markets are reputedly among the highest in the world.

The figures in Table 6 outline the average commercial value during the late 1970s and early 1980s of some raptor species commonly traded as live specimens.

## BREEDING RAPTORS IN CAPTIVITY

Humans have endeavoured to breed wild birds in captivity for centuries. Recent interest in the captive reproduction of raptors coincided with severe population declines of many species in industrialized countries, beginning in the early 1960s. In the USA, excessive use of organochlorine pesticides such as DDT seriously affected the natural reproduction of species such as Peregrine Falcons, Ospreys (Pandion haliaetus) and Bald Eagles. Raptor propagation programmes were initiated to produce specimens for restocking diminished wild populations and to provide a continuing source of desirable raptors for falconry and scientific study.

In the USA, in 1981, 161 raptor propagators licensed by the US Fish and Wildlife Service, held 917 raptors for breeding and produced 459 progeny (Berry, 1983). Forty-four per cent of the progeny resulted from efforts of publicly-supported institutional breeders such as the Peregrine Fund, Santa Cruz Predatory Bird Research Group and The United Peregrine Society (Berry, 1983). Today, captive-breeding programmes in the USA appear to concentrate on Peregrine propagation for release to the wild, and Harris' Hawks and other large hawks for falconry. In addition, American Kestrels, Barn Owls (Tyto alba) and Screech Owls (Otus asio) have become standard laboratory species because of their success in captive-breeding centres (Ruos, 1982).

Table 6
Commercial Value of Raptors
(late 1970s/early 1980s)

| Species | Average No. Exported/Year* | Estimated Average Value (US$)** |
|---|---|---|
| Northern Goshawk (Accipiter gentilis) | 228 | 300 |
| Peregrine Falcon (Falco peregrinus) | 153 | 1800 |
| Common Kestrel (Falco tinnunculus) | 58 | 325 |
| Gyrfalcon (Falco rusticolus) | 33 | 6000 |
| Saker Falcon (Falco cherrug) | 18 | 1500 |
| Harris' Hawk (Parabuteo unicinctus) | 10 | 300 |

* derived from CITES annual reports, 1980-1983.
** derived from sales in several countries.

Sources: Berry (1983), Milliken (in litt.), Division of Law Enforcement, US Fish and Wildlife Service unpublished documents, Ruos (pers. comm.), Platt (1983).

Raptor captive-breeding programmes have been established in other parts of the world as well. There are three major falcon breeding facilities in the Middle East. The Sulman Falcon Centre, built in 1978 in Bahrain, specialises in the production of Peregrine Falcons, Gyrfalcons, and large hybrids for falconry. The Dubai

*Northern Goshawk (Accipiter gentilis)* ©WWF/James Hancock

Wildlife Research Centre, established in 1982 in the United Arab Emirates, has focused on attempting to breed the Houbara Bustard (Chlamydotis undulata), the most popular quarry of Arabian falconry, whose population has decreased dramatically in recent years. In Saudi Arabia, the Al Faisal Falcon Centre concentrates on the production of high-quality Saker Falcons, the traditional bird of Saudi falconry (Schwartz, 1984).

Other countries involved in the captive propagation of raptors include Canada and F.R. Germany. The captive-breeding programme of the Canadian Wildlife Service in Wainwright, Alberta has successfully raised Peregrines and released them into the wild (Anon., 1984). West German captive-breeding centres appear to focus on providing raptors to the falconry community.

CITES data indicate that about half of all Peregrine Falcons and two-thirds of all Gyrfalcons reported entering trade are listed as captive-bred. The countries which report exporting captive-bred raptors include Canada, Denmark, F.R. Germany, German Democratic Republic, the UK, and the USA.

## TRADE PROBLEMS

The international raptor trade is highly regulated and enforcement problems occur worldwide. While enforcement efforts continue to improve, difficulties in enforcing raptor protection laws consistently and effectively can be attributed largely to inadequate resources devoted to these activities worldwide. Recent investigations in North America and Europe have revealed that the most widespread offence involving live raptors is the illegal taking of birds and eggs from the wild. In some instances, these birds are wrongly claimed to be captive-bred and are thus "laundered" into the commercial market. In addition, US authorities have documented a sizeable illicit international trade in the feathers and parts of raptor species protected in the USA.

CITES permit-issuing authorities worldwide face difficulties in verifying the sources of raptors entering trade. Trying to obtain proof of captive breeding is time-consuming and laborious in the absence of an effective system for registration, inventory and licensing of raptor breeders. In addition, CITES data show many discrepancies in reported trade, both in the quantities and sources of birds traded. For most raptor transactions the data indicate that only one of the Parties reported the trade. This is attributable to both poor record-keeping and the fact that some important raptor-trading nations (primarily in the Middle East) do not provide annual trade reports, in some cases because they are not party to CITES.

Many countries have in recent years uncovered evidence of illicit trade, egg-stealing and nest-robbing of wild raptor species. In addition to the well-publicized North American investigations into the raptor trade, Belgium, Denmark, F.R. Germany, France, Iceland, Italy, Japan, Sweden, the UK, and Zimbabwe have also encountered trade problems.

An undercover investigation in the USA and Canada, dubbed "Operation Falcon", led to the conviction of thirty-seven individuals in the USA; two others were acquitted and eight (all foreign nationals) remain fugitives (Lambertson, 1985). Over the course of the three-year investigation, US authorities learned of seventy-one Peregrine Falcons and twenty-six Gyrfalcons that had been illegally taken from the wild in the USA, mostly for use in falconry there. Most of the Peregrines were either laundered through captive-breeding facilities or had illegal rings placed on them to avoid detection. During the course of the investigation, US agents themselves collected thirty-six Gyrfalcons, three Prairie Falcons (Falco mexicanus), and three Northern Goshawks (Lambertson, 1985).

In Canada, a three-year long investigation, conducted in co-operation with the USA, uncovered evidence that forty Peregrine Falcons and sixty Gyrfalcons had been illegally taken from the wild; most of these were apparently laundered through captive-breeding facilities and exported for sale to individuals in the UK, the USA and the Middle East (Lambertson, 1985).

In addition to the North American investigations, the Cologne Customs Investigative Office initiated criminal proceedings over import duty evasion by members of a family involved in the raptor trade for many years. Records of these proceedings disclose that the individuals had removed nestlings and fertilized eggs from raptor nests in Italy, France and the UK and smuggled them into F.R. Germany, from where they were sold internationally. The people involved claimed to be successful raptor breeders, but their breeding records were largely incomplete and contradictory (Anon., 1984b). In addition, Operation Falcon revealed that these same individuals had purchased nineteen Gyrfalcons and three Prairie Falcons in the USA from 1982 to 1984, and that these birds were subsequently smuggled out of the USA (Anon., 1984c).

Reports from Japan indicate that substantial raptor poaching occurs in that country as well. Because Japanese laws apparently do not adequately address "possession" of raptors, it is difficult to enforce laws against poaching. Among the raptors most commonly taken illicitly from the wild in Japan are the Common Kestrel and the Northern Goshawk (Milliken, 1984). In Europe, TRAFFIC reports from Belgium note recent instances of illegal collecting of raptors and their eggs in Belgium, Finland and France (d'Huart, in litt.).

Early in 1985, the CITES Secretariat reported that two CITES export permits had apparently been stolen from the Zimbabwe CITES Management Authority, and it was suspected that they were to be used for the illegal export of raptors, probably Peregrine or Lanner Falcons (Falco biarmicus) (Anon., 1985).

While it would be difficult or impossible to assess the total volume of illegal trade or the proportion it

represents of the entire trade, the above examples do indicate that illegal raptor collecting and commerce is an international problem, involving numerous countries, trade routes, and species.

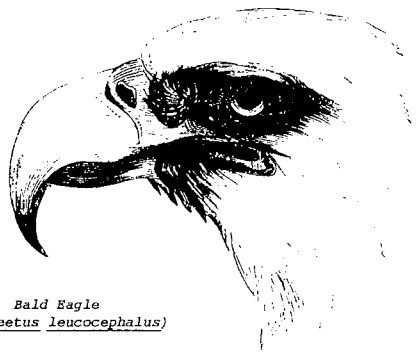
## CONCLUSION

The international raptor trade is complex and difficult to assess because of incomplete information. CITES data provide the best statistics on recent reported trade.

