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TRAFFIC

BULLETIN



The Journal of the TRAFFIC Network disseminates
information on the utilisation of wild animal and
plant resources

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Front line funding preserves today's species for tomorrow's world

TRAFFIC receives support from National Westminster Bank (NatWest) as part of a £3 million/3-year sponsorship given by NatWest to the World Wide Fund for Nature (WWF). The NatWest/WWF sponsorship, the biggest commercial sponsorship for any environmental concern in the UK, has been renewed for a further three years.

NatWest has provided valuable funds for WWF and TRAFFIC in the UK and internationally. A large part of the Bank's funding has been directed at projects set up to protect species and their habitats.

One of the many species whose survival NatWest has contributed to is the Boborok Orang Utan in Sumatra. Orang Utans have been subjected to poaching and illegal trade for many years but happily their population is now steadily increasing. In an attempt to ensure their long-term survival, Sumatra is now trying to increase public awareness of the value of the species in terms of tourism. NatWest's funding is vital for these initiatives, and for the continued monitoring of illegal trade.

Everyone has heard of the loss of tropical rainforests; seventeen million hectares are being destroyed every year. NatWest funds are supporting new strategies and policies that will help to ensure sustainable use of forests, and focus public attention on the importance of tropical forest ecosystems.

Every day, a number of species face extinction, and many more are in danger. NatWest funds have helped many of the world's most endangered animals and plants, and the Bank's support to the TRAFFIC Network ensures continued reporting on the illegal and unsustainable trade in endangered wildlife.



supports TRAFFIC
-a programme of WWF and IUCN

119 in CITES

The Czech and Slovak Republics (formerly Czechoslovakia) each succeeded to CITES on 1 January 1993. This supersedes Czechoslovakia's accession on 28 May 1992. Barbados acceded with effect from 9 March 1993, and brings to 119 the number of Parties to the Convention.

CITES Secretariat

Rhinos and Elephants

CITES Reinforces its Stance to Conserve Rhinos

The Standing Committee of CITES has exhorted stronger action to improve the conservation of rhinoceroses.

At its 29th meeting held in Washington, DC, from 1 to 5 March 1993, the Committee reviewed the findings of reports from the Secretariat and UNEP that several countries continue to tolerate or engage in commercial trade in rhinoceros horn and to harbour horn stockpiles, despite past calls for action by CITES against such trade, notably Resolution Conf. 6.10 and Annex 2 of the Summary Report of the 28th Standing Committee meeting. Trade in rhinoceros horn is considered by the Standing Committee to be a serious threat to the survival of African and Asian rhinoceros populations; the effectiveness of CITES; and efforts of range states to protect rhinoceros populations and the development of alternative conservation methods. The meeting directed its Chairman to communicate the concerns of the Standing Committee to the Governments of the People's Republic of China, the Republic of Korea, Yemen and the authorities issuing CITES-equivalent documents in Taipei. It further urged all Parties to strengthen their enforcement and implementation efforts to conserve rhinoceros species and to take stricter domestic measures in this regard immediately.

CITES Secretariat, Notification to the Parties No. 738, 20 April 1993.

India

At least one rhino is being killed every week in Kaziranga National Park, in Assam, India. According to reports, special funds sanctioned by central Government for rhino protection in Kaziranga have not been released by the state government to the authorities at the Park. Such delay in implementing preventive measures has resulted in the loss of scores of rhinos over the past few months; there are estimated to be fewer than 1000 Indian Rhinos *Rhinoceros unicornis* left in the Park and only 1100 in the whole country. Poaching is believed to be carried out largely by anti-Government rebels to pay for weapons.

One kilo of Indian Rhino horn, considered to be more potent than its African counterpart, can fetch US\$40 000 on the international market.

The Hindustan Times (India), 23 February 1993

Southern Africa

The Natal Parks Board in South Africa is to institute a rhino horn registration scheme for those members of the public who possess rhino horns for a variety of legitimate reasons. This scheme has been prompted by concern expressed by these owners over the recent spate of heavy penalties imposed on convicted rhino poachers and rhino horn dealers in the country. It is hoped that the easy identification of horn that has been registered will reduce thefts.

Species Protection Department officials of the Anti-Corruption Commission in Zambia have been working with the Zambian police and the South African police. Their increased co-operation to defeat cross-border poaching has resulted in the apprehension of a number of poachers (see page 109).

In Zimbabwe, a total of 64 people, almost all Zimbabweans, were arrested during 1992 for dealing in rhino horn or for the illegal possession of rhino horn; some 35 horns were recovered. A total of 57 people, again mostly Zimbabweans, were arrested for dealing in or possessing illegal ivory; 73 tusks were recovered.

The investigations branch of the Department of National Parks and Wild Life Management (DNPWLM), which carried out the arrests, found evidence of smuggling rings operating across several countries and that poachers from outside Zimbabwe are increasingly co-operating with Zimbabwean dealers to dispose of rhino horn and ivory. According to Mr Graham Nott, the Chief Investigations Officer of the DNPWLM, "Patterns now emerging suggest that most of the rhino horn and ivory confiscated by the Department in Zimbabwe originate in Zimbabwe, but in most cases change hands several times, both in Zimbabwe and neighbouring states, by means of repeated cross-border smuggling." He calls for increased co-operation and exchange of intelligence between the law enforcement officers of southern African countries.

Those convicted face sentences of at least five years' imprisonment for the first offence. "In spite of these deterrent penalties, and perhaps in ignorance of the serious consequences they face, many persons are increasingly engaging themselves in poaching activity and the illicit trade." said Mr Nott.

The investigations branch launched a special operation in the last seven months of 1992 against the ivory and rhino horn dealers. While there was a decline in arrests of rhino horn dealers during the year - rhino dehorning operations started in mid-1992 - there was a marked rise in arrests of ivory dealers. In 1990, 36 people were arrested for elephant poaching and 37 tusks recovered; in 1991, 39 were arrested and 49 tusks recovered.

Rhino & Elephant Foundation, Newsletter No. 9, March 1993; Herald (Zimbabwe), 13 January 1993; The Species-Watch Newsletter, 1(2), 1993

Rhinos and Elephants ctd.

Southern Africa ctd.

Although it is known that rhinos use their horns when interacting with each other and that they may serve as weapons when confronting predators, any further function of the horn remains unknown. A research programme conducted in Hwange National Park, Zimbabwe, will monitor the effects of dehorning on White Rhino *Ceratotherium simum* and Black Rhino *Diceros bicornis*. A parallel project will investigate the dehorned Black Rhino in Namibia. Together, these studies will be able to contrast the effects of horn removal in the two African species.

As well as observing the animals' behaviour, the studies will record the rates of horn regrowth, which has been shown to range from between four and seven centimetres a year, depending on age, nutrition, and wear caused by rubbing the horns on vegetation and soil. The shape of horn regrowth and when horn removal might be required again will also be documented. Poaching activity will also be monitored during the project which is expected to take two to three years.

Observation of dehorned rhinos thus far indicates that animals appear to make a quick recovery following horn removal. While dehorning is hopefully not the final and long-term solution for rhino conservation, it may buy some time for Zimbabwe's declining populations.

Zimbabwe Wildlife, January-March 1993

CITES Trade Ban with Italy Suspended

The CITES Secretariat has announced the suspension, with immediate effect, of the recommendation of the CITES Standing Committee for Parties to cease CITES trade with Italy.

At its 28th meeting in June 1992, the Standing Committee recommended that Parties should adopt stricter domestic measures, in accordance with Article XIV, paragraph 1, of the Convention, in order not to issue any CITES documents for specimens consigned to Italy and not to accept any CITES documents issued by Italy, until this country demonstrated to the Standing Committee that the steps necessary to ensure adequate implementation of the Convention had been taken.

As Italy has made considerable progress and has to a very large extent met the requirements, the Standing Committee has agreed to the Secretariat's suggestion that it suspend its recommendation, with the definitive withdrawal remaining subject to adoption of the decree issued by Italy on 12 January 1993, and application of the procedures adopted for implementation of the Convention.

On 13 March, Italy took measures to implement such recommendations (see page 89).

CITES Secretariat, Notification to the Parties No. 722, 19 February 1993

CITES Calls for Urgent Action to Conserve Tigers

At its 29th meeting, the CITES Standing Committee acknowledged that, as a result of poaching and smuggling of Tigers *Panthera tigris* and Tiger parts and derivatives to sustain markets for traditional medicines, population estimates for all remaining wild Tiger populations give rise to the most serious concern.

Expressing its deep concern over the critical problem of Tiger conservation, the Standing Committee decided to:

- call upon all CITES Parties and all consumers, including non-Parties, to take such measures as are required to halt the illegal trade in Tiger parts;
- ask the relevant authorities to provide full reports to the Secretariat, by July 1993, on the measures they are taking to stop such illegal trade;
- ask the Animals Committee and the IUCN/SSC Cat Specialist Group to report to the Secretariat before the next meeting of the Standing Committee in September on any further measures that may be taken in the context of CITES to halt the decline in this species;
- ask the Secretariat to refer the matter of Tiger conservation to range states, with a request to know what action is being taken to conserve Tiger populations, and what assistance CITES might be able to provide;
- following advice given by the IUCN/SSC Cat Specialist Group, the Secretariat shall provide information to the news media on the plight of the Tiger so as to bring world attention to bear on this matter;
- review progress in the recovery of Tiger populations at the next meeting of the Standing Committee which will make recommendations for concerted action by CITES Parties if there is no evidence that range and consumer states are taking the action necessary to improve Tiger conservation.

Extracted from Decision of the Standing Committee on the Tiger, CITES Secretariat, Notification to the Parties No. 738, 20 April 1993.

A report on the trade in Tiger bone in Taipei is featured on pages 112-114.

Bird Amnesty in Western Australia

In December 1992, the Western Australian Environment Minister announced a six-week amnesty during which people could hand in native parrots illegally taken from the wild, without facing prosecution. The Minister also appealed to the public to come forward with information on nest robbing activities. Birds surrendered during the amnesty period would be rehabilitated for return to the wild, or, if this was not possible, would be placed in wildlife parks. The amnesty ended on 29 January 1993.

Enforcement activities against individuals illegally taking birds from the wild in Western Australia have been bolstered by the use of DNA finger-printing technology. This has been applied in particular to cockatoo species that are difficult to breed in captivity and which are consequently much in demand by collectors.

TRAFFIC Oceania

WWF's Position on Panda Loans

Following renewed interest from zoos to obtain Giant Pandas *Ailuropoda melanoleuca* for exhibition purposes, WWF has recently revised and updated its position on Giant Panda loans. Although it remains opposed to all short-term loans from China, it acknowledges that long-term loans may assist in the captive propagation of Pandas to achieve a self-sustaining population and provide a source of funds for Panda conservation in the wild. A number of conditions must be in place, however, before WWF can consider approval of any long-term breeding loan. These conditions are summarized as follows:

- all loans must be part of an integrated, international captive breeding programme overseen by an international agency;
- the primary purpose of such a loan should be the breeding programme and not any financial transaction;
- all loan negotiations should be through a central agency with agreement and full co-operation of the relevant Ministries in China;
- only captive-born animals should be used;
- all animals involved should be listed in the Giant Panda studbook;
- full accountability must be made for any funds received and disbursed;
- participating institutions should provide staff training;
- any participating institution is required to fully co-operate with research projects approved by the international agency; and
- all loans must be in full compliance with both the letter and spirit of CITES.

Extracted from WWF position statement on loans of Giant Pandas, February 1993.

Forest Fatalities

A group of German nationals, allegedly trying to steal tortoises and rare snakes, were recently confronted by residents of Ampijoroa, on entering a protected forest in Mahajanga province, in north-west Madagascar. The locals, unable to dissuade the poachers from going into the forest, contacted the police and in an ensuing battle two Germans and two policemen died, a third German was wounded and another arrested.

The Star (South Africa), 22 March 1993;

A report on the trade in Madagascan reptiles and amphibians is featured on pages 115-116.

Two recent attacks by poachers have caused death or injury to wardens of protected areas in India.

On 10 March 1993, two wardens were shot dead and a further two injured, one of them critically, when ambushed by a gang of poachers in Keladevi Sanctuary, part of the Ranthambhore Tiger Project area. Staff at Ranthambhore National Park have reacted by going on strike and tourists are being turned away.

Only days previously, a well-known smuggler ambushed a party of policemen and forestry officials, killing 22 and injuring approximately 40 people, in a land mine blast. This smuggler was allegedly responsible for the murder of a senior forestry official in 1991 (see *TRAFFIC Bulletin 12(3):74*).

TRAFFIC India

New TRAFFIC Staff

Mr Mohit Aggarwal has joined TRAFFIC India as Project Officer. In February, Sophie Lascoux joined TRAFFIC Europe-France and Glenn Sant, a zoologist specialising in entomology and fisheries, joined TRAFFIC Oceania as a Research Officer. In the same month, TRAFFIC Europe-Italy recruited Paola Cannucciari as a Programme Officer.

Monkey Business in Thailand

On 30 January 1993, an investigator from the Wild Animal Rescue Foundation of Thailand witnessed 11 groups of people in Pattaya trading in baby gibbons *Hylobates* and macaques *Macaca*. Hawkers operate in pairs comprising a male and a female; the *modus operandi* involves the woman throwing the animal at a passing foreign tourist who has to grab the animal to prevent it from falling to the ground. This event is photographed by the man, who then attempts to sell the photo to the tourist for Baht 100 (US\$4). The animals are reportedly offered for sale for Baht 5700. The dealers stated that there were plenty more animals available to allow the trade to continue; the primates used are about six months old.

TRAFFIC Southeast Asia

Net Gains for Eel Catchers

Water bailiffs in Somerset in southwest England are making determined efforts to stamp out illegal fishing of elvers, or baby eels *Anguilla anguilla*, following growing evidence that eel stocks are diminishing. According to one eel dealer, stocks have declined as a result of overfishing and the effects of pollution.

The elvers travel 3000 miles from their spawning grounds in the Sargasso Sea, in the Caribbean, to the wetlands of the Somerset Levels where the tide washes the translucent 10 cm thread-like elvers upriver into the Parrett and Severn Rivers. If allowed to reach maturity, the eels grow to nearly a metre long within five years, before returning to the sea.

The elver season starts in February and lasts until May and most of the fishing is carried out at night when the elvers are most active. Over 250 people fish the 12-mile tidal stretch of the Parrett, spurred on by the chance of earning hundreds of pounds a night. Most fishermen have the necessary £33 (US\$50) licences to fish elvers, but with dealers paying £25 to £50 a kg, some fishermen discard hand-held nets in favour of illegal "flow nets" which are submerged in the centre of the river; traditional nets with openings enlarged beyond the legal limit are also used. At the end of a night's fishing, the animals are weighed and kept in oxygenated water tanks before being sent by air and road to Europe, in particular Germany, the Netherlands and Denmark, where they are used to restock rivers or are fattened up and eaten.

Bailiffs of the National Rivers Authorities are also stepping up security following a number of personal attacks by poachers who, although only small in number, are well organized. Robert Jones, assistant fisheries officer in the region, said "[Poachers] use look-outs, radio scanners and CB radios to keep in touch and warn each other about our movements".

The Independent on Sunday (UK), 21 February 1993

Python Skin Trade in South Kalimantan

According to a report in *Conservation Indonesia* there is an extensive trade in python and other reptile skins in South Kalimantan, on Borneo, Indonesia. Reticulated Python *Python reticulatus* is the most common python species to occur in the area; *P. molurus* and Short-tailed Python *P. curtus* are also believed to occur there although sightings are rare. The snakes are caught only for their skins, as the meat is not eaten by local people. Although some trappers specialize in snakes, most are caught by farmers who sell them to intermediate traders visiting the villages. It is reported that, on average, between 10 and 50 usable skins are obtained from any single locality each month. Although there is no information on the status of the wild population of pythons in the two provinces of South and Central Kalimantan, local sources have reported that python numbers appear to be declining.

Skins traded in Banjarmasin, the capital of South Kalimantan, originate in South and Central Kalimantan, where the snakes are caught in forest and swamp areas. Python skins are purchased by traders for between Rp.12 000 (US\$5) and Rp.24 000 a metre. There are seven known dealers who trade to other parts of Indonesia, and one dealer who exports directly to Singapore. There is also a trade in skins of Wart Snake *Acrochordus javanicus* and Dog-faced Water Snake *Cerberus rhynchops*, Water Monitor *Varanus salvator*, Saltwater Crocodiles *Crocodylus porosus* and frog *Bufo*. The trade in snakeskins is regulated by a quota system, monitored by the Directorate General of Forest Protection and Nature Conservation (PHPA). These quotas may bear no relation to sustainable levels of harvesting since no information is available on wild population levels. The quota and catch of python skins in South Kalimantan varies from year to year. In 1988/89, python skins were the third most important skin exports from Indonesia, after those of Wart Snakes and monitor lizards: approximately 15 000 python skins, representing 89% of the total exports in this category, were shipped directly to Singapore.

The report calls for further research to determine population numbers of reptiles in South Kalimantan, and to monitor the effects of habitat loss and trade in these species. It recommends a prohibition on catching egg-laying female snakes and snakes which are less than 2.5 m or more than 10 m in length; snakes with damaged skins of little or no value to traders should be released so that they can contribute to the breeding pool of the population.

Gt. Hairuddin, Gt. Rusmayadi and D. Hisby, KPSL UNLAM, Python and Other Reptile Skin Trade in South Kalimantan, 1990. In: Conservation Indonesia, 8(3), 1992



© Rob Tarr

Abalone fishermen with their catch.
 Photograph reproduced with the kind permission of CONSERVA, magazine of the
 Department of Environment Affairs, Pretoria, South Africa.

South Africa's Shallows Overfished . . .

The shallow subtidal zone of South African waters not only supports several commercial fisheries but is also subject to considerable pressure on the same species from recreational fishing. The best known commercially fished species in these waters are rock lobster, abalone *Haliotis* and line-fish, and there is little doubt that the former two, and certain line-fish, are being harvested at the limit of sustainability. Evidence that recreational fishing pressure is growing fast has alerted management bodies to the need to re-examine quotas allowed to both recreational and commercial interests.

Recent survey data indicate the increase in numbers of sports fishermen. In 1988, it became compulsory for individuals to purchase permits to fish for rock lobster and abalone. Since then permit sales have increased at a rate of 6% a year in the case of rock lobster and 11% a year in the case of abalone. Similar percentage increases have been estimated by researchers at the Oceanographic Research Institute for the growth in the numbers of line-fish anglers.

The extent to which commercial and recreational fishermen are in competition with each other is variable. Estimates have shown that recreational catches of west coast lobster during the 1991-92 season amounted to 160 t or the equivalent of 6% of the commercial TAC (Total Allowable Catch). Abalone catches by the public, on the other hand, accounted for 370 t or equal to 60% of the commercial catch. If the growth of abalone sports fishermen continues at the rate that it has over the past season, and assuming that new entrants to the sport catch similar quantities per season to present permit holders, it could be predicted that within 10 years there will be no TAC to allocate to commercial operators.

Cocklers' Jobs at Risk

Recent EC legislation threatens the livelihood of cockle-traders who cannot afford the necessary machinery now required to cook the molluscs.

From 1 January 1993, cockle-pickers have been obliged to comply with hygiene regulations which require that cockles be steamed at 90°C for 90 seconds. Evidence of new equipment must be provided to environmental health inspectors.

Of the 11 families in the village of Penclawdd on the Gower Peninsula, South Wales, who make their living from cockle-picking, only three can afford the necessary machinery. After 60 years in the business, one family has decided to abandon cockling, and the only hope for the remaining seven families to continue in the trade is to form a co-operative where one purpose-built factory processes all the cockles.

The Independent (UK), 3 February 1993

. . . and Marine Inspectorate's Budget Cut

At a time when close monitoring of South Africa's marine resources is required, including the sensitive handling of recreational and commercial fishing interests, the outlook for effective policing of South Africa's fish resources in 1993 is not encouraging. The Marine Inspectorate Division of Cape Nature Conservation is facing the prospect of a sharply curtailed budget and for the first time in 20 years some inspectorate offices are to be closed at weekends, making poaching easier, a fact which angers commercial fishermen whose TAC for species are set only after taking into account the assumed loss to poaching.

CONSERVA, November/December 1992; Sea Fisheries Research Institute, Department of Environment Affairs; SA Commercial Marine, November 1992

Decline in Australia's Fish Stocks

A combination of factors is producing a crisis in Australia's fishing industry. The country's largest domestic fishery, in south-east Australia, may have to reduce its take by over 40%. The fishing area supplies most of the fresh fish to Sydney and Melbourne and produces about AU\$69 million (US\$47 million) worth of fish a year.

The main species trawled in the south-east waters is Orange Roughy *Hoplostethus atlanticus* but its take must now be reduced by 80%, from around 17 000 to 2000-3000 t, annually. Scientists are particularly concerned about the fate of this species, given its extremely slow growth rate - individuals are not mature until 25 years of age (see *TRAFFIC Bulletin* 12(3):35). Catches of Orange Roughy soared from 195 t in the mid-1980s to 42 000 t a year in 1990, before dropping to an estimated 17 000 t in 1992. Also in this region, a total collapse is predicted in the catch of Gemfish *Rexea solandri*, a continuing decline in stocks of Redfish *Centroberyx gerrardi* is foreseen, and a recent proposal has been made to close the southern shark fishery for 12 years.

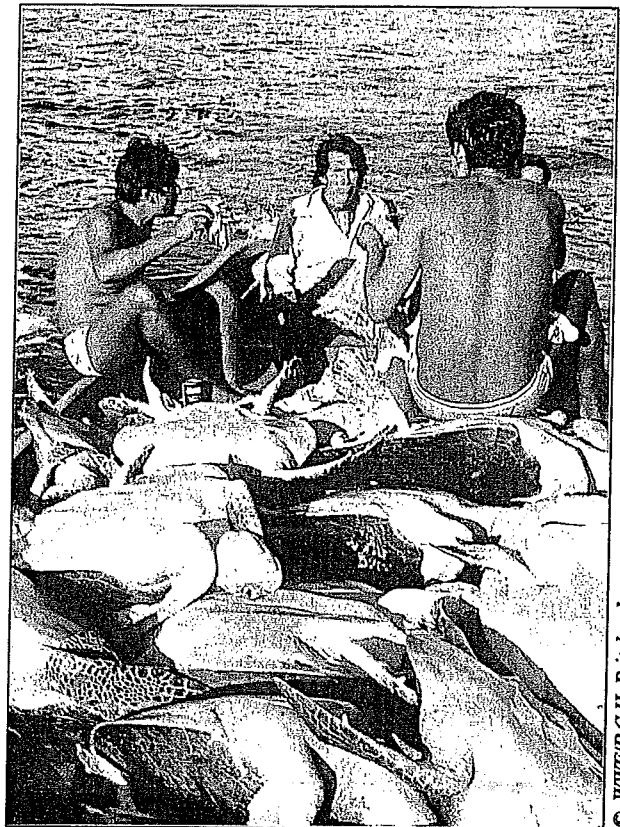
The recently formed Australian Fisheries Management Authority must address the problem of reconciling sustainable catch limits with economic factors. It is unlikely that job losses can be avoided among the industry's 10 000 employees and according to the manager of the company *Austral Fisheries*, the consumer may eventually find "there is little or no fresh local fish available".

The Australian (Australia), 30 October 1992

US Government Sued Over Tuna

The catch of Atlantic Bluefin Tuna *Thunnus thynnus* is governed by the International Convention for the Conservation of Atlantic Tunas (ICCAT) whose regulations are enforced by law in the USA. In addition, according to its own policy, the US Government is required to issue environmental impact statements for any federal undertaking which affects the environment. It is now 10 years since the last report on the Bluefin Tuna fishery, a fact which led the Center for Marine Conservation to file a suit in a federal district court on 4 November 1992 to force the Government to issue an up-to-date report. The Center claims, moreover, that the National Marine Fisheries Service promised, but failed, to examine new ways of conserving the species, such as the closing of the fishery during spawning. The Center says new initiatives are imperative since measures taken so far by the USA, acting both alone and in concert with other nations, have "failed to stem, let alone reverse" the decline in tuna stocks.

Center for Marine Conservation, Press Release, 4 November 1992



Olive Ridley Sea Turtles *Lepidochelys olivacea*, Oaxaca, Mexico.

© WWF/P.C.H. Pritchard

Concern Over Mexico's Management of Turtles

Sea turtles nesting on Mexico's shores are protected by a national law, introduced in May 1990, which forbids their killing or sale. Despite the ban, sea turtles are still taken, as are their eggs: the ban appears to have become increasingly less effective recently, having been relatively well implemented until mid-1992.

A dozen beaches in Mexico have protected status, but they are reportedly not well guarded. Moreover, a rearrangement of Government Departments in early 1992 meant that beaches falling under the newly formed Secretariat of Social Development received little or no protection during 1992, according to Jack Woodie, a turtle expert at the US Fish and Wildlife Service. Other important sea turtle nesting beaches are in danger of disturbance from planned real estate development.

The environmental group *Escolar* believes that means need to be found to replace the revenue local people derive from turtles. "If they never have an economic alternative, then residents will never have a choice but to kill turtles", stated *Escolar's* director. The group hopes to encourage tourist interest in protecting turtles by organizing excursions to watch turtles swim and nest. If steps are not taken to establish workable turtle conservation projects in Mexico, it is feared that the good intentions of recent protective legislation will prove worthless.

The News (Mexico), 27/29 September 1992

NEW FISHING RESTRICTIONS

UK

In February 1992, the British Minister of Agriculture, Fisheries and Food (MAFF), John Gummer, set out the Government's strategy for sea fish conservation. The conservation measures he outlined have now received royal assent and the *Sea Fish (Conservation) Act 1992* has passed into statute law. Based on the premise that fishing effort in Europe exceeds that which stocks can at present withstand, the Act has established new restrictions on British sea fishing.

The main provision of the Act limits the number of days that fishing vessels may spend at sea by adding a condition to this effect to fishing licences. Licensing has moreover been extended to include vessels under 10 m in length, to restrict expansion within this sector of the fishing fleet. During 1993, fishing effort will be held at its 1991 level by the new requirements. In the period 1994 to 1996 the new arrangements will reduce days' fishing to the extent necessary in order to reach the Government's pre-determined targets. Licences may be revoked or suspended should fishermen fail to comply with the new law; powers to restrict the number of days' fishing have been enforceable since mid-January 1993.

Further provisions of the Act establish a Sea Fish Licence Tribunal to hear appeals from fishermen against their allocations for days at sea; provide that data from satellites and similar recording equipment be admissible in criminal proceedings; increase to £50 000 (US\$75 000) the maximum penalty for breach of a licence condition; and broaden the type of information that Ministers can require fishing licence holders to provide.

Over the next three years, the Government's objective is to reduce fishing effort to a level approved by the EC and in line with the UK's obligation under EC directive 1992-96 *Multi-Annual Guidance Programme*. Towards this end, the Government will be introducing a scheme for decommissioning fishing vessels. The decommissioning is to take place over a two-year period with up to £25 million set aside for use as compensatory grants to those fishermen affected.

Fishermen believe that the decommissioning enterprise will be too small to have a significant impact on the industry. They say they are willing to modify their techniques instead, to prevent overfishing. In the North Sea, for example, boats have begun using nets with a wider mesh which allow small fish to escape. One spokesman for the fishing industry, the chief executive of the Cornish

Fish Producers' Association, believes the Act will have the opposite effect of that intended as the prospect of financial ruin will impel many fishermen to abandon the conservation measures prescribed by law.

Fishermen have protested about the new *Sea Fish (Conservation) Act* and cheap fish imports by disrupting shipping in the ports of Mersey, Plymouth and Teesport. Representatives of the National Federation of Fishermen's Organisation, who were to meet on 16 April, are expected to favour more blockades until they consider their concerns to have been satisfactorily addressed by the Government.

MAFF News Releases, 27 February/7 December 1992; The Financial Times (UK), 16 April 1993

Denmark

A licensing system for recreational fishing has been introduced by the Ministry of Fisheries, Denmark. With effect from 1993, recreational fishermen are required to pay for a licence to fish: an annual licence will cost an individual 100kr (US\$16); a weekly licence can be purchased for 75kr, and 25kr will be charged for one day's fishing; those under 18 and over 67 years of age are exempted from paying a fee, as are owners of property which lies adjacent to the area to be fished. In the latter case, the use of only light fishing tackle is permitted.

All revenue collected from this scheme will be used to pay for the management and replenishment of fish stocks.

Jyllands-Posten (Denmark), 28 December 1992

EC Bans Dolphin Netting

On 19 October 1992, EC Fisheries Ministers adopted a proposal to prohibit Community-registered vessels from employing the method of fishing or encircling with purse seine nets tuna and other fish species where this may result in the catching or killing of marine mammals. The ban takes the form of an amendment to Regulation 3094/86/EEC on the conservation of fish stocks and is in response to concern over the practice, in particular in the eastern tropical Pacific, of laying purse seine nets around dolphins in order to catch the tuna schooling beneath.

Eurogroup for Animal Welfare (3), 1992

NEW FISHING RESTRICTIONS

AUSTRALIA

New South Wales

From early 1993, the Government of New South Wales will be placing new restrictions on amateur and professional fishermen. The more stringent management of fish resources has been developed in consultation with recreational anglers, who will now have to comply with new size and bag limits, with equipment restrictions, and an end to fish trapping and to filleting on beaches, rocks and aboard boats. The filleting ban is to help inspectors identify fish when enforcing quota limits. No more than four rods or lines, with no more than three hooks or gangs of hooks attached, may now be used and it will be an offence to leave lines unattended.

"New...size limits will apply to amateurs [and] will also control professionals", said a spokesman for Mr Ian Causley, the Natural Resources Minister. "In addition, professional fishermen will continue to be more tightly regulated by area closures and gear restrictions to allow depleted stocks to recover."

The new catch limits include a complete ban on pearl perch *Glaucosoma scapulare*, a reduction from five to two lobsters *Jasus*, from 15 to 10 spanner crabs *Ranina ranina*, and a limit per catch of two mulloway *Sciaena antarctica* not less than 60 cm in size. A 30 cm limit is to be imposed for Tailor and Rock Blackfish *Pomatomus saltator* and *Girella elevata*.

A resource and management charge of A\$5 per lobster caught in NSW will also be imposed under a new tag system. NSW lobsters make up just 5% of the total number of lobsters sold in NSW; the bulk of lobsters sold in the State are farmed in Tasmania or South Australia.

Western Australia: Shark Fishing Ban

A ban has been imposed on commercial shark fishing in the waters between Shark Bay and North West Cape, Western Australia. Such action follows increasing concern that fishing pressure has been depleting stocks of Bronze Whalers *Carcharhinus brachyurus*, Thick Skin Sharks *Carcharhinus plumbicus* and Tiger Sharks *Galeocerdo cuvieri* in Shark Bay. Fisheries Department records show that at least 14% of the shark catches in Shark Bay in the past 12 months had comprised pregnant Bronze Whalers. According to the former Fisheries Minister, Gordon Hill, some of these large continental shelf sharks take up to 30 years to reach maturity and breed only once every two years.

The new bans complement the recreational bag limit of four sharks put in place last year and Commonwealth controls on foreign shark fishing in the Australian fishing zone.

AAP Australia, 15 November 1992; Australian Fisheries, December 1992

Inuit Request Bowhead Quota

The Russian Inuit of the Chukotskiy Peninsula are now following the example of the Canadian Inuit in resuming their traditional hunt of Bowhead Whales *Balaena mysticetus*, in both cases without the sanction of the International Whaling Commission (IWC) (Canada withdrew from the IWC in 1982.) The Russian Inuit are allowed to take up to 169 Grey Whales *Eschrichtius robustus* each year, according to the catch limit set by the IWC, for "aboriginal subsistence", but it has been alleged that only a fraction of meat from these whales is used as food for humans: the Bowhead Whale has always been the preferred prey.

The Russian Inuit have requested their Government to press for an IWC quota for Bowheads, but fear the Government will not favour them, since it would not wish hunting effort to be diverted from Grey Whales, which are more important to the economy of the Chukotka than the catch of a few Bowhead Whales for meat.

High North News, 1, 2 February 1993

CITES Law in Italy

On 12 January 1993, the Council of Ministers in Italy approved penalties by decree for CITES violations, to be implemented through a new law which came into effect on 13 March 1993. The law also covers budgetary provisions for CITES administration and the monitoring of animal mortality during international transport.

In addition, all companies in possession of crocodilian skins were obliged to register them with the Ministry of Agriculture by 31 March 1993, where they would be permanently tagged; such registration is limited to substantially whole skins; flanks and belly skins will be marked prior to re-export in accordance with CITES Resolution Conf. 8.14.

The recommendation of the CITES Standing Committee that Parties cease CITES trade with Italy has been withdrawn (see page 82).