Evaluating the impact of trade on wild populations is difficult because the sources of birds, whether captive-bred or wild-caught, are often not determinable. A number of Appendix I Peregrine Falcons and Gyrfalcons entered commercial trade from 1980 to 1983; most of these were purportedly bred in captivity. While this is plausible for Peregrine Falcons, the lack of information on captive propagation of Gyrfalcons makes evaluating those claims difficult. There is clearly a need for better information on raptor breeding worldwide for these as well as other species.

Recent government investigations into the raptor trade indicate that the illegal removal of live birds and eggs from the wild is an international problem, and that these specimens are sometimes "laundered" into world commerce as captive-bred birds. While the scope of these problems is just now coming to light, law enforcement initiatives in North America and Europe have received widespread publicity and should play a positive role in curbing illegal activities.

Finally, there appears to be a large international commercial trade in dead raptors and their parts, notably stuffed whole birds and feathers. According to CITES annual report data, the international trade in Appendix II dead raptor specimens exceeds that of live birds. The volume of this specialised trade warrants closer examination, as its effect on wild raptor populations in some cases may be significant.



*Bald Eagle*
*(Haliaeetus leucocephalus)*


References

Anon. (1984):
Official Status Report on Peregrine Falcons. Prepared for the Committee on the Status of Endangered Wildlife in Canada. Ottawa, Ontario.

Anon. (1984b):
Kontrollen gegen falben schmuggel. Westfaelischer Volksblatt. 8 February. Paderborn, Federal Republic of Germany.

Anon. (1984c):
US vs. Ciesielski et al. Indictment Ref. No. CR 84-43-GF. US District Court for the District of Montana, Great Falls Division, Billings, Montana. Unpublished.

Anon. (1984d):
File Ref. No. E 243/82-230. 27 February. Cologne Customs Investigative Office, Cologne, Federal Republic of Germany. Unpublished.

Anon. (1985):
Notification to the Parties, Number 332, 28 January. Secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora. Lausanne, Switzerland.

Berry, Robert B. (1983):
Commercialism of Domestically Produced Raptors. The North American Raptor Breeders' Association.

Howard, Richard and Moore, Alick (1980):
A Complete Checklist of Birds of the World. Oxford University Press, 700pp.

Lambertson, Ronald E. (1985):
Statement on behalf of the Department of the Interior, US Fish & Wildlife Service, before the House Committee on Merchant Marine and Fisheries, Subcommittee on Fisheries and Wildlife Conservation and the Environment. Washington, DC. Unpublished.

Milliken, Tom (1984):
Birds of Prey Saved from Poachers in Japan. Oryx 18, January 1984.

Morony, John Jr, Bock, Walter and Farrand, John Jr (1975): Reference List of Birds of the World. Department of Ornithology, American Museum of Natural History. New York.

Platt, Joseph (1983):
Pakistan Hawk Bazaars and Arab Falconers. Hawk Chalk 22(3).

Platt, Joseph (1979):
The Sulman Falcon Centre. Newsletter of the Sulman Falcon Centre. Office of the Heir Apparent, Bahrain.

Ruos, James (1982):
Final Environmental Assessment, Raptor Propagation Permits - Possession, Purchase and Sale of Captive-bred Raptors for Scientific, Education, and Falconry Purposes. Prepared for the US Fish & Wildlife Service, Department of the Interior, Washington, DC. Unpublished.

Schwartz, Charles (1984):
Captive Breeding in the Middle East. National Association of Falconers of America Journal. Volume 23.


The full report of the raptor trade is available from TRAFFIC (USA), 1255 23rd St., NW, Washington, DC 20037, USA.

Deborah Barnes is a biology student at Stanford University, California, and worked at TRAFFIC (USA) on the raptor survey for several months during the summer, 1985. Ginette Hemley is the Assistant Director of TRAFFIC (USA).

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## EEC Sealskin Ban Continues

On 27 September 1985, the Council of Ministers agreed to continue the ban on the importation into the European Community of Harp and Hooded Seal (Phoca groenlandica and Cystophora cristata) pup skins and other products derived from them. The ban has been extended until 30 September 1989.

## Illegal Ivory Seized in Portugal

According to the CITES Secretariat, an illegal shipment of raw ivory was confiscated by Customs officers at Lisbon Airport, in November 1985, on behalf of the CITES Management Authority of Portugal. The 1.3 tonnes of ivory were concealed in an 8-tonne shipment of malachite, consigned from Kinshasa, Zaire, to Lisbon, via London.

## The Hare Trade in Argentina

*by J.E. Jackson*

Exporting wildlife is big business in Argentina and annually brings in millions of dollars' worth of welcome hard currency. According to official statistics, the record year to date was 1979, when U$A173 million (M) (FOB) (US$216 M) worth of wild animals and products, including 6 200 000 pelts, were legally exported from Argentina (Mares and Ojeda, 1984). If one also considers the wildlife products sold on the local market (about ten per cent), the number of carcasses or skins rejected for sale as substandard (an estimated ten to twenty per cent), and those which are not declared to the authorities, one begins to appreciate the scale of the Argentinian wildlife trade.

Although the most lucrative wildlife export category is furs and skins, meat accounts for about twenty-five per cent of the total income. Over ninety-nine per cent of this comes from one species, the European or Brown Hare (Lepus capensis).

Except in years when no export taxes are levied on wildlife products, so no financial incentive exists to break the law, Customs authorities openly admit that smuggling is rife. Official export statistics probably underestimate the trade severalfold, except in the case of meat for which they are probably reliable owing to the nature of the frozen product. It is notable that the tonnage of meat shipped has remained almost constant in recent years, whereas the figures for pelts fluctuate widely, often independent of market demands.

The Brown Hare is not an endangered species but it is instructive to see how the magnitude of trade in and the patterns of utilization of this herbivore have changed. It was introduced into Argentina for sport-hunting in 1888, by the German Consul in Rosario. The four pairs he released in the Pampas in southern Santa Fé Province soon established themselves in this grassland biome. Before 1900, at least two other releases took place: in 1896 hares from Austria were let loose in Tandil, in the centre of Buenos Aires Province and others were turned out in central San Luis some 800 km west. Undoubtedly, other introductions went unrecorded. The species adapted so well that by 1907 it had expanded both in numbers and distribution to an extent where it was declared a national pest because of the damage done to agriculture and forestry. It has now spread throughout mainland Argentina and especially abounds in the pampas region. As numbers soared, a commercial network evolved to exploit this species.

Official records show that, between 1941 and 1950, 13.4 M hare pelts were exported, rising to 20.6 M during the period 1951-1960. Over the years 1956-1960, this trade brought in U$A5.7 M. From the early 1960s, the sale of hare meat to Europe began to grow and this meat industry is now important in the Pampas and has recently started to extend into areas such as Patagonia.

From 1975 to 1983, the total annual hare meat exportation was between 10 000 and 14 200 t. A breakdown of figures for 1975-1980 (Fujita and Calvo, 1982) shows that fifty-two per cent went to Germany, thirty-three per cent to France, with lesser amounts to Austria, Belgium, Italy, the Netherlands and Switzerland.

The value of exports depends on factors such as market demand, world prices and the exchange rate. The most lucrative year was 1980 when exports totalling 12 460 t netted U$A32.78 M (FOB), with the dearest cuts sold at U$A3000 a tonne. The average annual income for meat from 1976 to 1983 was U$A23.97 M with the lowest revenue touching U$A15 M.

The industry is based entirely on wild hares, usually shot at night with 0.22 calibre rifles, spotlighting from slow-moving vehicles in open fields. Hunters then take the animals either to a road for collection by a refrigerated truck or to a local cold store, or directly to a processing plant. The hunting season is normally from May to September. The numbers of hares shot can only be estimated. Carcass weights will vary with sex or age and with the area in which they are taken, but a realistic average would be 2 kg. Allowing fifteen per cent wastage for bullet damage to carcasses, it appears that at least six million hares are shot each year.

Hare hunting is an important socioeconomic factor in rural life. In winter, crews of professional hunters can earn a lot of money, and many amateurs also hunt for money as a pastime. Going rates paid to hunters in the winter of 1985 in central Argentina were about U$A0.45 a hare, irrespective of its sex, size or state. A farm hand's monthly wage then was only about U$A100. In San Luis, considered marginal for hares, it is quite common, especially early in the season, for hunters to bring in 100-150 hares each.

The processing or meat packaging plants specialising in hares are modern, costly complexes which have to comply with the stringent standards demanded by the importing countries of western Europe. In the closed season, they may remain idle for several months.

In the factories, the hares are gutted, cleaned, prepared and frozen. They may be exported in various forms. In the past, it was common for animals to be shipped with the skin still on and, in some cases, frozen whole with entrails. The recent trend has been towards exporting hare meat skinned, cut into joints, prepared in plastic trays and deep-frozen, so that on arrival in Europe the packages simply need pricing ready for the supermarket shelves. Trials are also under way to freeze and can hare meat for petfood and to convert carcasses into fertiliser. Hare meat is rarely consumed by the local people, who dislike its strong taste and are traditionally beef eaters.

Exports of hare pelts are currently far below their record historical values of the 1940s, '50s, '60s. In 1982, 106 000 were exported and in 1983, 290 010 with a value of approximately US$0.40 each. The tendency has been towards exporting the fur rather than the pelts. The fur is used in felt and hat-making. While only 300 kg of fur were exported in the period 1956-1960, exports in recent years were 25 330 kg at U$A31.29 a kg in 1981; 17 887 kg at $26.44 a kg in 1982; and 15 878 kg at $28.29 a kg in 1983. Live hares have also been in demand over the last decade to restock hunting areas in Europe. They are caught at night in long nets. In terms of dollars per animal, this is the most lucrative form of selling hares. In 1981, 9900 were exported at U$A51.60 each; in 1982, 5730 at $39.79; and in 1983, 3852 at $28.29.

From its introduction into the Pampas almost a century ago, the Brown Hare has surpassed all expectations and now provides the raw material for a multi-million dollar industry. This herbivore still causes damage, especially to forestry interests where control measures adopted include fencing and poisoning, but what was once regarded as a pest species to be eliminated at all costs, is now seen in a different light by many people.

Surprisingly, almost nothing is known about this species' ecology in Argentina. The basic data to establish management criteria are wanting, and actual bag limits are fixed by market demands. No system exists to either monitor or predict the effect of current or future pressures on the resource.

References:

Fujita, H. and Calvo, O. (1982):
Las exportaciones de productos y subproductos de la fauna silvestre en el quinquenio 1976-80. IDIA 397-400:1-26.

Mares, M.A. and Ojeda, R.A. (1984):
Faunal commercialization and conservation in South America. Bio Science 34(9):580-584.

Dr J.E. Jackson is at the Instituto Nacional de Tecnologia Agropecuaria in San Luis, Argentina.

# International Trade in Asian Bonytongues

*by John Joseph, Diana Evans and Steven Broad*

## INTRODUCTION

A primitive group of fishes, the family Osteoglossidae (bonytongues), is found in tropical regions of South America, Africa, South-east Asia and Australia and is made up of four genera. One species, Scleropages formosus (Asian Bonytongue), is much in demand as an aquarium fish and has been listed in CITES Appendix I since the Convention came into force in 1975. Despite this, trade has continued almost unabated and, if anything, the demand in recent years for S. formosus seems to have grown (Matsumura and Milliken, 1984; T.M. Lee, in litt., 19.2.82). The other two members of the genus, Scleropages jardini (Northern Barramundi) and Scleropages leichardti (Spotted Barramundi), inhabit parts of Australia and New Guinea, while S. formosus is distributed widely, but discontinuously, through South-east Asia. It is found in freshwater rivers, lakes and swamps in Malaysia (Peninsular Malaysia, Sabah and Sarawak), Thailand, Kampuchea, Indonesia (Sumatra, Bangka, Kalimantan), Viet Nam (Bain and Humphrey, 1982; Roberts, in litt., 14.4.81) and possibly Burma (M. Kottelat, in litt., 6.1.82).

The primitive and striking appearance of S. formosus is largely responsible for its popularity in the aquarium trade. It has an elongated, laterally compressed body with a keeled belly. There are large, stout, bony scales, big eyes, and the head has a bony covering. The mouth is inclined upwards with a large gape. A fully-grown fish may reach a maximum size of about 7.4 kg and 1 m in length (Alfred, 1964) although 30 cm is more usual. Within the species there is a great deal of colour variation; the back ranging from olive-brown to reddish-brown, the sides and scales from dull silver to green. Fins vary from light olive-brown to lighter reddish-brown. Although these differences are marked in adult specimens, young fish of up to 10 cm long have more subtle colour differences and may be difficult to differentiate to species level (Matsumura and Milliken, 1984; Yong, 1976). The two main colour types distinguished in trade are the green and the red varieties, however other colours can be identified. S. formosus has a wide range of common names, which in some cases reflect the colour types, including: Red Arowana, Green Arowana, Orange Arowana, Silver Arowana, Gold Arowana, Kelesa, Asian Arowana, Malayan Bonytongue, Golden Dragon Fish, Red Dragon Fish and Emperor Fish as well as numerous local names.

## STATUS

The typical habitat of S. formosus is swamp or flooded forest. In Tasek Bera, Malaysia, it occurs in an area of swamp forest interspersed with waterways. The water in the main body of the swamp is almost still, peat-stained and slightly acidic. Areas of open water are up to 12 m deep and may vary seasonally by up to 6 m in depth (Scott and Fuller, 1976). During the night, the fish swim at the surface of open water channels but, during the day, return to hide in vegetation. S. formosus has a varied diet, including terrestrial insects, arachnids, non-woody roots and tubers (Furtado and Scott, 1971; Scott and Fuller, 1976), fish, frogs and snakes (Ukkatawewat, 1979). A territorial species, S. formosus has an unusual reproductive strategy, notable for late sexual maturity, low fecundity and high survival of young. Spawning takes place between August and October. In Malaysia, the fish may move towards shallow swamp edges to spawn when water levels are high. Twenty or thirty eggs are produced from the single ovary (Scott and Fuller, 1976) with the maximum known being thirty-seven (Ukkatawewat, 1979). After spawning, the male incubates the eggs in its mouth until they hatch. The fry remain near the parent until they are around 80 mm long (Scott and Fuller, 1976).

The IUCN Red Data Book on freshwater fish (Miller, 1977), in classifying the fish as 'Vulnerable', reported a total population of 2000 and a distribution far more limited than is now thought. Roberts (in litt., 18.3.81) pointed out that the figure of 2000 applied only to the population in Thailand and considered S. formosus to be far more widespread and numerous than indicated by earlier reports, disputing its status as Vulnerable. Certainly the status of the fish is poorly known throughout its range, partly owing to the nature of its preferred habitat in swampy and heavily wooded areas, which often prevents access for research (T.R. Roberts, in litt., 14.4.81).

Although one of the chief threats to S. formosus is its utilisation as an aquarium fish, it is also thought to be under pressure as a result of habitat loss caused, for example, by swamp clearance in Malaysia (Scott and Fuller, 1976), and dredging for rubies in Thailand (Bain and Humphrey, 1982). It is also an important food-fish in some parts of its range (Scott and Fuller, 1976; Yong, 1976). Its low fecundity makes it particularly vulnerable and may justify special protection measures (Furtado, in litt., 1.5.85).

Populations of S. formosus have been reported to be threatened in a number of countries, although Roberts (in litt., 18.3.81) claimed that there was little evidence that the species had declined in any of the areas in which it occurred. Indeed, he believed it was likely to be abundant in the extensive swamps of east and south Borneo (where very few ichthyological studies have taken place), and would be found to be common and continuously distributed in the swamps of north Sumatra. He thought it would be found to be widely distributed in the Mekong basin and that it probably occurred in scattered localities in the Malay peninsula (T.R. Roberts, in litt., 14.4.81). Scott and Fuller (1976) reported that in Peninsular Malaysia, S. formosus was not uncommon although its habitat was threatened. Bain and Humphrey (1982) quoted Ukkatawewat as reporting that the species was extinct in Thailand, although slightly earlier reports (Ukkatawewat, 1979; S. Sontirat, in litt., 29.10.81) had indicated that the fish still occurred there, albeit in small numbers. The decline and possible extirpation of the species in Thailand apparently resulted from overfishing and habitat destruction caused by dredging (Bain and Humphrey, 1982).