TRAFFIC Europe-Italy

Birds Reprieved

The Ministries of the Environment and Agriculture in Italy jointly signed a decree on 11 December 1992 to ban the hunting of three bird species: Chaffinch *Fringilla coelebs*, Brambling *Fringilla montifringilla* and Hazel Grouse *Bonasa bonasia*. This measure, implementing EC directive 79/409 and subsequent amendments, will be effective for six months, after which time a decision of the Council of Ministers is expected to make it final.

TRAFFIC Europe-Italy;
Council of Europe, Naturopa Newsletter No. 92-12

Canada Bans Beluga Exports

In December 1992, Canada's Department of Fisheries and Oceans announced a ban on the capture of live Belugas *Delphinapterus leucas* (CITES Appendix II) for export to aquaria outside Canada.

The Management Authority of Canada will no longer issue CITES export permits for Belugas captured live in Canadian waters. The ban does not apply to the export of captive-bred specimens or specimens already held in aquaria.

CITES Secretariat, Notification to the Parties No. 723,
1 March 1993

Zaire Suspends Exports

The Government of Zaire informed the CITES Secretariat that, with effect from 30 October 1992, it had suspended the issuance of export permits for all species of wild fauna. This measure was taken to allow for the finalization and implementation of the Ministerial Decree on Enforcement Measure of the Law No. 82-002 of 28 May 1982 regarding the Regulation of Hunting in the Republic of Zaire.

CITES Secretariat, Notification to the Parties No. 713,
21 December 1992

Burundi Halts Exports of Reptiles

The CITES Management Authority of Burundi has suspended exports, for commercial purposes, of reptile species. This came into effect in November 1992.

Any CITES export document for reptiles issued or apparently issued by Burundi should be referred back to the Management Authority of that country for authentication, directly or via the CITES Secretariat, before being accepted.

CITES Secretariat, Notification to the Parties No. 705,
21 December 1992

France to Strengthen Sea Turtle Decree

The Government of France is in the process of publishing an amendment to its decree issued on 7 July 1991, which pertains to metropolitan France and to the overseas Department of French Guiana, and governs the utilisation of all sea turtles and their derivatives. The decree forbids the destruction, removal, capture, transportation, hawking, use, selling, buying or stuffing of turtles or their eggs or nests.

As it stands, the decree has not been effective in ending the use of sea turtle products in French territory: use of Hawksbill *Eretmochelys imbricata* tortoiseshell in the manufacture of spectacle frames continues, for example. The amendment to the decree is designed to improve enforcement of the law. Possession and use of tortoiseshell will only be authorized following the registration of stocks, which must be shown to have been imported prior to 1984, according to EC legislation; evidence that such stocks were lawfully obtained must also be provided.

TRAFFIC Europe-France

AUSTRALIA - QUEENSLAND AND VICTORIA

On 22 May 1992, the State of Queensland introduced the *Nature Conservation Act 1992*. This Act attempts to achieve an integrated, comprehensive approach to management of natural resources and replaces a system of controls which the Government has conceded were "fragmented and inadequate". Provisions contained in several statutes, including the *National Parks and Wildlife Act 1975*, the *Fauna Conservation Act 1974*, the *Native Plants Protection Act 1974* and the *Land Act 1962*, have been revised and amalgamated by the new legislation.

The listing of wildlife offered protection under the *Nature Conservation Act 1992* is generally intended to follow IUCN criteria. The seven primary categories used are:

- presumed extinct wildlife;
- endangered wildlife;
- vulnerable wildlife;
- rare wildlife;
- common wildlife;
- international wildlife; and
- prohibited wildlife.

Native Australian species fall into the first five categories and are grouped under the more general term "protected wildlife". "Protected wildlife" may not be taken from the wild, bought, sold, kept, moved, processed or utilised in any way, unless in accordance with a species "conservation plan" created under the Act, or by licence, permit or other authority. The listing of the species will be determined on a scientific basis and prescribed by regulation. Under the new Act, all native mammals, birds, reptiles and amphibians will continue to be protected, as they were by the superseded *Fauna Conservation Act*. Marine mammals, sea turtles (previously protected under fisheries legislation) and flying foxes will also become "protected wildlife". Certain native fish, insects and other animals will be considered for protection as warranted by their conservation status. Some 1200 plants, tentatively identified as being rare or threatened, are also being considered for listing.

Additional trade-related aspects of the new Act include provision to prescribe any CITES Appendix I- or II-listed species that is not indigenous to Australia as "international wildlife". International wildlife may not be introduced into the State, bought, sold, kept, moved, processed or utilised in any way, unless in accordance with a specific "conservation plan" created under the Act, or by licence, permit or other authority. The new Act therefore appears to offer potential for the control of interstate trade in exotic species and for monitoring the keeping of such species within Queensland.

Another point of interest is that the breeding of hybrids or mutations of "protected animals" is prohibited under the Act. As the "protected animals" category includes only native Australian animals, this prohibition does not automatically extend to "international wildlife".

A few reservations have been expressed relating to a reduction in enforcement officers' powers of entry to private property under the new Act. In some circumstances, such entry will now require either consent of the owner, or a search warrant. Although this does bring the Queensland Act in line with those of many other States, it could cause difficulties for officers on remote, far-northern patrols who are unable to readily acquire a search warrant.

While many of the provisions of this piece of legislation are already in effect, previous legislation remains in force until transitional requirements are complete.

On 30 June 1992, new wildlife regulations came into effect in Victoria. The *Wildlife Regulations 1992* were created under *The Wildlife Act 1975* and completely replaced the previous *Wildlife (General) Regulations 1980*. The changes resulted from the *Review of Wildlife Possession and Trade in Victoria*, initiated in April, 1987.

One of the aims of the above-mentioned review was to "streamline" the regulations to deal only with possession of and trade in wildlife for private or commercial purposes. Hence, the new licensing system is simpler than its predecessor with now only three main categories of licence: Private Wildlife Licences, Commercial Wildlife Licences and Assistant's Licences. The first two categories are further divided into a number of sub-categories relating to the species or use involved. Penalties have been substantially increased across the range of offences covered to a maximum A\$5000 (US\$3400) fine. Provisions relating to welfare issues such as cage size stipulations have been excluded from the new regulations.

The range of wildlife available for both private and commercial use has been expanded, potentially introducing a number of new native species into mainstream trade. This may be unfortunate from an interstate perspective as it could provide a legal source of such wildlife to States attempting to keep tighter limits on wildlife use. It may also offer opportunities for the laundering, through Victoria, of wildlife taken illegally in other States.

Unfortunately, many of the licence fees in the regulations were reduced from those proposed in the draft legislation. This was despite the detailed financial justification provided for their originally suggested levels. Initial proposals to prohibit the breeding or possession of hybrids of native animals were also weakened. It would also appear that the regulation still contains little potential to improve the control of interstate movement of wildlife, especially with respect to interstate export.

TRAFFIC Oceania

Export Quotas for Psittacines

ARGENTINA: By Resolution 6/93, the CITES Management Authority of Argentina has established the following export quotas for parrot species in 1993:

Scaly-headed Parrot	
<i>Pionus maximilliani</i>	4000
Nanday Parakeet	
<i>Nandayus (Aratinga) nenday</i>	6400
Blue-crowned Parakeet	
<i>Aratinga acuticaudata</i>	8000
Monk Parakeet	
<i>Myiopsitta monachus</i>	24000
Burrowing Parakeet	
<i>Cyanoliseus patagonus</i>	7200

By the same Resolution, the export of the following species is banned: White-eyed Parakeet *Aratinga leucophthalmus*; Mitred Parakeet *A. mitrata*; Maroon-bellied Parakeet *Pyrrhura frontalis*; Green-cheeked Parakeet *P. molinae*.

The deadline for legal export of specimens of these species under 1992 quotas was 30 April 1993.

CITES Secretariat

NICARAGUA: Nicaragua has established 1993 export quotas for the following parrot species:

White-fronted Amazon	
<i>Amazona albifrons</i>	500
Yellow-headed Amazon	
<i>A. auropalliata</i>	800
Red-lored Amazon	
<i>A. autumnalis</i>	2000
Mealy Amazon	
<i>A. farinosa</i>	800
Orange-fronted Conure	
<i>Aratinga canicularis</i>	500
Crimson-fronted Parakeet	
<i>A. finschi</i>	500
Green Parakeet	
<i>A. holochlora</i>	500
Olive-throated Parakeet	
<i>A. nana astec</i>	500
Orange-chinned Parakeet	
<i>Brotogeris jugularis</i>	500
White-capped Parrot	
<i>Pionus senilis</i>	500

CITES Secretariat, Notification to the Parties No. 726, 1 March 1993

NEW PENALTIES

BOTSWANA

The *Wildlife Conservation and National Parks Act 1992* was passed in December of last year in Botswana and makes provision for increased penalties for illegal use of wildlife and wildlife products.

The severest penalties are carried by offences involving rhinos. Any person who hunts, kills or captures a rhino illegally is liable to a fine of P100 000 (US\$42 000) and to imprisonment for 15 years. Any person who exports, imports, transports, transfers or acquires a rhino or rhino horn illegally is liable to the same fine though a reduced imprisonment term of 10 years applies. Offenders committing any of the above acts in respect of an elephant may be fined P50 000 and imprisoned for 10 years.

IUCN Botswana

CANADA

New legislation that will give further protection to wild animals and plants at risk from poaching and smuggling received royal assent on 21 December 1992. The *Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act* makes provision for offences relating to illegal trade in native and foreign species. The Act also aims to provide protection to Canadian ecosystems from the introduction of harmful species. Individuals infringing trade regulations may be liable for fines of up to C\$150 000 (US\$120 000); corporations acting illegally could be fined up to C\$300 000. The Act will complement existing provincial and territorial legislation governing the trade in and transport of wild animals and plants and their parts and products.

Environment Canada

CHINA

At a seminar attended by China's Council of Agriculture and related authorities to discuss amendment to the *Conservation Law*, it was decided that heavier penalties were needed to make wildlife offences unprofitable and thus curb the illegal trade of wildlife species. There was unanimous agreement that penalties should be increased to five times the market value of the animal/product illegally in trade. There was also strong support for the establishment of an *ad hoc* police force to strengthen conservation efforts.

The China Post (China), 30 December 1992

PUBLICATIONS AVAILABLE

Fur Trade in Kathmandu: Implications for India

A TRAFFIC India Investigation by Joanna Van Gruisen and Toby Sinclair

Edited by Vivek Menon and Lata Raman

1992. Published by TRAFFIC India. 23 pp. Limited copies available. Price: US\$5 incl. postage.

This report deals with the trade in mammalian furs in Kathmandu. It extends and updates the findings of *The Overt Illegal Fur Trade in Kathmandu, Nepal* by Larry J. Barnes, 1989 (reviewed in *TRAFFIC Bulletin* 11(4)) and examines the type and quantity of furs on sale in Kathmandu, as well as seeking to determine their sources. A large number of species are involved, some of which are critically endangered, such as the Snow Leopard. The report makes recommendations for both India and Nepal to tighten law enforcement: there is ample evidence to suggest that illegal trade continues at a substantial rate.

The Gardener's Guide to Plant Conservation

by Nina T. Marshall

1993. Published by World Wildlife Fund-US in collaboration with TRAFFIC USA and The Garden Club of America. 187 pp. Price: US\$12.95 (plus US\$2 p&p). Available from WWF publications, PO Box 4866, Hampden Post Office, Baltimore MD 21211.

Gardeners in the USA plant over 1 billion bulbs each year, yet few flower enthusiasts are aware that their gardens may contain wild-collected bulb species threatened by illegal or excessive trade. To help gardeners know what to buy and what to avoid, this publication provides guidelines for purchasing several plant groups with emphasis on outdoor garden plants whose populations are under pressure from commercial trade.

Chapters on bulbs, terrestrial orchids, North American wildflowers, and carnivorous plants are presented in an easy reference format and provide the gardener with information about each species' place of origin and the extent to which it is cultivated.



In order to promote environmental protection and the preservation of wildlife habitat, the Directorate General of Posts of the Ministry of Communications of the Republic of China in Taiwan has released a set of four postage stamps. "Taiwan Endangered Mammals Postage Stamps", each valued at NT\$5.00, feature the Chinese River Otter *Lutra lutra chinensis*, Formosan Flying Fox *Pteropus dasymallus formosus*, Formosan Clouded Leopard *Neofelis nebulosa brachyurus* and Formosan Black Bear *Selenarctos thibetanus formosanus*.

Announcements

With effect from 24 May 1993, the CITES Secretariat will be based at a new location: 15, chemin des Anémones, Case postale 356, 1219 Châtelaine, Genève, Switzerland.

IUCN General Assembly
The 19th Session.
18-26 January 1994
Buenos Aires, Argentina.

Contact: IUCN, rue Mauverney 28, CH-1196, Gland, Switzerland.

International Wildlife Management Congress
19-25 September 1993
San Jose, Costa Rica.

Contact: The Wildlife Society, IWMC Secretariat, 5410 Grosvenor Lane, Bethesda, MD 20814-2197, USA.

Workshop on Conservation of Mahoganies
30 September 1993

Contact: Fauna & Flora Preservation Society, 1 Kensington Gore, London SW7 2AR, UK.

Concern about Trade in Red-and-Blue Lorries

Stephen V. Nash

The Red-and-blue Lory *Eos histrio* is a little-known parrot species occurring only in the tiny island groups of Sangihe, Talaud and Nenusu, in Indonesia. Until recently the primary threat to this species has been habitat loss, as natural habitats in all of these island groups have been largely converted to plantation agriculture. As a result, two subspecies of Red-and-blue Lory are considered to be either endangered or critically endangered, and the third is considered critically endangered, possibly extinct. International trade in this CITES Appendix II species has been almost non-existent (estimated to have involved fewer than 10 birds a year), but within the past year possibly more than 700 birds have been removed from the Talaud Islands, from a wild population believed to have numbered less than 2000 birds. This collection is likely to have occurred from the largest area of surviving forest, some 20 200 ha of protected forest on Karakelong Island. The sudden appearance of significant numbers of Red-and-blue Lorries in trade poses a serious and immediate threat to the survival of this species in the wild.

BACKGROUND

The Red-and-blue Lory was first described in 1776 from specimens collected from Sangihe Island. The currently recognized taxonomy and distribution are as follows:

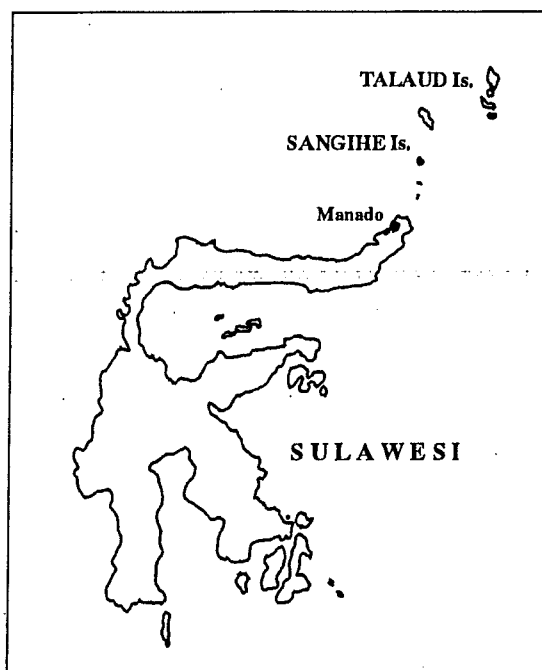
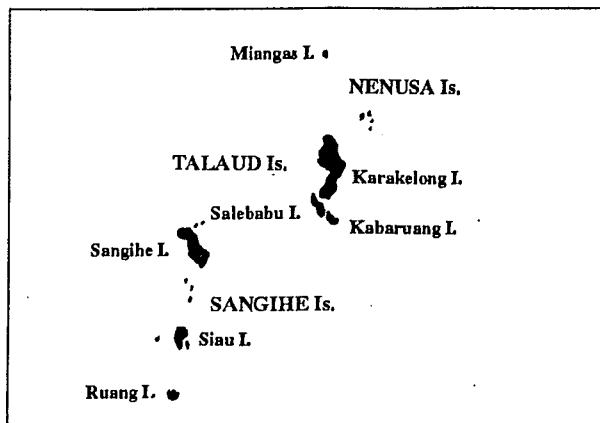
<i>Eos histrio histrio</i>	Sangihe, Siau and Ruang
<i>Eos histrio talautensis</i>	Talaud Islands (Karakelong, Salebabu and Kabaruang)
<i>Eos histrio challenger</i>	Nenusu Islands (Miangas)

This species is a small to medium-sized lory, approximately 30 cm in length. As its name suggests, it is predominantly red and blue, with a characteristic blue breast band and a narrow blue band from the mantle to the eyes and across the hindcrown. It has black scapulars, thighs and flight feathers, a blue mantle, and a coral-red bill.