## TRADE

Despite the listing of S. formosus in CITES Appendix I, there is no doubt that international trade continues. This trade involves many countries, notably Hong Kong, Indonesia, Japan, Malaysia, Singapore and the USA. According to CITES annual reports the total trade in S. formosus since 1975 has numbered 2210 specimens, with Japan importing 2202 of these. It seems likely that Japan is the major importer of the fish, that most of these are wild-collected in Malaysia and Indonesia, and that much of the trade is routed via Singapore. Matsumura and Milliken (1984) identified both red and green colour types in trade in Japan, the more expensive red variety being more popular.

Two major problems seem to inhibit the effective control of this trade: first, species identification and secondly the proof, or otherwise, of captive breeding.

### Identification

A large proportion of trade involves juvenile fish which have not yet developed the distinctive shape and colouration of the adult and can therefore be mixed in shipments of other species to avoid detection. This

problem is well illustrated in Japan where seventy per cent of specimens identified in a market survey by Matsumura and Milliken (1984) were juveniles. This, combined with the fact that the 'Washington Treaty Identification Manual', produced by the Japanese CITES Management Authority, describes only the adult fish, certainly inhibits accurate species identification. The official CITES Identification Manual sheet for S. formosus (Mahert, 1985) says of juveniles simply that, "Young specimens (up to 10 cm) are normally pale olive-brown with no markings on the fins". Control of the trade is further complicated by the wide variety of names under which S. formosus is traded. Some of the names are used to describe other species as well, thus confusion can arise when the fish reach Customs. In the USA, for example, S. formosus has been imported under the name 'Arowana', which is the common name for Osteoglossum bicirrhosum, a related fish found in South America (T.R. Roberts, in litt., 11.4.81). This problem is also exploited in Japan where young fish are imported under synonyms which are not detailed in the Japanese identification manual, hence it is extremely difficult for Customs officers to identify the fish (D.B.C. Scott, in litt., 9.4.85).

*Illustration by Gilles Roth*
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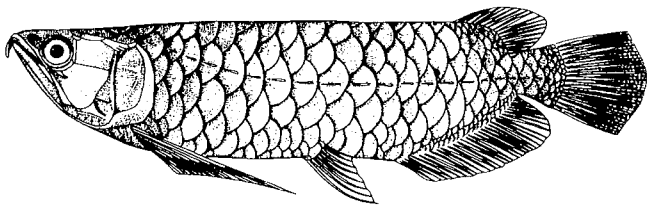

*Asian Bonytongue*
*(Scleropages formosus)*

## Captive Breeding

Matsumura and Milliken (1984) reported that one method of importation of S. formosus is to claim that the specimens are captive-bred, thus avoiding the restrictions on trade in Appendix I species. In the 1982 Japanese CITES annual report, it was stated that permits had been issued for the import of 2202 S. formosus (20 from Hong Kong, 182 from Taiwan and 2000 from Indonesia) all of which were declared to be captive-bred. Indonesian Government officials have stated that any such trade with Japan was illegal, since the specimens had no official documentation issued by their CITES Management Authority (M. Syafii, in litt., 19.7.85). The validity of the other figures describing imports of captive-bred specimens into Japan must be treated with suspicion owing to the low fecundity of the fish and the difficulties experienced by public aquaria and research laboratories in the captive-breeding of the species. The only authenticated example of a successful captive breeding programme with S. formosus is that of the Sembawang field experimental station in Singapore. The fish was first bred in captivity there in November 1981. Since then, there have been at least three more spawnings with survival rates to 26 cm of up to eighty-three per cent (G. Tay, in litt., 25.10.84). One recent report in the Singapore press claimed that a fish farmer had managed to produce captive-bred fish (Ngiam Tong Hai, 1984), however this report has not been validated, and in the light of recent pressure by the Primary Production Department to control trade in the species, such claims must be treated with some suspicion. Thailand was also involved in early attempts at commercial pond culture of S. formosus which was apparently unsuccessful, presumably because of low fecundity (Furtado and Scott, 1971). The Thai Inland Fisheries Division procured thirty-seven eggs from one of the last specimens captured in south-east Thailand, from which four adult fish were raised, reaching a reasonably large size (Bain and Humphrey, 1982). Salm (in litt., 10.8.85) states that there are plans to attempt the breeding of S. formosus in Indonesia for export, in aquaria situated near the natural source of the species.

It is most unlikely that this fish has been bred in captivity in the numbers claimed in the trade. In Singapore various commercial tropical fish breeders have claimed to be breeding S. formosus, but it is thought that imported juvenile fish have been used to create this illusion (T.M. Lee, in litt., 11.8.85).

A number of reports and comments have been obtained, describing the trade in S. formosus in various countries.

## Country Synopsis

### Hong Kong

In the late 1970s the trade in S. formosus was largely unchecked in Hong Kong. One Government officer is reported to have stated that bonytongues were commonly seen on sale, despite being listed under the local Animals and Plants (Protection of Endangered Species) Ordinance 187, revised in August 1976. This was said to be mainly due to the shortage of staff available to check aquaria regularly and to the low priority given to endangered fish. However, as trade has increased and consequently become more conspicuous, it seems that the Government has begun to take more interest (D.S. Melville, in litt., 20.5.85). Since June 1984 three shipments of S. formosus have been intercepted: two shipments of seventy-two specimens originated in Singapore and a further shipment of two fish came from Malaysia. All of these shipments were returned to their respective countries of origin (M.K. Cheung, in litt., 3.6.85; M.K. Cheung, in litt., 25.7.85). The confiscation of illegal shipments has presented a problem for the Hong Kong Agriculture and Fisheries Department as a number of source countries have been reluctant to accept returned shipments (K.C. Iu, in litt., 11.2.85).

Hong Kong authorities recently carried out a survey of ornamental-fish dealers and found a total of 361 specimens of S. formosus for sale, with prices ranging from US$75 for specimens less than 10 cm to $750 for 30-cm specimens. Over eleven per cent of the 325 aquaria surveyed stocked the species. All of these fish were subsequently registered and the Hong Kong authorities intend to carry out regular checks of the stock held at each establishment. Local transfers and deaths will now be recorded and it is reported that further illegal importations will lead to prosecution (M.K Cheung, in litt., 5.6.85).

### Indonesia

S. formosus has been protected in Indonesia since 1980, since when commercial trade in the species has been banned. Fishing is only authorised in specific cases for research and for the collection of breeding stock.

Four captive-breeding ventures have been registered in Pontanak, west Kalimantan. Collection of stock must be carried out under permit issued by the Director General of Forest Protection and Nature Conservation under the surveillance of a regional field officer. Government authorities in Bogor acknowledge that, despite the ban, some illegal trade does still occur owing to the high value of the fish on the black market, especially in Singapore and Hong Kong. Indonesian authorities recently confiscated 420 specimens of S. formosus which were being smuggled from west Kalimantan to Singapore via Jakarta Airport. The authorities believe that the confiscations represent only a small proportion of the total illegal trade in the species originating in Indonesia (M. Syafii, in litt., 19.7.85).

Japan

A comprehensive survey of the trade in Japan has already been produced by Matsumura and Milliken (1984).

Japan has a large number of ornamental-fish enthusiasts and, with an ever-increasing number of young collectors, must be regarded as the single largest market for S. formosus. Matsumura and Milliken (1984) estimated that over 3000 fish were imported into Japan between autumn 1982 and spring 1983. This trade continued despite CITES controls and the high prices asked for specimens, which may, indeed, have been increased by Japan's acceptance of CITES in 1980 (Matsumura and Milliken, 1984). The demand is sufficiently high to stimulate freelance illegal importations into Japan. The risk of Customs seizure, with a maximum fine of Y500 000 (approx. US$2000), is outweighed by the potential profits. In March 1985 (T. Milliken, in litt., 23.5.85), 10-cm brilliant-red specimens were being offered for sale by an importer in Osaka, at Y100 000 (US$400) each, with dealers asking Y160 000-Y180 000 (US$640-720) each. This shows a dramatic increase on the Y50 000 asked for similar specimens, as reported by Matsumura and Milliken, (1984). TRAFFIC (Japan) alerted the authorities to the expected arrival of further shipments on 1 April, which, in the event, did not materialize, and requested an investigation into the events at Osaka (T. Milliken, in litt., 27.3.85).

As recently as 19 June 1985, fifty juvenile specimens of S. formosus were confiscated at Haneda Airport, Tokyo where they were being smuggled in a vinyl bag placed inside a brandy bottle, one of a consignment of 2000 bottles on a flight from Singapore. Three of the fish were dead on arrival (T. Milliken, in litt., 3.7.85; 5.7.85). Matsumura and Milliken (1984) pointed out that the general state of the implementation of CITES in Japan seems to have allowed the illegal trade in this species to flourish. Some of the main problems included the large number of points of entry into the country (then 123 in all), the lack of accurate export permit verification, and the inadequacy of domestic legislation to help enforce CITES controls. Since that article was published, Japan has adopted new regulations, from 1 April 1985, which aim to improve the implementation of CITES. The new regulations demand stricter enforcement of the Convention, with special emphasis on the verification of export documentation. The number of ports of entry for CITES listed species has also been limited to thirty-five as from 1 May 1985. Whether these new measures will have a significant effect on the trade is yet to be seen, as present enforcement is more or less restricted to Customs inspections at the ports of entry.

Malaysia

S. formosus is a native Malaysian species, but in Sarawak it is suspected that the majority of specimens for sale are in fact imported, either from Sumatra or Peninsular Malaysia. According to Kavanagh (in litt., 1.4.85) there is a great demand for these fish among the local Chinese population where the ownership of this fish reputedly bestows good luck on the whole household. Accordingly, many of the aquaria in large towns, such as Kuching in Sarawak, have a stock of these fish for sale. Malaysia has been cited as one of the major sources of the fish in international trade (P.K. Chan, in litt., 8.7.85; Matsumura and Milliken, 1984). Unfortunately Sarawak regional authority has yet to take steps to implement CITES controls. In any case it is possible that, if fish could not be imported from Sumatra or Peninsular Malaysia, dealers in Sarawak would be forced to exploit stocks from local swamp areas. In Peninsular Malaysia the popular red colour-variety of the fish is reported to be quite scarce owing to over-exploitation (Matsumura and Milliken, 1984).

The food value of S. formosus has been recognised for many years in Malaysia. Yong (1976) described an early attempt to raise the species in captivity for food in 1927. Apart from its food value, S. formosus has been described as a prized game fish, although in 1976 its market value as food was considerably less than its value live for sale to aquaria or export (Yong, 1976).

Singapore

Singapore is not a Party to CITES, and in 1981 was said to be the world's leading centre for the breeding and export of tropical fish (Anon., 1981). Matsumura and Milliken (1984) suggested that Singapore was the centre for most traffic in S. formosus. However this may have changed somewhat since 1983, when the Primary Production Department of the Singapore Government advised dealers against trade or public display of the species. They also told stockists that they would not issue any further permits for the import or export of the species (Azuma, 1983). This was recently confirmed by the Director of the Primary Production Department (Y.T. Lee, in litt., 10.4.85).

The only trade involving Singapore that has been officially reported by a CITES Party was the import of eight specimens of unknown origin into Denmark in 1984 for zoological purposes.

Recent confiscations of S. formosus en route to Singapore (M. Syafii, in litt., 19.7.85) and being smuggled into Hong Kong from Singapore (P.K. Chan, in litt., 8.7.85) indicate that, despite Government controls, Singapore continues to be a major centre for illegal trade in the species. Matsumura and Milliken (1984) report that, since the implementation of these trade controls in Singapore, the method of shipment to Japan has changed to involve couriers carrying the fish as personal possessions, rather than relying on normal commercial channels and the use of 'captive-bred' documentation.

Since the ban on trade was implemented, regular classified advertisements have appeared in Singapore newspapers offering S. formosus for prices ranging from S$500 (US$235) for juvenile fish up to S$3000 (US$1413) for larger specimens. The highest price noted was S$18 000 (US$8482) for a large red specimen (T.M. Lee, in litt., 11.8.85). The fish have been advertised under a wide variety of names including, 'red fish', 'golden fish' or simply 'rare fish', perhaps to evade the trade ban.

Taiwan

Taiwan was the source of 182 'captive-bred' S. formosus detailed as imports in the Japanese CITES annual report for 1982 (Matsumura and Milliken, 1984). Taiwan is not a CITES Party and the Board of Trade allows the import and export of all freshwater and marine tropical fishes. A number of shipments of bonytongues, including S. formosus, are reported to have been exported to Japan in 1985 (F. Chang, in litt., 5.10.85). No other details of trade involving Taiwan are known.

Thailand

According to Bain and Humphrey (1982), S. formosus has been extirpated in the country. However in 1983 it was reported that Bangkok was increasingly quoted as the source of fish imported into Japan (Matsumura and Milliken, 1984).

USA

Approximately 2000 S. formosus were imported into San Francisco between 1975 and 1981 labelled as "arowana, Osteoglossum bicirrhosum" according to a confidential source. These specimens were shipped by five Singapore firms but the US Fish and Wildlife Service agents were eventually alerted to these violations and by April 1981 a total of thirty S. formosus specimens had been confiscated.

References

Alfred, E.R. (1964):
The freshwater food fishes of Malaya. Scleropages formosus (Muller and Schlegel). Federation Museums Journal 9:80-83.
Anon. (1981):
Singapore and the aquarium fish trade. Traffic Bulletin 3(5):57.
Azuma, H. (1983):
Arowana warning. Traffic Bulletin 4(6):82.
Bain, J.R. and Humphrey, S.R. (1982):
A profile of the endangered species of Thailand 1:87-90.
Furtado, J.I.D.R. and Scott, D.B.C. (1971):
Notes on Scleropages formosus (Muller and Schlegel, 1884) (Osteichthyes, Osteoglossidae) in Malaya. Malaysian Agriculture Journal 48:38-43.
Mahnert, Volker (1985):
Scleropages formosus. In: CITES Identification Manual, Vol. 3, amphibia, reptilia, pisces. CITES Secretariat, Lausanne, Switzerland.
Matsumura, S. and Milliken, T. (1984):
The Japanese trade in bonytongue and CITES-listed fish. Traffic Bulletin 6 (3/4):42-50.
Miller, R.R. (1977):
IUCN Fish Red Data Book Vol. 4 Pisces. IUCN, Morges.
Ngiam Tong Hai (1984):
Fish farmer breeds rare fish. Sunday Times, Singapore, 3 June.
Scott, D.B.C. and Fuller, J.D. (1976):
The reproductive biology of Scleropages formosus (Muller and Schlegel) (Osteoglossomorpha, Osteoglossidae) in Malaya and the morphology of its pituitary gland. Journal of Fish Biology 8:45-53.
Ukkatawewat, S. (1979):
The taxonomic characters and biology of some important freshwater fishes in Thailand. National Inland Fisheries Institute Technical Paper 3: 4 Kasetsart.
Yong, H.S. (1976):
Kelesa, the golden dragon fish. Nature Malaysiana 1(2): 28-32.