STATUS OF RED-AND-BLUE LORY POPULATIONS

The three subspecies of Red-and-blue Lory are considered to be endangered to critically endangered, mainly, to date, as a result of habitat loss.

The Sangihe subspecies (*histrio*) may already be extinct, or at least be in very low numbers (Lambert *et al.*, 1992). Already by the late nineteenth century *Eos h. histrio* was not common on Sangihe Island, where it had



Sulawesi and the location of Nenusu, Sangihe and Talaud island groups.

retreated to the mountainous interior as a result of the spread of coconut plantations (Meyer and Wigglesworth, 1898, cited in Forshaw and Cooper, 1989). An observer in 1985 found the subspecies to be "very uncommon" (Rozendaal *in litt.* to T. Inskipp, 29 March 1987). A more recent survey by Bishop, in 1986, failed to locate the subspecies on Sangihe Island, where only a few ha of mountain forest remain (Forshaw, 1989). The neighbouring small islands of Siau and Ruang were not visited during the 1986 survey, but judging by their size they were not expected to hold viable populations of *E. h. histrio* and Siau is reported to have little or no forest habitat left (Whitten, cited in Bishop, 1992).

The subspecies with the largest population, believed to have numbered up to 2000 birds before present trade activity, is *E. h. talautensis*, on Karakelong Island, in the Talaud group. The subspecies was said to be fairly common on the Talaud Islands in 1978 (White and Bruce, 1986), though Rozendaal observed that the birds seem "to have suffered tremendously from an anti-locust spraying

campaign in the 1970s" (Rozendaal, *in litt.* to T. Inskipp, 29 March 1987). Nonetheless, the bird was found to be common in 1986 on Karakelong Island, which may be the only island in the Talaud group with a viable population. The 1986 survey failed to locate Red-and-blue Lories on Salebabu Island, though the subspecies may still survive in small numbers on the island's western end (Bishop, 1992). The status of the species on Kabaruang, the third island of significant size in the Talaud group, is not known.

The status of the subspecies *challengeri*, from Miangas Island, is unknown. The island appears to still have these birds (several specimens of this subspecies have been observed in trade), but populations must be extremely small: the island is tiny.

Using the Mace-Lande criteria for assessing levels of threat to species, the BirdLife International (formerly ICBP) Parrot Specialist Group considers the Sangihe subspecies *histris* to be critically endangered (50% probability of extinction within two generations) to extinct; the Talaud subspecies *talautensis* to be either endangered (20% probability of extinction within 20 years) or critically endangered, and the Nenusu subspecies *challengeri* to be either endangered or possibly critically endangered (Lambert *et al.*, 1992). These assessments are based on the threat posed to the species by habitat loss, not by trade.

TRADE IN RED-AND-BLUE LORIES

Prior to 1992 there had been no official record of any Red-and-blue Lories (listed in CITES Appendix II since 1981) exported from Indonesia, apart from in 1990. In that year, a capture quota of 1000 birds was allocated by the Directorate General of Forest Protection and Nature Conservation (PHPA), and 140 birds were reported exported to Malaysia in the Indonesian CITES annual report for 1990 (Malaysia recorded importing 90 birds). Otherwise, the species has never been included in the Indonesian capture quotas. There are no known Red-and-blue Lories in captivity in Europe or the USA at present (van Kreveld, 1990; S. Broad, pers. comm., 1993; Allen and Johnson, 1991; Johnson, 1992). However, there are records of Red-and-blue Lories having been in captivity outside Indonesia in the past: the species was exhibited at London Zoo in 1871; a single *challengeri* was exhibited at Birdland, in Bourton-on-the-water, UK, in 1972; San Diego Zoo had two specimens in the 1960s and, in 1965, the species was bred successfully in Denmark (Low, 1986). Some birds were recorded in Japan in 1982.

One Jakarta-based trader admitted exporting up to 10 birds a year in the past, while another claimed to have come across this species only once in over 20 years of bird trading. In 1992 there was a sudden change of trade patterns, however, and at least 290 birds appeared on Indonesian CITES export permits for that year and actual exports from Indonesia may have been well in excess of 500 birds.

Import Trade

During 1992 and early 1993, TRAFFIC Southeast Asia made first-hand investigations of the trade in Red-and-blue Lories, following up on its observations in Singapore in April 1992 of what is believed to be the first shipment of 70 Red-and-blue Lories arriving from Indonesia.

Subsequently, TRAFFIC Southeast Asia traced more Red-and-blue Lories in Singapore in July, October, and December 1992, involving five importers. At least two of the importers had more than 100 birds each and the remaining three had a minimum of 130 specimens between them. Altogether, approximately 435-485 birds were traced by TRAFFIC Southeast Asia in Singapore; all birds observed appeared to be *E.h. talautensis*.

Information has been received that some of the Red-and-blue Lories in Singapore were subsequently re-exported during the first half of 1992, although their destination is not known. It is known, however, that 66 Red-and-blue Lories were exported from Singapore to South Africa in February 1993: these Lories are additional to those already known to have been imported into Singapore from Indonesia during 1992. At the time of writing, these birds are still in quarantine in South Africa. Red-and-blue Lories have recently been advertised for sale in South Africa's main avicultural magazine, *Avizundum*, at a price of R8500 (US\$2600) (presumably per pair).

Export Trade

One Jakarta-based exporter appears to be a main source for the Red-and-blue Lories being exported from Indonesia, and is allegedly supplying several Singaporean traders. However, TRAFFIC Southeast Asia has heard that three other exporters in Jakarta are now supplying this species. One of these traders, when contacted by TRAFFIC Southeast Asia, denied that Red-and-blue Lories were available in Jakarta at all.

Official records of exports of this species from Indonesia show 30 birds exported in August 1992. A further 35 were recorded as exports in September, and 90 more in October, making a total of 155 birds exported. However, export permits were issued for 65 birds in August, 175 in October, and 50 in November, making a total of 290. TRAFFIC Southeast Asia believes that in fact some 400-500 Red-and-blue Lories, probably all *E.h. talautensis*, have left Indonesia for Singapore since April 1992. Moreover, at least an additional 200 Red-and-blue Lories have died in Jakarta from disease and poor handling at the premises of one of the exporters.

Some information on prices charged by Jakarta traders is available. In April 1992 birds were being offered for an average price of S\$900 (US\$540), while by December 1992 the price had dropped to S\$700 a bird. Prior to 1992, occasional Red-and-blue Lories in trade attracted as much as US\$1000 a bird.



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Red-and-blue Lory *Eos histrio challengerii*

Domestic Trade

In January 1993, TRAFFIC Southeast Asia discovered a Red-and-blue Lory for sale in the bird market of Ujung Pandang, in southern Sulawesi, for Rp.125 000 (US\$60). In the northern Sulawesi town of Manado there is no formal bird market, but Red-and-blue Lorries are reported to be available from door-to-door bird sellers, though none was seen by TRAFFIC Southeast Asia.

A visit was made to the Talaud Islands to investigate the trade in Red-and-blue Lorries. At a location in Lirung, on Salebabu Island, seven specimens of what TRAFFIC Southeast Asia believes to be *Eos histrio challengerii* were being kept in a small aviary. Some of the birds were immature, with plumages mottled with grey (especially on the breast and head). The birds are apparently caught as a 'by-catch' of fruit bat *Pteropus* harvests, which are carried out using large nets. Red-and-blue Lorries are sold locally for Rp.4000-5000 (approximately US\$2-US\$2.50) a bird. Local entrepreneurs collect 40-50 birds at a time to take and sell in Manado. This form of export is said to be irregular in occurrence, according to availability of the birds. However, the author was told that every week (usually on Saturdays) people arrive in Lirung from outlying villages to sell between one and 10 birds at a time. Again, the trade is on a house-to-house basis, and does not occur in the market.

Islanders recognized that the capture of Red-and-blue Lorries was illegal and acknowledged that the bird has been trapped to the point where it is no longer worth the effort to try and catch further specimens on Salebabu. They explained that most of the catching now is from the protected forest north of the village of Beo (on Karakelong

Island), which is about the only forested region left in the Islands, all other regions having been converted to coconut, nutmeg, and clove plantations, where possible. One report indicates that approximately 150 birds were sent from Beo to Manado in December 1992. Otherwise, apparently 30-40 birds a month are sent on this route. From Manado, the birds are likely to be shipped directly to Jakarta.

Concentrated catching on Karakelong would explain why the Red-and-blue Lorries arriving in Singapore appear to be all one subspecies, namely, *talautensis*. One knowledgeable resident of Karakelong claimed there were fewer birds now than a year ago. Interestingly, traditional community and church leaders oppose the capture and shipping of the island's wildlife, on the grounds that this could upset the ecological balance.

Export Controls

Under Indonesian regulations, a species may be captured and traded if, firstly, a quota has been assigned to it by PHPA and, secondly, if the Regional Forestry Office, under advice of the local Natural Resources Conservation Office, has issued both a capture permit and subsequently a transport permit. If the species is to be exported, then a CITES export permit (used for both CITES-listed and non-CITES species) must be signed by the Director General of PHPA (the CITES Management Authority) in Bogor, and issued accordingly.

PHPA sets national quotas with the help of the Indonesian Institute of Sciences (LIPI). While it is possible that the capture and export of species not listed in the capture quotas be allowed, regulations state that PHPA must obtain the agreement of LIPI to do so. The Red-and-blue Lory is not listed in the 1992 capture quotas. However, at least seven CITES export permits have been issued by PHPA for Red-and-blue Lorries in 1992, apparently without prior agreement from LIPI.

TRAFFIC Southeast Asia has also learned that some Red-and-blue Lorries may have been exported with permits identifying the birds as Red Lorries *Eos bornea*. Consequently, it is likely that not all imports of *Eos histrio* into Singapore have been accurately declared.

CONSERVATION SIGNIFICANCE

The best population estimates, made prior to the 1992 exports of Red-and-blue Lorries, indicate fewer than 2000 birds for *E. h. talautensis*, between 0 and 1000 birds for *E. h. histrio*, and an unknown, but probably small, number for *E. h. challengerii*. TRAFFIC Southeast Asia has mainly encountered *E. h. talautensis* in trade. A few *E. h. challengerii* were seen on Salebabu Island only. The Sangihe subspecies, *E. h. histrio*, might have been seen in Ujung Pandang and Singapore, though this is not certain, and this subspecies may in fact be extinct, as already mentioned.

The birds removed from the Talaud Islands during the past 12 months represent a significant proportion of the

total wild population of Red-and-blue Lorries (perhaps as high as 33 per cent, if current estimates are accurate). In January 1993, Talaud islanders noted that the Red-and-blue Lory is not as easily obtainable as a year ago.

Domestic and export shipments of Red-and-blue Lory have involved 10 to 100 birds at a time; the birds are often kept under conditions which might facilitate the spread of disease, hence the survival of birds presently in captivity is not assured.

Support is needed for Indonesian authorities to complete an assessment of the status of all populations and subspecies of the Red-and-blue Lory in the Sangihe and Talaud Islands, and on Miangas Island. However, pending the findings of such a survey, in view of the apparent urgency of the situation, it is essential for the authorities of Indonesia to bring about a complete cessation of trade in this species. A full review of the species' current CITES listing is strongly recommended.

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Maps drawn by Steven Broad.

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The Recent Trade in Philippine Corals

Teresa A. Mulliken and Stephen V. Nash

The Philippines has been a major source of corals in international trade for at least three decades. This country's coral reef system has provided over 13 000 t of coral to foreign markets since 1960 (the earliest year for which trade records are available), where it is mostly used for ornamental purposes. In recent years, much of this coral, including some of over a million pieces exported in 1992, appears to have been traded in violation of Philippine laws and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

INTRODUCTION

The coral reefs of the Philippines, spanning over 27 000 km² (IUCN/UNEP, 1988), protect coastal areas from wave erosion and storm damage, support 8% to 15% of the country's annual finfish catch (Carpenter, 1977, cited in IUCN/UNEP, 1988; Murdy and Ferraris, 1980), and provide a foundation for the growth of other marine invertebrates such as molluscs, valuable as food and for the shell trade. However, the reef ecosystem is under significant threat from sedimentation, coral mining for construction, and blast fishing. Furthermore, collection of corals for the coral trade has resulted in localized damage to the Philippines' reefs (IUCN/UNEP, 1988; Wells, 1981), with noted differences in the composition of coral populations of exploited and unexploited reefs (Ross, 1984, cited in IUCN/UNEP, 1988; Wells, 1982). In recognition of the importance of its coral reefs, and the impact of the coral trade on reef ecosystems, the Government prohibited the harvesting and export of coral in the 1970s.

LEGAL HISTORY

A harvest ban was first announced in 1973 in response to evidence that corals were being overharvested and were subject to poaching by Japanese and Taiwanese fishermen. Responsibility for administering coral resources was given to the Bureau of Mines, an agency with no previous experience of handling such issues, who sought clarification from the Government of its intent with regard to coral resource management (Comsti, 1979).

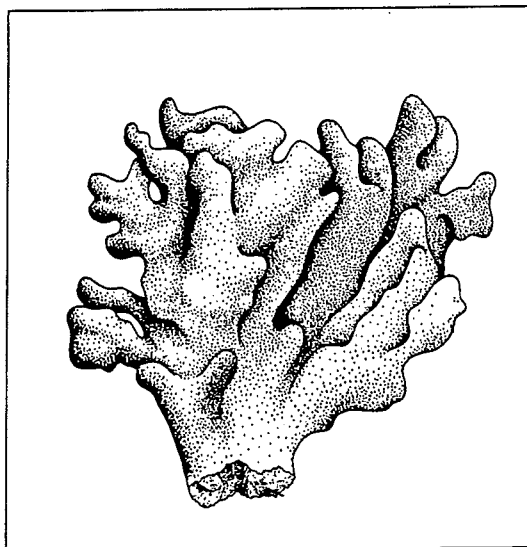
Such clarification came in 1977. Recognizing that "conservation of ordinary corals is necessary for the preservation of

the natural breeding ground, habitat or abode of fishes and other marine organisms", the Government banned the commercial harvest, possession, sale and export of 'ordinary' (i.e. stony, reef building and/or reef-associated) corals (Anon., 1977). All those in possession of coral stocks were required to report them to the Secretary of Natural Resources within one month of the Decree's effective date (14 October 1977). The Decree provided for the export of inventoried coral stocks. In addition, the Secretary was given the power to grant periodic exemptions to this ban for "certain species in selected areas". Collection of 'precious' corals (red, pink and white corals *Corallium*) and 'semi-precious' corals (black corals Order Antipatharia) was allowed under permit and their export limited to worked items.

Coral traders circumvented these trade restrictions in a number of ways, e.g. by claiming that freshly-collected corals were part of 1977-inventoried stocks, and by moving corals between the ports of Cebu City and Zamboanga City (then as now the centres of the Philippine coral trade) prior to smuggling them out of the country (De La Torre, 1979). In an effort to tighten loopholes through which exports continued, in 1980 the Government issued Presidential Decree No. 1698 (Anon., 1980) which reaffirmed the export ban, but gave traders a 15-day grace period to dispose of existing coral stocks. This Decree also transferred authority for managing coral resources to the Bureau of Fisheries and Aquatic Resources (BFAR) in the Department of Agriculture.

Coral exports from the Philippines continued, however, as shown by US Customs figures. From 1981 to 1985, the USA imported an annual average of 350 t of coral from the Philippines. The coral was imported despite a 1982 US Fish and Wildlife Service (USFWS) directive instructing law enforcement officials to refuse entry of most Philippine corals under the US *Lacey Act*, legislation which prohibits the import of wildlife illegally harvested in or exported from its country of origin. It appears that some US Customs officers were unaware of the directive and, further, that some corals were imported owing to confusion regarding shipments that were accompanied by what appeared to be valid export permits (Gaski, 1988).

In 1985, 17 genera of the most popular stony corals in trade (e.g. branching corals *Pocillopora* spp., *Acropora* spp. and mushroom corals *Fungia* spp.) were listed in CITES Appendix II. These listings gave those CITES Parties lacking legislation such as the US *Lacey Act* the authority to refuse the importation of CITES-listed corals traded without valid CITES permits. The fact that



Blue Coral *Heliopora coerulea*

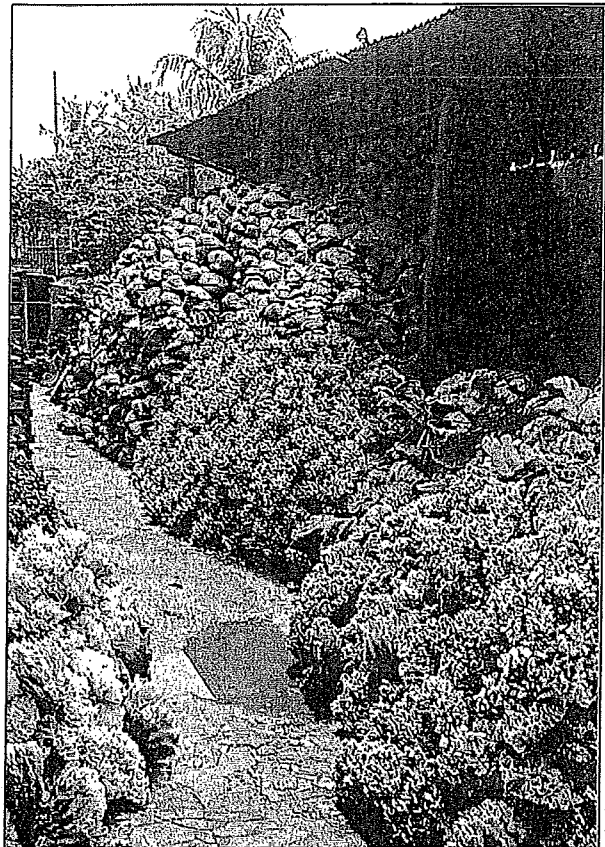
many coral species were not included in the Appendices, and that what appeared to be valid permits for corals exported from the Philippines were issued despite the export ban, meant that these listings were not effective in bringing the trade under control.

In 1986 the Philippine Government once again provided exporters with an opportunity to clear stocks. They announced that 'ordinary' corals could be legally exported following an inventory of coral stocks made in April of that year. Although technically only those corals collected prior to 1977 should have been considered legal, the Government chose to classify as "old stock", and therefore allow, the export of any corals documented during the 1986 inventory. The inventory in fact was more an estimate, as not all corals were counted, and it was alleged that some personnel inspecting coral stockpiles were intimidated by traders.

Traders were given from 1 May 1986 to 30 April 1987 to clear their stocks. It soon became clear, however, that some were augmenting existing stockpiles with newly-collected corals. The Secretary of Agriculture responded by shortening to six months the period in which exports were to be allowed. As before, this was insufficient to stop illegal trade. According to Customs data, over 600 t of coral from the Philippines were cleared for import to the USA in both 1987 and 1988 (Gaski, 1988; A. Gaski, pers. comm., 1992). These imports greatly exceeded those recorded by Customs during previous 'closed' years, and equalled US import volumes during 1986. In a September 1987 communication to TRAFFIC USA, the Philippine CITES Management Authority (BFAR) stated that the export ban was still in place, but that unauthorised shipments of coral were nevertheless being exported. Again, some of the shipments to the USA appeared to be accompanied by valid Philippine export documents (Gaski, 1988) despite a CITES Notification, issued on behalf of the Philippine Government, which stated that no export permits had been issued after 22 November 1986 (Anon., 1988).

Shipments to other countries did not have such an easy path. Although approximately 42 t of Philippine corals were imported into the UK in 1987, following consultation with the CITES Secretariat the UK Department of the Environment announced that no further import permits (required under EC law) would be issued: no permits allowing the commercial importation of Philippine corals were issued in 1988 (UK Department of the Environment, *in litt.*, 27 January 1989). A shipment of three tonnes of Philippine coral was seized in Belgium in 1988, having been re-exported from Germany with forged permits (Anon., 1989). Some Philippine exporters persisted, apparently undeterred by news of increased import controls and, in 1989, the Portuguese Management Authority reported that a shipment of six tonnes of coral had arrived from the Philippines (Wells and Wood, 1989).

The remaining stony coral species were included in CITES Appendix II in 1990, but this still did not deter all traders. A UK importer was approached with the following written offer in 1990:



Coral at a dealer's premises in the Philippines, 1992.

"As you know, our government banned the exportation of corals. But we are still able to facilitate coral shipments to some European markets without...CITES permit, on instructions of importing markets. And none of our coral shipment has ever been confiscated since the ban took effect. Hence if you wanted to import corals...you may place your order now we are ready to serve you anytime."

Several exporters had reason to be less confident. A large shipment of Philippine coral was seized by Dutch authorities in 1990 when an investigation revealed that a permit issued for 10 pairs of Scaly Clam *Tridacna squamosa* had been altered to include over 5000 pieces of stony corals (van Kreveld, *in litt.*, 8 July 1992). This was followed by the seizure of two tonnes of coral exported from the Philippines and declared as "driftwood, cuttlefish and rocks", from a ship in London docks in July 1991. An additional 15.5 t were confiscated from the importer's warehouse (Anon., 1991). When queried about the legality of these exports, BFAR stated that export prohibitions remained in effect, and that there was "no plan to lift the ban in the Mindanao region" (BFAR, *in litt.*, 11 November 1991). This information appears to have been incorrect, however, as BFAR subsequently authorised coral exports from Zamboanga City and Cebu City, according to the following schedule: Cebu City stocks: 6 April-6 May 1992; Zamboanga City stocks: 15 January-15 February 1992 and 20 April-20 July 1992. The

Corals in Trade and Their Uses

Most of the stony corals traded internationally are sold for ornamental purposes. Coral pieces, both worked and unworked, are variously used as tabletop decorations, to display jewellery in shop windows, and to provide "natural" surroundings in saltwater aquaria. The latter use has evolved in recent years, with many public aquaria and private enthusiasts attempting to keep live corals in their tanks along with other invertebrates and fish.

Stony corals have also been traded in very small amounts for surgical use in treating serious fractures and bone cancer. Over 5000 bone graft operations using coral implants have been performed, using coral pieces cut from large stony corals such as *Goniopora* spp. and *Alveopora* spp. Because corals are not recognized by the human immune system, these implants have lower rejection rates than do implants of human bone tissue (Hodgson, 1989, cited in Anon., in prep.).

A total of 95 species from 51 genera were reported in international trade from 1985 to 1990. Trade in the ten genera reported to have been traded in the largest numbers from 1986-1989 is shown in Table 2. Trade was dominated by branching corals (e.g. brown stem cluster corals *Pocillopora* spp., branch corals *Acropora* spp., birds nest corals *Seriatopora* spp.) and mushroom corals *Fungia* spp. Blue Coral *Heliopora coerulea*, used in jewellery making, was also traded in large amounts, as were several genera of massive, or brain corals (e.g. *Platygyra* spp. and *Favia* spp.). Reported trade in most genera declined significantly following a peak in 1986 or 1987, corresponding with the decline in reported trade from the Philippines.

Information from those permits available for exports to the EC indicates that a minimum of 17 genera of coral were exported from the Philippines to European countries in 1992 (Table 3). It seems likely that these represent only a fraction of all genera exported from the Philippines. Branching corals accounted for 62% of coral known to have been exported to the EC, followed by mushroom corals (20%) and Blue Coral (8%). Also listed in the export permits were 2500 sea fans (*Gorgonacea*), taxa not included in the CITES Appendices.

Philippine Government stipulated that exports were to be limited to corals inventoried in 1986. A notation to this effect, i.e., "from 1986 inventoried stocks", was included on all CITES export permits provided for coral shipments, however some exporters continued to trade in newly-collected corals. Suspicions that corals were still being collected illegally were confirmed when a BFAR team sent to inspect coral stocks in April 1992 documented recently-collected corals at all but one of the traders' premises visited. As a result, the Secretary of Agriculture indicated that there would be no further extensions of the export period beyond 20 July 1992.

Traders quickly took advantage of the remaining 'legal' period in which to export coral. According to one source, exporters tried to ship out as many corals as possible, and were not too concerned with the accuracy of export documents. When one importer questioned why more corals had been sent to him than ordered, he was told by the exporter that extra corals had been shipped in order to completely fill a shipping container and thereby take advantage of the limited export period. Traders also failed to limit their exports to "pre-1986" stocks. One exporter even led a European importer to believe that the Philippine Government had provided for a one-month 'coral cutting season' in May 1992 (De Meulenaer, *in litt.*, 9 July 1992). Another importer was asked to pay promptly for a shipment so that the exporter would have the funds needed to buy "fresh" coral.

CORAL EXPORTS FROM THE PHILIPPINES IN 1992

Unaware that the Government of the Philippines had suspended the coral export ban from April to July 1992, CITES Management Authorities in countries receiving coral shipments questioned the validity of accompanying CITES documents. In response to requests from Management Authorities and the CITES Secretariat for advice and information, TRAFFIC Southeast Asia visited the Philippines in June 1992. TRAFFIC confirmed that the Government had briefly suspended the ban on coral exports to allow traders to clear coral stocks collected prior to the 1986 inventory. TRAFFIC also observed the conditions under which illegal coral collection and trade continued to operate and, like BFAR officials, saw recently-collected coral being prepared for export.

Discussions with Government officials revealed that perhaps the most significant obstacle to controlling the Philippines' trade in corals was the lack of clear authority for authorising exports. Although the BFAR office in Quezon City is the country's designated CITES Management and Scientific Authorities for marine species, two local Department of Agriculture offices, in Zamboanga and Cebu City, are also authorised to issue CITES export permits for marine species. These local offices act under the authority of the Secretary and Under-Secretary of Agriculture, not the BFAR office in Quezon City. As a result, the Philippines CITES Management Authority for

The Recent Trade in Philippine Corals

Table 1. Philippine coral shipments known to have been presented for import in 1992.

	No. of shipments	Tonnes	Pieces	
Belgium	1	-	16124	accepted
	1	-	4230	accepted
	1	-	9200	accepted
Italy	1	-	8460	refused
	1	-	8683	refused
	1	-	10047	refused
Japan	-	1.3	-	accepted
Netherlands	1	-	13271	accepted
	1	-	17906	accepted
	1	-	6488	accepted
		14.0	-	seized
		1.5	6886	seized
UK	1	-	43782	refused
	1	53.0	-	refused
	1	3.5	-	refused
USA*	354	-	-	accepted
	88	-	-	abandoned
	39	-	-	seized
	2	-	-	returned
US total	483	-	867136	
TOTAL	497	>73.3	1012213	

*based on unedited, potentially incomplete data.

Sources: TRAFFIC Europe; HM Customs and Excise; USFWS

marine species has no direct control over the issuance of export permits by these two offices, copies of which are not received until after they have been issued. Furthermore, BFAR staff may not speak directly with DA staff in the ports, but must communicate with the regional permit-issuing offices via the Secretary or Under-Secretary of Agriculture. The confusion arising as a result has frustrated efforts to control the trade.

TRAFFIC presented these findings to the CITES Secretariat in mid-June 1992. As the species of corals in question are included in Appendix II, and can be traded commercially, the Secretariat could not recommend to the Parties that, as a general practice, Philippine export permits for corals should be rejected. However, the Parties could be informed of the concern that not all the

corals being exported were "old stock". Acting on advice from the Secretariat, the CITES Standing Committee recommended the following Notification, which it hoped would assist Parties in deciding whether to accept coral shipments from the Philippines (Gavitt, *in litt.*, 7 April 1993):

"Until further notice, the Secretariat should not transmit to the Parties information received from the Philippines on the temporary suspension of bans on export of specimens of marine species listed in the CITES Appendices. The Management Authority of the Philippines should be responsible in the future for informing countries of import about such actions;

Effective immediately, the Secretariat should no longer recognize the existence of any pre-ban stockpiles of corals and Tridacnidae in the Philippines;

The Secretariat should ask the Management Authority in Quezon City to restrict the issuance of export permits for marine species to a central authority, although the current policy is to issue permits within the regional offices; and

The Secretariat should urge the Government of the Philippines to adopt and strictly implement management programmes for marine species." (CITES Notification to the Parties No. 676, 30 June 1992)

There was apparently continuing confusion about how to deal with Philippine coral exports after the issuance of this Notification. In cases where Management Authorities asked the Secretariat about the validity of Philippine permits for the export of corals, the Secretariat informed them that, as it no longer recognized the existence of any pre-ban stockpiles, it believed that any export of corals from the Philippines was not in accordance with the national trade ban and it could, therefore, not confirm the validity of such permits (Gavitt, *in litt.*, 7 April 1993).

Problems identified with individual shipments resulted in many being refused entry. Approximately 50%

Table 2. The ten genera of stony corals most commonly reported as imported in CITES data (1986-1989).

	1986		1987		1988		1989		Total	
	Pieces	Kg	Pieces	Kg	Pieces	Kg	Pieces	Kg	Pieces	Kg
<i>Pocillopora</i> spp.	344230	5609	507481	17550	338447	0	134573	823	1324731	23982
<i>Fungia</i> spp.	341872	0	329067	6195	314850	0	18087	0	1003876	6195
<i>Acropora</i> spp.	212449	9068	388747	27758	184782	100	65737	14020	851715	50946
<i>Heliopora coerulea</i>	127955	625	116330	8575	96361	0	11628	0	352274	9200
<i>Seriatopora</i> spp.	36397	15636	63616	64625	30755	24318	2687	16290	133455	120869
<i>Platygyra</i> spp.	39163	183	37383	1720	49842	3600	70823	0	197211	5503
<i>Pavona</i> spp.	21919	4246	9230	200	38408	440	28043	501	97600	5387
<i>Tubipora</i> spp.	41679	50	60917	8274	22949	0	6173	0	131718	8324
<i>Stylophora</i> spp.	56538	1546	34674	200	8589	1928	944	0	100745	3674
<i>Favia</i> spp.	8427	1206	6896	10	15905	210	30123	0	61351	1426

Source: CITES annual report data.

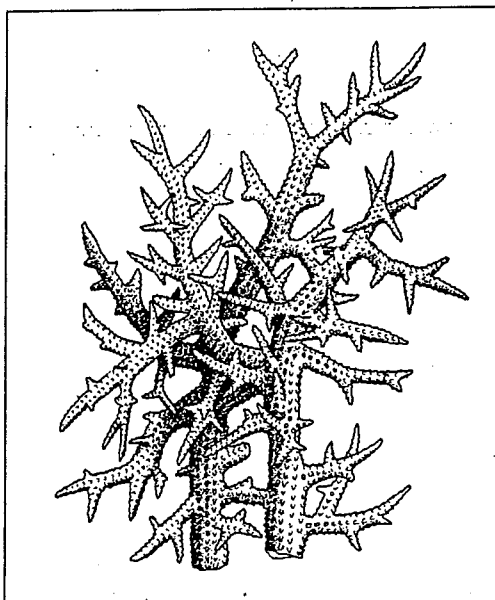
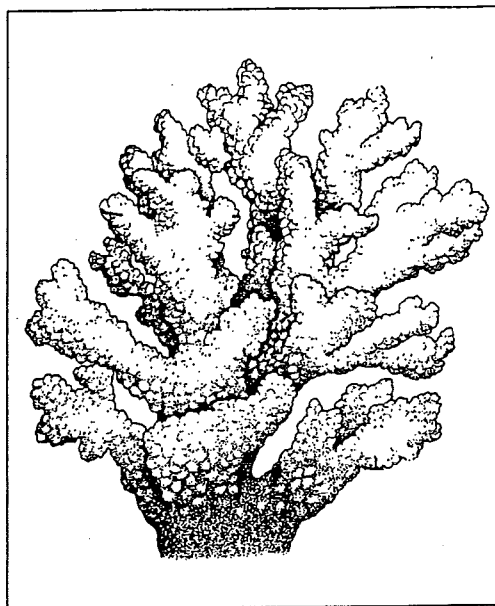
of all coral shipments known to have arrived in Europe in 1992 were refused entry, as were portions or all of approximately 25% of all those shipments which arrived in the USA (Table 1).

Department of Agriculture authorities in Zamboanga City quickly came to the defence of shipments alleged to be in violation of CITES requirements. They contacted authorities in importing countries to insist that the shipments were legal and, in violation of CITES Article IV, retrospectively issued revised export permits in cases where shipments' contents were found to differ from those described on permits. In the USA, for example, authorities requesting information concerning 5400 coral pieces not listed on an accompanying export permit were sent a new permit with a covering letter which requested the immediate release of the cargo (McCracken, *in litt.*, 10 July 1992).