Letters cited in text

Chan, P.K.
Agriculture and Fisheries Department, Hong Kong Government
Chang, F.
Society for Wildlife and Nature, Republic of China
Cheung, M.K.
Agriculture and Fisheries Department, Hong Kong Government
Furtado, J.
Science Adviser, Commonwealth Secretariat, London, UK
Iu, K.C.
Agriculture and Fisheries Department, Hong Kong Government
Kavanagh, M.
World Wildlife Fund, Malaysia
Kottelat, M.
Museum of Natural History, Basel, Switzerland
Lee, T.M.
Singapore
Lee, Y.T.
Primary Production Department, Singapore
Melville, D.S
World Wildlife Fund, Hong Kong
Milliken, T.
TRAFFIC (Japan)
Proud, K.
World Wildlife Fund, Indonesia
Roberts, T.R.
California Academy of Sciences, USA
Salm, R.V.
CZM Project, Oman
Scott, D.B.C.
Department of Zoology and Marine Biology, University of St Andrews, Scotland, UK
Sontirat, S.
Faculty of Fisheries, Kasetsart University, Thailand
Syafii, M.
Directorate General of Forest Protection and Nature Conservation, Bogor, Indonesia
Tay, G.
Freshwater Fisheries Laboratory, Singapore

## Snakes Seized

On 25 September 1985, snake collector Peter Murr from F.R. Germany was detained in Greece, under the wildlife protection law, for attempting to smuggle seventy live specimens of the Cyclades Blunt-nosed Viper (Vipera lebetina schweizeri) onto a ferry from the island of Milos, bound for Piraeus. The snakes are of a protected, endemic subspecies, and include five of the rare red variety which are valued at over DM2000 (approx. US$720) each. The total consignment, weighing over 7 kg is estimated to be worth DM20 000.

Murr was later released, pending charges. All the snakes were released, at several suitable wild locations on the island, under police supervision.

The initial detective work leading to the arrest was carried out by amateur Dutch herpetologist Gaston van Mook, and David Stubbs, of the UK, who was carrying out work on behalf of the Societas Europaea Herpetologica.

It is estimated that over 1000 specimens of Vipera lebetina (perhaps ten to twenty per cent of the population) are taken from the island each year and that collecting is a major threat to the species in several areas. This arrest is therefore an important landmark in co-operation between conservationists and the Greek authorities.

*Sources: David Stubbs*
*Herpetofauna News No. 2, October 1985*

## Cacti Consignment Seized

A number of live cacti were seized in September by the authorities in Switzerland, where the plants were being imported from the Netherlands. According to the CITES Secretariat, the reason for the seizure was that, although the accompanying Dutch certificate stated that the plants were artificially propagated, a Swiss expert who examined them determined that five Discocactus plants and five Ariocarpus plants, out of the twenty-two specimens being imported, appeared to have been taken from the wild. The case is being investigated.

## Leaflet Warns of Threat to Plants

On 17 September 1985, the UK Environment Minister William Waldegrave announced the publication of a new leaflet from the Department of the Environment which explains restrictions on trade in endangered plants.

The leaflet warns plant collectors and traders of the strict import, export and sale controls on rare plant species such as cyclamen, cacti and orchids. At the same time it encourages the propagation of rare plants from seed as a way of helping with conservation.

*Source: DoE Press Notice, 17.9.85*

## Giant Clam Extinct in Fiji?

Preliminary results from a survey of giant clams in Fiji, as part of an international project being run by ACIAR (Australian Center for International Agricultural Research) and ICLARM (International Center for Living and Aquatic Resources) have shown that stocks are declining rapidly. Abundance is generally much lower than in the past, even compared with a small-scale fisheries survey in 1979. As might be expected, stocks are low on reefs close to inhabited islands, due to local consumption, but they are also very low on isolated uninhabited reef systems such as the Minerva reef which is now completely devoid of clams. The largest species, Tridacna gigas (in CITES Appendix II and listed as Vulnerable in the IUCN Invertebrate Red Data Book) is now very rare or even extinct in Fijian waters, the last known living specimen having been taken fifteen years ago.

The disappearance of clams from Fijian waters is largely due to South-east Asian poachers who have been forced east by the depletion of stocks in the Indo-West Pacific and the intensive policing of Australian waters. In recent years two Taiwanese clam-fishing vessels have been apprehended in Fijian waters and there have been several other sightings. The diary of a Taiwanese skipper was confiscated during an incident in Australian waters and included the following observation: 'reefs to the north of Australia and east at least as far as Fiji have been fished out - the only place with clams of any size and quantity is Australia'. As a Fisheries Officer in Fiji commented, 'There you have it - straight from the pen of one of the most experienced field-surveyors in the Pacific.'

It is hoped that further work in Fiji over the next two years on population dynamics will determine the level of fishing that giant clams can withstand. Trials are also planned for a low technology farming scheme using imported seed clams, which are being supplied to a number of experimental hatcheries and mariculture research programmes in the Pacific by the Micronesian Mariculture Demonstration Centre in Palau.

*Source: T.J.H. Adams, Fisheries Officer, Suva, Fiji.*

## . . . China Clam Endangered?

Of the seven giant clam species, market surveys reveal that the China Clam (Hippopus porcellanus), together with the coloured variety of T. squamosa and T. gigas, are the most marketable of all tridacnid clams. The shell of the China Clam is easily cleaned and polished into salad bowls and other shellcraft. While there has been a decline in demands for other species of giant clams, shell exporters note that there is an ever-increasing demand for China Clam shells. Current prices range from US$0.60 to $1.50 for a pair of shells 2" and 8" long respectively. Unfortunately, shell dealers also note that there has been a steady decline in the supply of these Clams. Local shell gatherers have reportedly resorted to harvesting from as far as the Kalayaan Islands and outside Philippine territorial waters because this species is now scarce in waters around the Sulu Archipelago where it used to abound.

Listed as Indeterminate in the IUCN Invertebrate Red Data Book, more information on the biology of this little-known species, probably already endangered, is urgently needed.

*Source: E.D. Gomez, Director, Marine Science Institute, University of the Philippines.*

*Giant Clam (Tridacna gigas)* — *Sarah Anne Hughes* ©IUCN

## Clam Farm Set Up

A Giant Clam nursery has been established in the Marshall Islands, in the Pacific, with the aid of a grant from the Pacific Fisheries Development Foundation, according to 'Fish Farming International' (Vol. 12, No. 12). The nursery, at Majuro, is being operated by the Marshalls Community Action Agency (MCAA). The Agency hopes to build the industry into an important sector of the economy of the Marshall Islands where, traditionally, clams have been grown in 'clam gardens'.

The MCAA has already obtained 1000 seed clams from Palau. If these grow successfully, it is planned to import 10 000 more seed clams in 1986 and to build a hatchery.

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## Aquarium Fish Trade Surveyed

A new report on the Exploitation of Coral Reef Fishes for the Aquarium Trade by Dr Elizabeth Wood, describes the extent and organisation of the trade, discusses the problems associated with it, and considers whether sufficient is being done to ensure that it is properly conducted, monitored and regulated. Part I deals with all aspects of the trade in the UK, from importation to the fate of the fish in home aquaria. Part II is a case study of the export trade in Sri Lanka. This country was chosen because it is the major supplier to the UK, and also exports to many other parts of the world.

The report is available from the Marine Conservation Society, 4 Gloucester Road, Ross-on-Wye, Herefordshire HR9 5BU. Price £6.00 including postage.

## Ivory Export Quotas

By 13 December, nine African countries had submitted their ivory export quotas for 1986 to the CITES Secretariat: Cameroon-300 tusks; Central African Republic-0; Congo-1200; Ghana-0; South Africa-12100; Sudan-12971; Tanzania-1600; Zimbabwe-14000; Zambia-20 tonnes (tusk details not yet received). This probably amounts to at least 250 tonnes, and quotas for other countries are expected as we go to press. The CITES Secretariat has already distributed its manual on control of the ivory trade and has established its new ivory unit. It is optimistic that the new system of control will be initiated smoothly on 1 January 1986.

# Exploitation of the Saltwater Crocodile in Indonesia

*by Richard Luxmoore*

## INTRODUCTION

At the CITES meeting in Buenos Aires in April/May 1985, the Indonesian population of the Saltwater Crocodile Crocodylus porosus was transferred from Appendix I to Appendix II subject to an annual export quota of 2000 skins. It might be expected that such a relaxation in the regulations governing the export of C. porosus from Indonesia would have resulted from the presentation of evidence to indicate the satisfactory status of crocodile populations in the country. However a recent survey of Irian Jaya (Whitaker, Sukran and Hartono, 1985), commissioned by the Indonesian Government, reported that C. porosus "has become scarce throughout its range", adding that, "since there is no evidence that this species has recovered as a result of the hunting and trade ban imposed in Indonesia in 1980, it would be premature to allow trade in their skins until more accurate status assessments are made."

How, then, did the CITES Meeting reach its decision to relax the controls?

### Indonesia's trade in crocodile skins

Indonesia has four species of crocodilian: the Siamese Crocodile Crocodylus siamensis, or a closely related species, is restricted to Java and Borneo in Indonesia, and has never been abundant; the False Gharial Tomistoma schlegelii, which is in Appendix I, is absent from Irian Jaya, but may be "locally common" in Sumatra (Groombridge, 1982), and is not thought to be subject to extensive exploitation for skins; the Freshwater Crocodile Crocodylus novaeguineae novaeguineae, which is in Appendix II, is confined to the New Guinea and Aru islands; and C. porosus is widespread but depleted, from Sri Lanka to the western Pacific islands and northern Australia. Although the neighbouring population of C. porosus in Papua New Guinea is in Appendix II, and is subject to a sustainable exploitation scheme involving ranching, all other populations, including that of Indonesia, were in Appendix I from the time that they were transferred from Appendix II in 1979, until 1985.

C. porosus is the most sought-after species for commercial purposes owing to its large size and high-value skin. Its habit of living in open waterways means that it is easier to hunt and this has contributed to its decline. C. novaeguineae novaeguineae is now the main species in trade, the skins fetching only slightly lower prices than those of C. porosus.

CITES has been in force in Indonesia since 1979, the year in which C. porosus was transferred to Appendix I. Several of the European consumer nations (F.R. Germany, Switzerland, Italy and France) have held reservations on C. porosus in the past but these have now been withdrawn (in 1982, 1983, 1984 and 1984, respectively). The only countries currently holding reservations on this species are Austria, Japan and Thailand.

The level of Indonesian exports of crocodilian skins can be inferred from three main sources: CITES annual reports, Indonesian Department of Trade export statistics, and Customs import statistics of consumer countries. The only country whose Customs reports show substantial quantities of imports of crocodilian skins from Indonesia is Japan. These figures are presented in Table 1. The CITES figures have been divided into three parts: exports reported by Indonesia; imports from Indonesia reported by the importing countries; and imports or re-exports where the country of origin was reported to be Indonesia.

The Indonesian Department of Trade export figures indicate that, while skin exports were running at very high levels in the 1970s, they have declined considerably in recent years. Indonesian reports to CITES of exports are now also relatively low. The fact that they are rather higher than the Department of Trade figures in 1982 and 1983 is probably because they refer to the whole country while the Department of Trade figures are only for Irian Jaya. CITES reports by importing countries of skins originating in Indonesia suggest that the true numbers of crocodile skins exported may be much higher. However the most revealing figures are those of imports to Japan which suggest that, far from declining, the skin trade has been expanding rapidly. But how reliable are these Japanese import figures?

Table 1: Indonesian exports of crocodile skins indicated by three sources: Japanese Customs reports of imports from Indonesia of "Alligator skins and Crocodile skins", in kg (commodity code 41.01 271); Exports of crocodile skins reported by the Department of Trade (Branch Office), Irian Jaya, PPA (converted to numbers of skins from inches of belly width by Whitaker, Sukran and Hartono (1985)); CITES annual reports - Exp = exports reported by Indonesia; Imp = imports from Indonesia reported by the importing countries; Orig = imports or re-exports where the country of origin was reported to be Indonesia.

| Yr | Species | Japanese Imports (kg) | Indonesian Exports (skins) | CITES Reports Exp (skins) | Imp (skins) | Orig (skins) |
|---|---|---|---|---|---|---|
| '71 | Croc | | 1733 | | | |
| '72 | Croc | | 14589 | | | |
| '73 | Croc | | 25437 | | | |
| '74 | Croc | | 18112 | | | |
| '75 | Croc | | 15392 | | | |
| '76 | Croc | | 14469 | | | |
| '77 | Croc | 9373 | 9498 | - | - | - |
| | C. n. | | | - | - | 6671 |
| | C. p. | | | - | - | 3877 |
| '78 | Croc | 5731 | 7131 | - | 391 | - |
| | C. n. | | | - | - | 6064 |
| | C. p. | | | - | - | 2024 |
| '79 | Croc | 9543 | 5399 | - | - | - |
| | C. n. | | | - | - | 1154 |
| | C. p. | | | - | - | 375 |
| '80 | Croc | 7476 | 7765 | 4 236 | - | - |
| | C. n. | | | - | - | 3851 |
| | C. p. | | | - | - | - |
| '81 | Croc | 9554 | 1399 | - | - | - |
| | C. n. | | | - | - | 1455 |
| | C. p. | | | 200 | - | 955 |
| '82 | Croc | 15222 | 560 | - | - | - |
| | C. n. | | | 905 | - | 2598 |
| | C. p. | | | 100 | - | 26 |
| '83 | Croc | 19348 | 650 | - | - | - |
| | C. n. | | | 1 980 | - | 4997 |
| | C. p. | | | 300 | - | 45 |
| '84 | Croc | 28477 | | - | - | - |

Croc = Crocodylidae
C. n. = C. n. novaeguineae  C. p. = C. porosus

One way of verifying the Japanese figures independently is to compare the reports of imports from Papua New Guinea with the Papua New Guinean reports of exports; the latter represent exports to all destinations, but in practice the majority go to Japan (Table 2). These figures, although they are in different units, show that the Japanese figures are less than the total exports in most years, assuming a minimum skin weight of 1 kg, and probably give a fair indication of the scale of the trade.

Only the CITES figures give any indication of which species are involved, and the exports reported by Indonesia indicate that in 1983, thirteen per cent of the

skins were of C. porosus. Lever (1980) found that, in 1978/79, eighteen per cent of the skins were from C. porosus. Whitaker, Sukran and Hartono (1985) reported that this proportion had fallen to just over five per cent in 1984, however a Japanese skin-trader asserted that some twenty to twenty-five per cent of the skins entering Japan from Indonesia were of C. porosus (Takehara, pers. comm., 1985).

## Legislation protecting crocodiles in Indonesia

Crocodile hunting for skins has been carried out in Indonesia since the 1950s. Initially there were few controls, and crocodiles were wiped out in many localities. Lever (1980) gives a summary of the legislation enacted to control crocodile exploitation. Licensing of crocodile hunters was introduced in 1954, when a minimum belly width of 12 inches (30 cm) for buying, selling or transporting was also imposed. In 1978 T. schlegelii and C. novaeguineae were declared protected, but not C. porosus, as it was not considered endangered owing to its wider global distribution. This anomalous condition was rectified in 1980 when C. porosus was also declared protected.

Table 2: Comparison of reported imports to Japan of crocodile skins from Papua New Guinea (Customs commodity code 41.01 271) with total exports of crocodile skins from Papua New Guinea (figures supplied by the Department of Primary Industry, cited in Hemley and Caldwell, in press).

| | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|
| Japan's imports from PNG (kg) | 16311 | 17862 | 20310 | 14274 | 21827 |
| PNG exports (skins) | 43108 | 33506 | 19302 | 29586 | 18567 |

Legal controls since 1980 are less clear, but it appears that the majority of the skins exported have been hunted illegally, although some licensed hunting does take place (Whitaker, Sukran and Hartono, 1985).

The history of legislation in Indonesia clearly demonstrates the Government's concern over the exploitation and decline of crocodilians. Notwithstanding any conservation argument, it has long been recognised that crocodiles are a valuable resource which, if managed correctly, is capable of providing a sustainable source of income. With this in mind, a ranching scheme was instigated in 1976 when skin dealers were encouraged to set up crocodile ranches. By 1985 there were some seventeen ranches in the whole country but few, if any, were producing skins; rather, the great majority of skins in trade were still coming from hunted animals (Luxmoore et al., 1985). Many of the ranches were only set up because the traders were informed by the Government that this was a prerequisite for being allowed to export skins (Lever, 1980).