Based on information for shipments known to have arrived at ports in Europe, Japan and the USA, it appears that at least one million pieces plus an additional 73 t of coral were exported from the Philippines from January to September 1992 (Table 1). The majority of coral exported appears to have been shipped to the USA. Five EC countries (Belgium, Italy, the Netherlands, Spain and the UK) are known to have received one or more large coral shipments from the Philippines. Although no information was available at the time of writing, it seems likely that coral was also exported to other markets.

Much of the coral in trade appeared to have been collected more recently than 1986. Decomposing organic matter and marine organisms were attached to corals included in a shipment arriving in the UK in May 1992, indicating that at least some, if not all, of the coral was not from "pre-1986 stocks" (HM Customs and Excise, *in litt.*, 17 July 1992). Government personnel in several other countries also questioned whether corals in shipments arriving from the Philippines, which also appeared to contain marine organisms in a similar state of recent decay, were harvested in 1986 or earlier (T. De Meulenaer, pers. comm., 1992; W. Luijff, pers. comm., 1992; McCracken, *in litt.*, 10 July 1992).

However, it appears that the UK is the only country to have refused coral imports on the grounds that the corals



Pocillopora verrucosa (top) and *Seriatopora histrix*.

were harvested after 1986. All three Philippine coral shipments to the UK in 1992 were seized by Customs on the basis that the coral listed on the CITES permits was not the coral included in the shipments, i.e. it was not from "1986 inventoried stocks". Although not cited as a reason for the seizure, unworked black coral found in one of these shipments was exported in clear violation of the 1977 Presidential Decree. A total of over 80 t of coral was seized in all. The seizures were not contested by the importer, who abandoned the coral and was not charged with an offence. The coral was subsequently donated by the UK Government to institutions such as zoos, who could make use of it in a "proper and ethical" manner (Anon., 1992a).

Authorities in Belgium allowed two coral shipments to be imported, following receipt of revised permits that described the shipments' contents to the species level (initial permits contained only generic information). Neither of these shipments was inspected to determine if their contents actually matched accompanying export permits, however: experts contacted by the Belgian Management Authority responded that it would be practically impossible to establish the age of the corals in the absence of clear evidence and that, in some cases, microscopic analysis would be

required for species identification (T. De Meulenaer, pers. comm., 1992). In the Netherlands, three shipments accompanied by what appeared to be valid CITES export documents were approved for import. However, Dutch authorities seized two shipments that had been re-directed to the Netherlands after being refused entry at ports in Germany and Spain (W. Luijff, pers. comm., 1992; A. van Kreveld, pers. comm., 1992).

Many coral shipments were refused entry in the USA when inspection revealed that corals listed on accompanying export permits did not accurately describe the shipments' contents. Although information contained in the various documents accompanying each shipment (bill of lading, invoice, CITES permit) corresponded perfectly, it often did not accurately describe the corals being exported. In some cases it appeared that entire portions of the shipments had not been recorded, while in others some of the species and/or the numbers of specimens described

did not match those shipped (McCracken, *in litt.*, 10 July 1992). Based on preliminary information from the USA, approximately 27% of the coral shipments arriving from the Philippines in 1992 were suspected by USFWS inspectors to be in violation of US laws and/or CITES, and were either confiscated or abandoned by importers (USFWS Office of Management Authority, *in litt.*, 17 July 1992). In some cases, USFWS inspectors seized only those portions of the shipments for which adequate CITES documentation was not provided.

DISCUSSION

Philippine traders are well aware of national harvest and trade bans, but appear to operate under the assumption that they will be able to obtain export permits in spite of them, and that trade will be re-opened periodically. To date these assumptions appear valid. Many of the coral traders in business in 1981 are still in business today. And, as indicated above, freshly-collected corals continue to be purchased and prepared for sale to foreign markets.

It would be easy to respond to the current situation by simply accusing local government officials of dereliction of duty or corruption. But there are other factors operating in Cebu City and Zamboanga City which should be considered. All those export businesses dealing in corals also export large volumes of shells and shellcraft, the latter a significant source of local employment and foreign exchange from exports (Wells and Alcala, 1987). Traders therefore have tremendous economic and political influence, particularly at the local level.

Traders argue that coral exports should be allowed because they are an important source of employment. A study in 1980 (Alcera, 1981, cited in Wells, 1982) showed that there were about 1200 coral divers on Mindanao,

earning approximately US\$1 a day collecting an average of between 30 and 50 pieces of coral. On Mactan Island, off Cebu Island, between 50 and 80 people were employed part-time to gather coral in 1981, with each able to collect an average of 100 coral pieces a day. An additional 60 to 70 people were employed to clean and sort the corals before they were supplied to Cebu City dealers (Wells, 1982). The Marine Sciences Centre of the University of the Philippines (Anon., 1979, cited in Wells and Alcala, 1987) contends that most coral divers are not dependent on the trade by tradition, but rather are former fishermen who originally collected corals and shells as a sideline, but increased this activity with the expansion of the trade.

Wells and Alcala (1987) stated that coral collection was not a major source of employment in the Philippines, but it is clear that some local people remain at least partially dependent upon the coral trade, as one component of the larger trade in marine curios. However, coral divers receive only a fraction of the value of the items they collect and sell to exporters, and therefore are not benefiting as much as might be expected from the exploitation of this resource.

As presently managed, the coral trade could have a net negative effect on employment and the country's economy. The trade is known to be contributing to localized degradation of the Philippines' coral reefs (IUCN/UNEP, 1988; Wells, 1981). This in turn may deplete fish and mollusc populations upon which Filipinos depend, as well as lessen the attraction of the reefs to tourists, who are an important source of foreign exchange in the Philippines. Declines in employment opportunities and food availability related to such degradation may outweigh any benefits gained through the current system of exploitation, which does not take factors such as maintenance of coral populations into account.

Government personnel are under considerable pressure from exporters to provide permits and overlook illegal activities. Wells (1982) commented that bribery was "a widespread practice in Cebu". A letter sent by a Philippine exporter to a UK importer in 1988 shows that this practice had not abated, with the exporter promising that "The shipper here will bribe the Fisheries and Customs officials" (Wells and Wood, 1989).

CONCLUSIONS

The economic and cultural conditions which have allowed illegal trade in the past will not suddenly change and, given the previous record, it is easy to suspect that such trade from the Philippines will continue. Furthermore, an end to coral harvests in the Philippines is more likely to cause the trade to shift elsewhere, than to bring about its reduction. Evidence of increased exports from Indonesia may reflect a response by coral traders in that country to meet the demand once met by the Philippines. Unless effective management plans are put in place in these and other coral exporting countries, it seems likely that the coral reef degradation associated with the international coral trade will continue.

Table 3. Known coral imports from Philippines to EC Member States (1992).

Genus	Pieces
<i>Pocillopora</i> spp.	49970
<i>Fungia</i> spp.	26949
<i>Acropora</i> spp.	22753
<i>Heliopora</i> spp.	11207
<i>Psammocora</i> spp.	4432
<i>Tubipora</i> spp.	3946
<i>Stylophora</i> spp.	3829
<i>Seriatopora</i> spp.	5264
<i>Pavona</i> spp.	742
<i>Pectinia</i> spp.	488
<i>Millepora</i> spp.	546
<i>Pachyseris</i> spp.	500
<i>Merulina</i> spp.	424
<i>Hydnophora</i> spp.	368
<i>Lobophyllia</i> spp.	332
<i>Turbinaria</i> spp.	142
<i>Goniastrea</i> spp.	45
Total	131937

Sources: TRAFFIC Europe; TRAFFIC Southeast Asia

The Recent Trade in Philippine Corals

Table 4. Summary of reported trade in CITES-listed stony corals by country of export (1986-1989).

Exporting/ Re-exporting country	Imports ¹ /Exports ²		Imports ¹ /Exports ²		Exporting/ Re-exporting country	Imports ¹ /Exports ²		Imports ¹ /Exports ²	
	Pieces	Pieces	Kg	Kg		Pieces	Pieces	Kg	Kg
1986					1989				
Belgium	219	344		23	UAE	3	0		
Canada	211	240			N'land Antilles			1	
Fiji	13995	0			Australia	18	0		
Indonesia	280195	853451	1058	2220	Brazil	23	0		
Jamaica	20	0			Canada	372	85		
Sri Lanka	74	0			Germany (F.R.)	1613	650		
Malaysia	133602	0			Djibouti	258	0		
Mexico			2		Fiji	46000	0		
Netherlands	11	0			UK	1	0		
Philippines	750541	1470825	2818	9149	Haiti	19055	0		
Singapore	7986	0			Indonesia	75894	135125		
Taiwan	78442	0	34407		India	1	0		
	1265296	2324860	38285	11392	Japan	0	201		
1987					Kenya	6	0		
N'lands Antilles	11	0			Kiribati	830	0		
Canada	237	212			South Korea	2	0		
Dominican Rep.	30	0			Sri Lanka	398	250		
Fiji	25539	0			Monaco	10	0		
Hong Kong	5001	0	1145		Mexico	3	0	10	
Haiti	7483	0			New Caledonia			10500	
Indonesia	185651	437592			Netherlands	3	0		
India	14	0			Pacific Is.	2686	0		
Japan	0	115			Philippines	71665	0		
Sri Lanka	72	0			Saudi Arabia	2	0		
Luxembourg	1	1			Singapore	75	0		
Malaysia			20		Thailand	13	0		
New Caledonia	2230	0			Taiwan	168641	0	43929	
Philippines	1172692	55111	59833		Tanzania	3	0		
Singapore	230	0	10		UM*	2612	0		
Thailand	79	0			USA	1	1051		
Taiwan	263706	0	74099		Samoa	7870	0		
	1662976	493031	135107		Country unknown	52	0		
1988						398110	137362	54440	
UAE	14	0				4521800	3725995	261108	11426
Australia			34						
Canada	154	414							
China	1410	2023							
Germany (F.R.)	20	9341							
Fiji	27632	0							
Hong Kong	646	0							
Haiti	17707	0							
Indonesia	467057	758528							
India	0	11							
Japan	3	61							
Sri Lanka	65	100							
Philippines	561583	0							
Singapore	161	0							
USSR	10	0							
Turks & Caicos	6	0							
Thailand	275	0							
Taiwan	106051	0	33276						
USA	2	264							
Western Samoa	12622	0							
	1195418	770742	33276	34					

¹ transactions reported by importing Parties
² transactions reported by the exporting Party

*US Minor Outlying Islands
Source: CITES annual report data.

Analysis of Coral Trade Data

CITES data provide an incomplete picture of the coral trade in recent years, as only 17 genera of coral were included in the CITES Appendices prior to 1990. Furthermore, it is impossible to estimate the quantity of CITES-listed corals in trade because the majority of trade is recorded by the number of pieces, and no indication of the size or weight of those pieces is given. Table 4 summarizes available CITES trade data on the international trade in stony corals, comparing reported exports by source countries with reported imports from those countries for the years 1986 to 1989. Perhaps most obvious is the lack of correlation between trade data provided by importing countries and those provided by exporting countries, further limiting the ability to determine the actual amount of CITES-listed coral in trade. Despite these limitations, some general conclusions can be drawn, however.

Based on import volumes, the Philippines appears to be the largest source of stony corals reported in trade for each of the years 1986 to 1988, followed by Indonesia. The Philippines reported the export of approximately 1.5 million pieces of stony corals in 1986, the year the Government suspended the export ban for seven months. By contrast, consumer countries reported the import of 750 000 pieces from the Philippines that year. Although the Philippines only reported the export of 55 000 pieces the following year, CITES reports from importing countries show that close to 1.2 million pieces plus an additional 60 t were imported from the Philippines. It is possible that some of this coral was actually exported during the 1986 "open" period but did not arrive in importing countries until early 1987. This same explanation cannot be used to account for the over a half a million pieces of Philippine stony coral reported as imported from the Philippines in 1988. The Government of the Philippines did not report the export of any corals during that year.

Trade in Philippine coral appears to have fallen off drastically in subsequent years. CITES annual report data for 1989 show fewer than 72 000 pieces of coral from the Philippines in international trade. Information for 1990 is incomplete, but available data indicate that there were not large amounts of Philippine coral in trade during that year. USFWS data show that only very small amounts of Philippine coral were presented for import to the USA in 1991 (primarily small shipments of worked coral, such as jewellery), and virtually all of these were refused entry. USFWS apparently even refused imports of worked black coral, which could be legally traded under Philippine law (Anon., 1992b).

CITES data indicate that the world trade in stony coral took a steep but temporary downturn with the decline in exports from the Philippines. Reported imports fell from 1.2 million pieces in 1988 to fewer than 400 000 in 1989, a decline of two-thirds. A preliminary analysis of available information indicates that trade increased slightly in 1990, with just over a half a million pieces reported as imported, then rose to over a million pieces in 1991, reflecting a dramatic increase in reported imports of coral from Indonesia and China (Anon., 1992b; Anon., 1993).

Indonesia first emerged as a major supplier of stony corals in the mid-1980s. Data for this country are somewhat misleading, as reported exports greatly exceed reported imports during each year for which CITES data are available. Based on knowledge of Indonesian CITES permitting and reporting procedures for other types of wildlife (e.g., see Edwards and Nash, 1992), it seems likely that Indonesia's figures represent the amount of coral for which export permits were issued, rather than the actual amount exported, and import figures may provide a better estimate of trade volumes from that country.

Although CITES data show fewer than 100 000 pieces exported from Indonesia in 1989 (the last year for which comprehensive figures are available), US import figures for 1991 show that approximately 800 000 pieces of coral were imported from Indonesia (Anon., 1992b). Indonesia issued export quotas for corals for the first time in 1992, authorising the export of 1.2 million pieces of coral during that year.

CITES data show that the USA was responsible for over 85% of the imports reported for every year from 1986 through 1988, and 71% in 1989, with Japan and several EC countries consuming the bulk of the remaining stony corals reported in trade (Anon., 1993).

Live coral

Reported US imports of live corals rose from 841 pieces in 1984 to 39 000 pieces in 1988 (Wells and Wood, 1989). Although some of this increase reflects the listing of a number of coral species in the CITES Appendices, US trade data for subsequent years indicate the growth in demand for live corals. Reported US imports of live corals in 1990 topped 200 000 pieces, accounting for approximately 16% of the stony corals imported into the USA (Anon., 1993). USFWS data (Anon., 1992b) show that over 345 000 pieces of live coral were imported into the USA in 1991, accounting for over one-third of all stony corals imported that year. Indonesia appears to be the main source of live corals exported to the USA, with Fiji providing smaller amounts (Anon., 1992b).

Those providing a market for stony corals must also take stronger steps to ensure that the trade does not contribute to the destruction of coral reefs. By questioning and refusing to accept smuggled shipments, the governments of consumer countries can help the Philippine Government to halt continued illegal export. Consumers and retailers in importing markets can also assist in promoting conservation of coral resources by demanding that corals offered for sale come from sustainably managed sources.

Recent news from the Philippines gives at least some cause for optimism. In late 1992, Dr A.C. Alcala was appointed as the new Secretary of the Department of Environment and Natural Resources. Dr Alcala is a well-respected marine scientist and conservationist who for many years has worked for the protection of the Philippines' coral reefs. It can only be hoped that Dr Alcala will be able to bring his experience to bear in ensuring that marine resources, including corals, are managed in a way that benefits both coral reefs and the Philippine people dependent upon them.

ACKNOWLEDGEMENTS

Special thanks to Andrea Gaski, TRAFFIC USA, who has researched US coral imports and brought attention to the problem of illegal trade from the Philippines; to Susan Wells, who provided many useful comments, and whose research has provided much of what is known about the coral trade, and to the World Conservation Monitoring Centre, in particular Helen Corrigan, for providing CITES data.