## CITES Controls

When Indonesia acceded to CITES, in 1978, both C. porosus and C. n. novaeguineae were in Appendix II, but in 1979 C. porosus was transferred to Appendix I. In spite of this, Indonesia continued to export C. porosus skins to non-Parties and Parties with reservations, evidently believing this to be permitted under CITES (Anon., 1985a). The potential market was therefore already restricted and when, in 1984, the remaining members of the EEC withdrew their reservations, it was curtailed still further, effectively to Japan and Singapore. The Indonesian Management Authority then took steps to transfer its population of C. porosus to Appendix II, and submitted a proposal to CITES under the provision on ranching (Conf. 3.15). This proposal was discussed at the IUCN/SSC Crocodile Specialist Group meeting at Caracas, Venezuela, in October 1984 when it was felt that it did not meet the requirements of Conf. 3.15. In particular, the knowledge of the population levels of crocodiles in Irian Jaya was insufficient to say that they were no longer endangered or that ranching would not be detrimental to their survival. The proposal also failed to make any assessment of the potential biological or economic success of a ranching operation, and in view of the production record of the existing ranches, it is likely that such an assessment would have been unfavourable. Furthermore, no details were given of any scheme to tag skins, as required under Conf. 3.15.

Fortunately one of the chief gaps in the information was soon to be filled, as a consultant was employed, in late 1984, to conduct a survey of the crocodile resource in Irian Jaya. The preliminary results of this survey, available in March 1985, indicated that, although populations of C. novaeguineae showed some signs of recovery, C. porosus was depleted throughout its range and required full protection (Whitaker, Hartono and Sukran, 1985). This report, and the recommendations of the IUCN/SSC Crocodile Specialist Group, were quoted by the CITES Secretariat who recommended that the Indonesian proposal be rejected (Anon., 1985a).

When the proposal was considered at the fifth meeting of the Conference of the Parties to CITES in April/May 1985, delegates from the USA, St Lucia, Venezuela and Uruguay all expressed their opposition to the transferral of Indonesia's population of C. porosus to Appendix II, and no support was forthcoming for the proposal on ranching. However the Swiss delegation suggested that an alternative mechanism be used to effect the transfer under the new special criteria for downlisting, with an annual quota of 2000 skins (Anon., 1985b).

The new criteria (Resolution Conf. 5.21) allow downlisting to Appendix II for species that had been included in Appendix I prior to the adoption of the Berne Criteria (Conf. 1.1) and for certain others included in Appendix I without the application of Conf. 1.1. Effectively, it was argued that some species should never have been included in Appendix I in the first place and, for others, no data were presented on population levels when the species was originally included in Appendix I. It would therefore be impossible to show that any population recovery had subsequently occurred. Downlisting is therefore allowed under Conf. 5.21 provided there is evidence that the wild population is no longer endangered and can sustain a certain level of exploitation, and also that the trade can be adequately controlled. In the light of Whitaker et al.'s report, quite clearly neither of these conditions was fulfilled; the population of C. porosus was already dangerously depleted, and substantial illegal trade had been continuing in spite of nominal protection. Nevertheless when Indonesia's revised proposal was submitted it was passed without objection.

Many decisions have to be taken at CITES Conferences without adequate information being available on population status. However it is particularly disturbing that on this occasion the information was available; it was merely ignored.

## References

Anon. (1985a):
Proposals submitted pursuant to Resolution on ranching. CITES Doc. 5.44. CITES Secretariat, Lausanne, Switzerland. Unpublished.

Anon. (1985b):
Summary report of the plenary session. Fifth meeting of the Conference of the Parties. CITES document Plen. 5.11. CITES Secretariat, Lausanne, Switzerland. Unpublished.

Anon. (1985c):
Proposals for amendments to Appendix I and II. CITES Doc. 5.45. CITES Secretariat, Lausanne, Switzerland. Unpublished.

Groombridge, B. (1982):
The IUCN Amphibia - Reptilia Red Data Book, Part I, Testudines, Crocodylia, Rhynchocephalia. IUCN, Gland, Switzerland, 426 pp.

Hemley, G. and Caldwell, J.R. (in press):
The crocodile skin trade since 1979. Proceedings of the seventh Working Meeting of the IUCN/SSC Crocodile Specialist Group, Caracas, October 1984.

Lever, J.C. (1980):
Crocodile conservation and industry development in Irian Jaya. FAO Unpublished Report, 101 pp.

Luxmoore, R.A., Barzdo, J.G., Broad, S.R. and Jones, D.A. (1985): A directory of crocodilian farming operations. IUCN, Cambridge, U.K.

Whitaker, R., Hartono, C. and Sukran, P. (1985):
Crocodile farming prospects in Irian Jaya. WWF Monthly Report (April): 83-85.

Whitaker, R., Sukran, P. and Hartono, C. (1985):
The crocodile resource in Irian Jaya. WWF. Unpublished Report, 64 pp.

*Dr Richard Luxmoore is a Research Officer with the Wildlife Trade Monitoring Unit.*

## No Comment

From 18 January to 4 May 1985, Guatemala exported almost 228 000 skins of Brown Caiman (Caiman crocodilus fuscus). Nearly 177 000 of the skins were destined for Italy, the rest for France. An import permit is required to introduce the skins into the EEC and, as the Brown Caiman is included in Annex C, Part 2 of EEC Regulation 3626/82 (as amended), the import permit may "be issued only where it is clear, or where the applicant presents trustworthy evidence, that the capture or collection of the specimen in the wild will not have a harmful effect on the conservation of (the) species or on the extent of the territory occupied by the populations in question of the species." However, there are believed to be less than 12 000 specimens of Brown Caiman in Guatemala.

Following receipt of a letter from the CITES Secretariat, about the level of exports, Guatemala prohibited the export of Brown Caiman, from 1 July 1985.

## Crocodilian Farming Directory

The Directory of Crocodilian Farming Operations was published in December 1985. The introduction, in English, French and Spanish, summarises the extent and scale of crocodilian farming around the world. More than 152 farms have been reported, in twenty-four countries with a total stock of over 161 000 crocodilians. The CITES controls on farming are detailed and the impact of farming on crocodilian conservation is discussed. The main body of the directory reviews the status of crocodilian farming in each country. Wherever possible, details of individual farms are presented giving the location, number and species of crocodilian held, production and trade, sources of stock, breeding success, details of husbandry and financial support.

A Directory of Crocodilian Farming Operations by R.A. Luxmoore, J.G. Barzdo, S.R. Broad and D.A. Jones, is available from the Conservation Monitoring Centre, 219c Huntingdon Road, Cambridge CB3 0DL, UK. Price US$12 (£8), plus US$1.50 (£1.00) for postage by air mail or within Europe, or $5.50 (£3.50) for air mail outside Europe.

## Book Review

The Japanese Ivory Industry
Esmond Bradley Martin
World Wildlife Fund-Japan, 1985.
Dai 39 Mori Bldg., 2-4-5 Azabudai, Minato-ku, Tokyo 106.
Price: US$7.75 air mail, $6.75 surface mail.

Esmond Bradley Martin is well-known to Bulletin readers for his fine articles on the ivory carving industries of South Africa and Zimbabwe. He has made the study of ivory carving industries his own particular niche and is also a wealth of knowledge on rhino exploitation.

His booklet on the Japanese ivory industry is based on his research in the late 1970s and provides an excellent insight into the part played by ivory in everyday life in Japan. Although published four years after it was written, much of the detail in the booklet is still pertinent and goes a long way to explain the growth of the Japanese trade and how it came to play a major role in the world's trade in ivory.

In general Martin's conclusions on the future expansion of the Japanese industry at the expense of other importing countries have proved to be true, although the predicted decrease in ivory imports by Japan has yet to happen. It would be unfair to criticise the author on this point as he could not have foreseen the massive wave of ivory poaching that occurred subsequent to his writing the report. His recommendations on how the Japanese trade should be regulated are well thought out and some have already been implemented.

This booklet contains many data on ivory imports by Japan between 1882 and 1979 and also details the prices paid and the uses to which the ivory is put. It is very useful background reading for anyone proposing to study the ivory trade.

*J.R. Caldwell*

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