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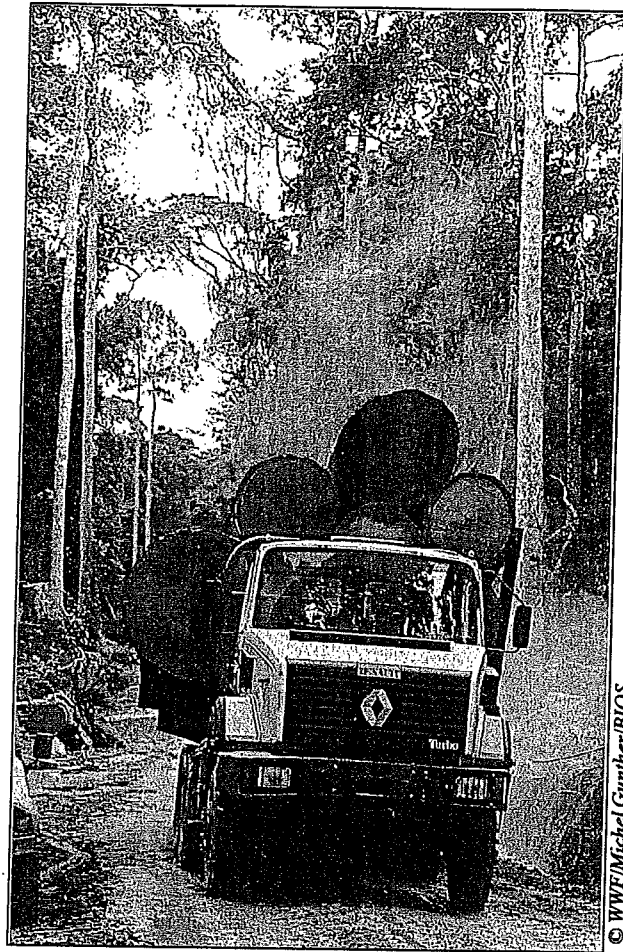
Malaysia Reacts to Illegal Logging

In mid-December 1992, the Minister of Primary Industries announced his intention to counteract illegal logging activities that have been uncovered in various states of Malaysia. Two contractors working on timber concessions granted to the Royal Family of Pahang are among those implicated in acting outside the law.

In reacting, the Government has undertaken to deploy more air surveillance and remote-sensing crews and patrols of police and soldiers to the forest areas, and penalties for those involved in illegal logging will be increased. Additionally, it will draw up new guidelines with stricter conditions governing the issue of logging concessions and the construction of forestry roads. WWF Malaysia's Forest Conservation Officer has urged that the demarcation of logging concessions be clearer: it is often uncertain whether illegal logging has taken place because boundaries are lacking on the ground.

According to TRAFFIC's report, *Illegal Tropical Timber Trade: Asia-Pacific*, about 39% of logged forests in Malaysia were outside the official areas set aside for timber production.

WWF Malaysia Press Release, 15 December 1992; Asian Timber, February 1993; TRAFFIC International



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Greater Teak Output from Java

One of Indonesia's state-owned forestry companies, Perum Perhutani, plans to increase its production of Teak *Intsia bijuga* by about 40%. The company, which is based in Java and produces approximately 500 000 m³ at present, has identified opportunities to expand to meet the demand from major Teak consumers such as Japan, the USA and Germany. Other Teak-producing countries, India and Thailand for example, are concentrating on supplying their domestic demand for the timber. According to the company's president, Saudi Arabia has also discussed the possibilities of importing Teak from Perum Perhutani.

Perum Perhutani plans to develop wood-processing technology and skills to derive greater benefit from the Teak production industry. The company is responsible for managing and harvesting forests in Java, including tree-planting and rehabilitation schemes.

Asian Timber, December 1992

Logging Ban

Indonesia has banned logging on Mentawai Island, off the west coast of Sumatra, as a conservation measure.

Tropical Timbers 8(2), February 1993

A Plant for the Future?

Recent research into the attributes of the Neem tree *Azadirachta indica* has caused government reforestation projects to favour its planting in Haiti, Southeast Asia and in countries bordering the Sahara Desert, such as Mauritania and Somalia. The tree, which is native to India, grows quickly, even in difficult terrain, and its derivatives reportedly have several beneficial properties. At least two chemical companies are investigating the development of insecticides from the tree, while experiments in India suggest that Neem oil is an effective spermicide and substances in the Neem tree's bark and leaves have shown promise for use in production of a male oral contraceptive.

A Plant from the Past

The Paulownia tree *Paulownia* is the traditional dowry tree in Japan: fathers would plant one when a daughter was born in order to harvest it later and carve a bridal chest from its wood. The tree is native to the Far East, but has been extirpated in Japan by disease. There have been reports of thefts of wild Paulownia trees for sale to Japanese entrepreneurs for as much as US\$12 000 each.

Newsweek, 30 November 1992

Khmer Rouge Ignores Timber Trade Moratorium

In January 1993, Cambodia's Supreme National Council imposed a moratorium on trade in timber across the border with Thailand. The Supreme National Council is a negotiating body formed as part of the United Nations (UN) peace plan for Cambodia and includes members of the Government, the Khmer Rouge and two other, smaller groups. Of the four factions, only the Khmer Rouge formally opposed the ban, which they regularly contravene, according to Cambodians living along the border. The UN cannot force the Khmer Rouge, who hold strong positions on the border, to comply with the ban. Instead, the rebels supervise the transit of several truck-loads of timber per night out of Cambodia to Thailand and elsewhere in Asia.

Herald Tribune (USA), 8 February 1993

B & Q Suspends Mahogany Imports

B & Q, a major home improvements retailer, will stop all purchases of Brazilian mahogany *Swietenia* products until such products can be independently certified as coming from legal and well-managed sources. The suspension took effect on 1 April 1993, and follows an appeal by Mr Sydney Possuelo, President of FUNAI, the Brazilian Government agency responsible for the interests of Brazilian Indians, who stated that much of the mahogany is from illegal sources. B & Q's environmental co-ordinator stated that the decision was also influenced by figures provided by WWF Brazil which indicate that 80% of mahogany is illegally sourced and that 50% comes from Indian reservations.

Asian Timber, January 1993

Synthetic Taxol Production Progresses

The rapid growth in the synthetic production of taxol, a valuable drug which is derived from the Californian Yew *Taxus brevifolia* and used in the treatment of various cancers, has meant that there should now be no reason to chop down the trees, according to a spokeswoman of Bristol-Myers Squibb, the synthetic manufacturer. The Yews are scattered in the underbrush in ancient forest of the Pacific Northwest, USA, where clear-cutting is required to harvest them (see *TRAFFIC Bulletin*, 13(1):33).

Herald Tribune (USA), 8 February 1993

ITTA Renegotiation

The International Tropical Timber Agreement, 1983 (ITTA) expires on 31 March 1994. The Agreement is being renegotiated under the auspices of the United Nations Conference on Trade and Development. Two sessions of the Preparatory Committee for the renegotiation have been held (in Yokohama, Japan, from 11 to 13 and from 23 to 24 November 1992 and in Quito, Ecuador, from 22 to 30 January 1993). Two formal renegotiation conferences have been scheduled and will be held in Geneva from 13 to 16 April and from 21 to 25 June 1993.

During the first preparatory renegotiation session, it became apparent that the tropical timber producer Member countries were sympathetic to the idea that the Agreement be expanded to include timber from both temperate and tropical forests. By the end of the second preparatory session this position had been consolidated. The redrafted version of the Agreement drawn up by the producer countries clearly covers all types of timber-producing forests and proposes the modification of the title of the Agreement to the International Timber Trade Agreement.

Tropical timber consumer countries appear to be strongly resisting this move. The redrafted version of the Agreement prepared by the tropical timber consumer Member countries is similar to the current Agreement but with an increased emphasis on sustainable forest management and production of tropical timber from sustainable sources. The consumer countries also want specific mention made in the Agreement of the target of having all tropical timber exports from sustainably managed resources by the year 2000. Producer countries have not referred to the so-called 'Target 2000' in their redrafted text of the Agreement as they do not want to feel legally bound to reach this target.

Producer countries have also proposed a new funding scheme in their draft text and have moved the emphasis of the Agreement away from the existing producer/consumer division of members, to one of developed/developing countries.

'Target 2000', 'all timbers' and funding seem to be the major points of difference between the producer and consumer Member countries. However, they are such fundamental differences that the outcome of the renegotiation and the future shape of the ITTA is far from clear.

STOP PRESS

The first Negotiation Conference for the successor Agreement concluded with essentially no progress being made in reconciling the differing positions of producer and consumer countries.

TRAFFIC Oceania

SEIZURES AND PROSECUTIONS

Assistance in investigations was provided to authorities by TRAFFIC staff in most of the cases reported below which occurred in regions covered by a TRAFFIC office or representative.

EUROPE

BELGIUM

On 2 July 1992, Belgian Customs authorities at the harbour of Oostende seized two containers which had been re-exported from the USA, and reportedly contained frozen shrimps from Bangladesh. Upon inspection, Customs officers found instead a total of 21 t of frogs' legs. Samples were taken for forensic examination in Switzerland where they were identified as *Rana hexadactyla* and *R. tigrina* (App. II). The shipment was confiscated and the Belgian importer will be prosecuted for circumventing CITES. The frogs' legs were auctioned.

A joint collaboration of the Belgian police and the Belgian Custom's investigation service has led to the seizure of 22 rhino horns and approximately 400 pieces of ivory.

The rhino horns, weighing a total of 51.2 kg, were confiscated on 11 February 1993 from the flat of a resident of Uccle, Brussels. This person acknowledged that her home had served as a depository and that the horns belonged to an antique shopowner in the Sablon area of central Brussels. A police search of the shop's premises the following day resulted in the seizure of approximately 400 ivory items (373 worked ivory objects weighing 170 kg, mainly jewellery, and 20-30 old, polished tusks). Two elephant foot rubbish bins, 2 snakeskin and 1 crocodile skin handbags, 1 snakeskin and one stuffed pangolin *Manis* were also seized. None of the specimens was covered by documents proving their legal acquisition. The objects were displayed to the press at the Customs sales room the following week. Dr G. Evrard of the Belgian CITES Management Authority identified the horns as being from Black and White Rhinos *Diceros*

bicornis and *Ceratotherium simum* with the exception of 1 horn believed to be from an Asian rhino species. The age of the horns was not determined but one specimen appeared to be fresh, with tissue still attached to the base. The heaviest horn weighed 6 kg. It is the third occasion in 10 years that rhino horns have been seized in Belgium. According to Belgian law, the penalties applied to CITES infringements are: a gaol sentence of 15 days to three months and a fine of between US\$3000 and US\$300 000. Investigations continue.

The following ivory seizures took place at Zaventum airport:

- 22 September 1992. 96 pieces of worked African Elephant *Loxodonta africana* ivory (2.5 kg total) from a passenger from Zaire on his return to Belgium;

- 5 December 1992. 91.2 kg raw African Elephant ivory, some pieces bearing 1989 CITES control numbers, from a passenger from Zaire. The shipment was in transit and destined for a diplomat at the Zaire embassy in Madrid, Spain.

TRAFFIC Europe

FRANCE

On 4 February 1993, 2 Asian Elephants *Elephas maximus* (App. I) were seized at the port of Le Havre. The animals had been sent from Russia without any supporting documentation and were destined for a circus in France. TRAFFIC Europe-France and WWF have written to Customs authorities requesting that all possible measures be taken to prevent further passage of the animals into France.

TRAFFIC Europe-France

GERMANY

On 28 October 1992, at Trier judicial court, Claus Pottgiesser, former managing director of an optical company, was given a gaol sentence of two years and eight months for the illegal purchase, possession and sale of tortoiseshell. Customs officers confiscated

some 574 kg of tortoiseshell from the premises of the accused and those of three other opticians who used the shell to make frames for spectacles. During January 1988 to December 1989, Pottgiesser smuggled from Jamaica some 150 kg tortoiseshell valued at DM 150 000 (US\$92 000).

In 1988, Customs officers seized about 400 kg of tortoiseshell from the previous managing director of the same company.

TRAFFIC Europe-Germany; German CITES Management Authority; Umwelt No. 1, 1993

ITALY

Customs officers confiscated a shipment of African Grey Parrots *Psittacus erithacus* (App. II) at Fiumicino airport, Rome, from a Nigerian passenger in transit to Istanbul, Turkey. The 34 birds had been packed tightly into 7 to 10 small cages. Because he was in transit, the Nigerian was allowed to continue his journey. Subsequently, it was discovered that this individual had been responsible for a shipment of primates and African Greys from Nigeria, in transit through Switzerland to Istanbul, in 1989. At that time, the shipment of 83 birds and 66 primates had been shipped in such appalling conditions that the case was reported to the eighth meeting of the Conference of the Parties to CITES (*Summaries of alleged infractions and other enforcement problems Ref. 50183*) and the Nigerian was charged with violations of Swiss animal welfare and health legislation.

The parrots have been transferred to Rome Zoo. The identity of the Nigerian has been circulated to Customs officers at all ports of entry in Italy.

TRAFFIC Europe-Italy

UK

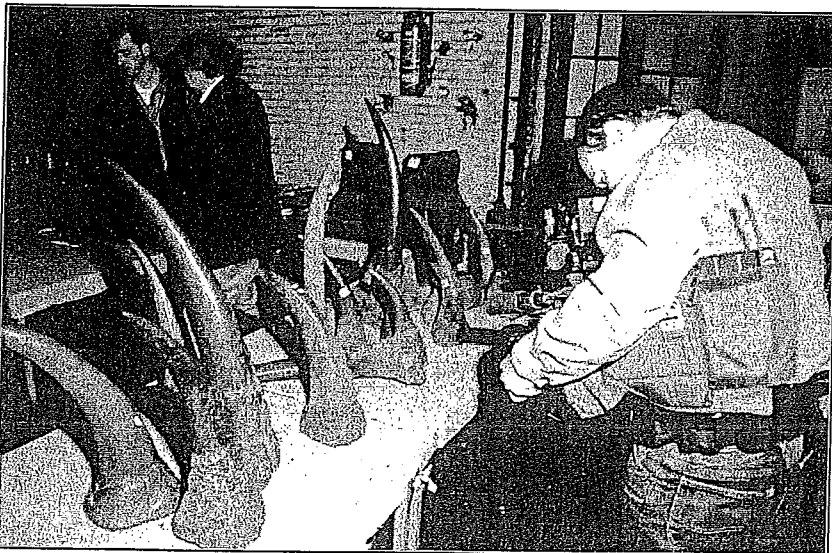
Just days before the advent of the Single European Market, UK Customs initiated proceedings against Eurogame Ltd of Boston, Lincs., and its managing director, Mr C. Van Vynk, alleging the attempted unlicensed export of 3500 restricted dead "game birds" (woodcock *Scolopax*, teal *Anas*, coot *Fulica* and golden plover *Pluvialis*). Both were found guilty and fined a total of £8500 (US\$12665) including costs. The birds were seized.

On 6 April 1993, at Guernsey magistrates court, Michel Mesnage of Normandy, France, was charged with illegal fishing in British waters and failing to obey orders of British fisheries officers.

Mesnage's trawler, La Calypso, was intercepted by the Royal Navy on 2 April after being observed within the 11 km exclusion zone off Alderney, in the Channel Islands. When fisheries officers boarded the vessel, Mesnage ignored their orders to sail to St Peter Port in Guernsey and instead sailed for Cherbourg with the officers still on board.

Mesnage, who had pleaded not guilty to both charges, changed his pleas following advice that Royal Navy notes on the infringement were correct. He was fined £3750 (US\$5700). Guernsey's deputy bailiff said he was prepared to take a lenient view of a first offence which could have earned a fine of £50 000.

H.M. Customs & Excise, UK;
The Times (UK), 7 April 1993



© WWF/Luc Dries

A quantity of the 21 rhino horns seized with Ivory pieces in Brussels, Belgium.

OCEANIA

AUSTRALIA
FEDERALRecent convictions on charges under the Federal
Wildlife Protection (Regulation of Exports &
Imports) Act 1982.

In May 1992, in Brisbane Magistrates Court, Euan Edwards was found guilty of three charges of illegal importation of live snakes (2 Corn Snakes *Elaphe guttata* and a juvenile Ball Python *Python regius*) and tarantulas. He was fined A\$43 300 (US\$30 500) plus costs.

In January 1993, Helfmarie Biebl, a German citizen, was arrested in Brisbane and charged with attempting to export 24 birds' eggs illegally. Ten of the eggs hatched and were identified as those of Galahs *Eolophus roseicapillus* (App. II), the other 14 eggs were thought to be from either Major Mitchell's Cockatoos *Cacatua leadbeateri*, Gang-gang Cockatoos *Callocephalon fimbriatum* or Long-billed Corellas *Cacatua tenuirostris* (all App. II). The case is pending.

STATE
Queensland

On 14 December 1992, seven people appeared at Cooktown Magistrates Court charged with offences relating to the illegal harvesting of seeds of the Foxtail Palm *Wodyetia bifurcata* from Cape Melville National Park. The defendants were each fined between A\$500 (US\$350) and A\$1500 and received prison sentences ranging from three weeks to eight weeks. During raids associated with the arrests and following months of surveillance, authorities seized 10 000 seeds, large quantities of drugs, weapons and ammunition.

Reports suggest that several hundred thousand Foxtail Palm seeds are illegally harvested from the Park each year. Some 18 000 Foxtail Palm seedlings were seized from a Brisbane nursery in October 1992 and in another case 30 000 Foxtail Palm seeds were confiscated and returned to the Park. Gangs are believed to be supplying a network dealing in illegal seeds which stretches interstate and overseas, with connections in the USA and Japan. Rivalry runs high between gangs, who are known to be heavily armed. The seeds are reported to fetch up to A\$3 each on the illegal market.

The Foxtail Palm is considered to be rare, with a range of less than 100 km located in Cape Melville National Park, northern Queensland, which was established as a sanctuary for some of the peninsula's rare flora and fauna.

Tasmania

Police seized nearly 1000 abalone *Haliotis* from a house in Triabunna in December 1992. The haul, weighing 250 kg, was estimated to be worth A\$6000 (US\$4230) on the illegal market. A man was arrested in connection with the incident.

Western Australia

Fisheries officers recently seized 400 kg of abalone *Haliotis*, poached in the Esperance region, Perth; documents indicating that another 200 kg had been stolen from fishing beds were also found. Officers have called on the abalone industry to help in the detection of poachers who are involved in what has become a highly-organized illegal activity.

The Sunday Mail (Australia), 29 November 1992; *The Cairns Post (Australia)*, 30 November 1992; *TRAFFIC Oceania; The Advocate (Australia)*, 16 December 1992; *Sunday Times (Australia)*, 27 September 1992

FIJI

Customs officers in Suva have seized nine tonnes of undersized trochus *Trochus* shells, worth about US\$64 000, which were being shipped to Japan where they are used to make ornaments and buttons. It is expected that the would-be exporter will be prosecuted. Fijian law prohibits export of trochus shell under nine cm in length.

The South Sea Digest 12(20), 18 December 1992

NEW ZEALAND

Four Korean fishermen operating in New Zealand waters have been fined a total of NZ\$81 500 (US\$43 000) for contravening 18 different fishing regulations. The men were guilty of under-reporting catches and wrongly labelling fish. It was estimated by the prosecution that 278 697 kg of offish was understated, an amount with a potential value of NZ\$1 127 412 on the Japanese market. The fishermen also had their four trawlers, each worth NZ\$2-3 million, confiscated.

New Zealand Press Association, 12 October 1992

SOLOMON ISLANDS

On 21 August 1992, police in the Solomon Islands arrested Peter James McDougall and Mario Perfilli, Australian citizens, who were about to depart the country in a light plane with 191 parrots on board. The men were believed to be returning to Australia. The birds included Eclectus Parrots *Eclectus roratus solomonensis*, Yellow-bibbed Lorries *Lorius chlorocercus*, Cardinal Lorries *Chalcopsitta cardinalis*, Coconut Lorries *Trichoglossus haematodus massena* and Ducorps Cockatoos *Cacatua ducorpsi* (all App. II).

Cases against McDougall, Perfilli and a Solomon Islands national John Bare Maetia, also charged in relation to the attempted export, were heard in the High Court in Honiara on 23 October 1992.

McDougall was found guilty of four charges and fined a total of S\$7000 (US\$3800), consisting of S\$1000 for a charge under the *Immigration Act*, S\$1000 for a charge under the *Agriculture Quarantine Order 1986* and *Agriculture Quarantine Act 1982* and S\$5000 for two charges under the *Customs and Excise Act*. A further five charges were withdrawn.

Perfilli was found guilty of two charges under the *Customs and Excise Act* and fined S\$2500 on each of the charges. A further six charges were withdrawn.

Maetia was found guilty of two charges under the *Customs and Excise Act* in relation to the case and fined S\$2500 on each charge. Maetia had a further four charges withdrawn.

Two other Solomon Islanders were also charged in relation to the incident and their cases heard in the High Court in Honiara, in late January 1993. The Solomon Islands Minister of Commerce and Primary Industries, Alfred Maetia, and his driver, Newton Misi, were both charged on five counts alleging that they aided, abetted and assisted the principal offenders in the commission of their offences. According to the *Solomon Star*, it was alleged in court that McDougall and Perfilli had paid a total of S\$5600 to Minister Maetia and his associates as a gift and to buy food for the birds. It was also alleged that the birds were fed at Minister Maetia's house and that the Minister's official transport vehicle, driven by Misi, was used to collect the birds off a waiting ship for transport to Malaita. Minister Maetia was found not guilty on the basis of insufficient evidence, however, his driver, Misi, was found guilty of all five charges and fined a total of S\$950 - S\$100 on two charges and S\$250 on the other three. It is likely that the case against the Minister will be appealed.

TRAFFIC Oceania; Solomon Star (Solomon Is.), 27 January 1993

AFRICA

SOUTH AFRICA

On 26 March 1993, at Pretoria Regional Court, Nico Swart and Boetie van Helzinger of Namibia were charged with illegally dealing in elephant tusks and rhino horns. Each received a two year prison sentence or a R15 000 (US\$4700) fine. The case against a third accused has been postponed until 5 May. Charges against a fourth person were withdrawn.

The four were arrested on 10 February in Midrand, near Johannesburg, after trying to sell 42 elephant tusks with a mass of 182 kg and 6 rhino horns with a mass of 10 kg.

The Star (South Africa), 17 February 1992

SUDAN

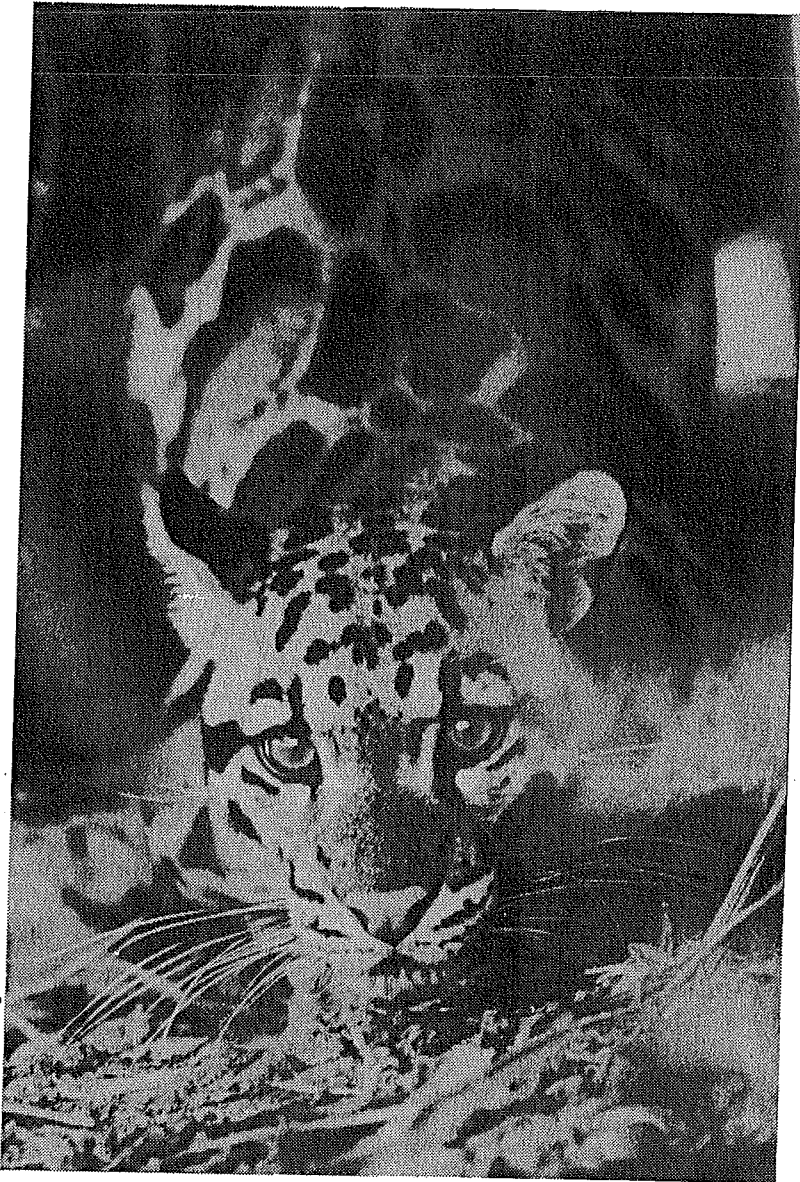
Wildlife officials in Sudan have seized over 7.6 t of elephant ivory that was about to be smuggled out of the country. No further details are available.

Daily Yomiuri (Japan), 9 April 1993

ZAMBIA

The Species Protection Department, in a joint operation with the Zambian and South African police, in January 1993 apprehended five suspected poachers in Livingstone and Kaoma and confiscated from them 7 Leopard *Panthera pardus* (App. I) skins, 1 Cheetah *Acinonyx jubatus* (App. I) skin, 1 civet *Civettictis* skin, 23 kg of chopped ivory (App. I), 1 pair of ivory tusks, and 4 rhino horns (App. I); 272 pieces of amethyst and an amount of weapons were also seized. Four of the suspects have been convicted and sentenced to between six months and five years in gaol with hard labour; the fifth person, who has pleaded not guilty, awaits trial.

The Species-Watch Newsletter 1(2), January 1993



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Clouded Leopard *Neofelis nebulosa* (App. I).

ZIMBABWE

On 14 February 1993, a Member of Parliament of the ruling Zanu-PF party, Benjamin Moyo, and six other men were each sentenced to five years in prison with labour for the unlawful possession of 2 rhino horns, weighing a total of 2 kg.

A few days before being sentenced, Moyo drafted a letter of resignation from Parliament.

A further seven people have been arrested in connection with the offence and will appear in court at a later date.

The horn had been passed between the accused, who were seeking a buyer. The supplier of the horn is being sought.

Two senior policemen in Zimbabwe were arrested on 1 March 1993 in possession of 2 rhino horns. Both were released on bail, together with eight others accused of involvement in the case. All ten have

pleaded not guilty to the charge of illegal possession of rhino horns; three others arrested in the same case have admitted guilt and been sentenced to eight-year prison terms.

The Herald (Zimbabwe), 14 February 1993;
The Star (South Africa), 3 March 1993

ASIA

INDIA

On 20 May 1992, Forest Department officials of Gitanagar, Assam, confiscated from a wildlife smuggling gang 2 Golden Langurs *Presbytis geel* (App. I), 2 Stump-tailed Macaques *Macaca arctoides* (App. I) 7 Hoolock Gibbons *Hylobates hoolock* (App. I),

1 Clouded Leopard *Neofelis nebulosa* (App. I), 2 Leopard Cats *Felis bengalensis* kittens (App. I/II), and 10 mynah birds *Gracula* spp. The animals had been kept in appalling conditions; 4 of the Hoolock Gibbons and 8 of the birds died. The remaining animals are being cared for by Assam zoo.

On 30 October 1992, a consignment of 900 kg deer antlers contained in 10 gunny sacks and bound for Bombay were seized by authorities: two of the sacks were seized by forestry officials in Gaya in the state of Bihar; the remaining sacks had already been despatched by rail to their destination and were seized at Mughalsarai parcel office. The antlers had been taken from an estimated 1500 to 2000 deer and, upon inspection by TRAFFIC India, it was clear that some had been removed by saw and not shed naturally.

Deer antlers are used primarily for the manufacture of gun and pistol handles, cutlery and buttons; the shavings are used in Eastern medicine.

International Primate Protection League News,
19(3) December 1992; TRAFFIC India; Indian Express (India), 30 October 1992

JAPAN

On 10 March 1993, a Thai trader arriving on a Japan Airlines flight from Bangkok was arrested at Narita airport for attempting to import 175 Star Tortoises *Geochelone elegans* (App. II). The animals, measuring about 10 cm in length, were hidden in luggage compartments, jacket pockets and alcohol cartons. The specimens were confiscated by the authorities.

Japan Times (Japan), 11 March 1993

TAIWAN

On 3 August 1992, a shipment of 18 macaques, thought to be Crab-eating Macaques *Macaca fascicularis* (App. II), was seized from a ship at the port of Kaohsiung, Taiwan, following its arrival from Viet Nam. The specimens were destroyed because Taiwan lacks a quarantine station to carry out health checks.

Seizures amounting to over 4000 kg of deer antlers and 22 rhino horns were made in December 1992 in Taiwan. The deer antlers were smuggled as far as Taiwan, reportedly from New Zealand, via Hong Kong and Manila. Containers were stamped with "product of New Zealand" and labelled as glass or glass fibre.

Asuspected ringleader of the smuggling operation has confessed to smuggling 125 cartons of deer antlers and also rhino horns. He said portions of the shipments were already with herbal medicine shops by mid-December. Three suspected accomplices have also been arrested and all detained so far are citizens of the Republic of China. Police investigators have publicly stated that they believe airport officials to be guilty of complicity also. The Council of Agriculture of the Republic of China and the Taiwan Provincial Government announced their intention, following the seizures, to inspect the stocks of herbal medicine shops in Taiwan.

International Primate Protection League News,
19(3) December 1992; The China Post (China),
13 December 1992; The Orangutan Foundation

AMERICAS

CANADA

On 17 February 1993, Kenrieth Thorne of Lambeth, Ontario, pleaded guilty to 25 of 59 charges of violating the *Export and Import Permits Act* in relation to the illegal import and export of CITES-listed butterfly species. He was fined a total of CA\$10 000 (US\$8000) or CA\$400 per charge or, in default of payment, sentenced to nine months' imprisonment. In October 1992, as a result of a joint operation with the US Fish & Wildlife Service, the Federal Game officers of the Canadian Wildlife Service and the officers of the Royal Mounted Police confiscated a butterfly collection from the defendant valued at an estimated CA\$64 000.

On 8 December 1992, officers from the Royal Canadian Mounted Police and wildlife enforcement officers from the province of Alberta intercepted a Korean citizen at Edmonton airport in possession of 7 Black Bear *Ursus americanus* gall bladders and 4 bear foot pads. Yoon KJ Jung was found guilty and fined a total of CA\$15 000 (US\$12 000) and sentenced to 30 days in gaol. The gall bladders, valued in traditional Eastern medicine for their alleged medicinal properties, had been dipped in chocolate to disguise their identity. Bear paws are prized both for their tonic value and as delicacies in Eastern cuisine.

Environment Canada, Canadian Wildlife Service; TRAFFIC International

URUGUAY

TRAFFIC South America has assisted in what is believed to be the largest-ever seizure of caiman skins. Based on information received from the CITES Secretariat (through the Aruba Customs Office), on 28 December 1992 TRAFFIC South America assisted Uruguay's naval and Customs authorities in the seizure of a shipment of 85 370 caiman skins from a Dutch ship docked at the port of Montevideo. The shipment, which had originated in Colombia and possibly Venezuela, had been stored in a container in Aruba and then transferred to Curaçao, in the Netherlands Antilles; the ship was bound for Singapore. The skins were separated into 68 bales, in total worth an estimated US\$1 million. The bundles bore the number of a genuine Colombian CITES permit issued for 3000 skins. However, the permit was not found with the shipment. The skins were seized and the case is under investigation.

The CITES Secretariat has urged the Netherlands, which has jurisdiction over the Netherlands Antilles, to take immediate action to ensure that CITES controls are strictly applied in all of its overseas territories.

At the eighth meeting of the Conference of the Parties to CITES, Paraguay, supported by all countries of the region, submitted a document entitled *Illegal trade of Singapore*, claiming Singapore to be one of the main destinations of illegally-exported skins from South America. Particular reference was made to the reservation entered by Singapore with regard to the Appendix II listing of *Caiman crocodilus crocodilus*. A draft resolution urged all Parties to reject export permits or re-export certificates issued by Singapore

for trade in any crocodylian products. By the time the document was tabled for discussion, Singapore had withdrawn the reservation in question and undertook to dispose of its stock of accumulated skins in full accordance with the provisions of the Convention; the delegation of Paraguay consequently withdrew the draft resolution.

TRAFFIC South America

USA

On 16 November 1992, at Orlando District Court, Florida, Tom Crutchfield was charged with illegal importation of Fiji Banded Iguanas *Brachylophus fasciatus* (App. I) in violation of the US *Endangered Species Act*, the *Lacey Act* and CITES (see *TRAFFIC Bulletin*, 13(1):37). He was sentenced to 17 months' imprisonment, without parole. He is currently free, awaiting his prison assignment and has filed a bail motion pending an anticipated appeal. Crutchfield's wife, Penny, received a probationary sentence and a US\$2000 fine.

The couple own the largest and most successful import/export and wholesale live reptile business in the USA and possibly in the world.

On 23 November 1992, in the Southern District of West Virginia, five individuals were charged with illegally collecting some 35 tonnes of freshwater mussels Unionidae, valued at more than US\$179 000, from Ohio River, near Williamstown, West Virginia. The shells were destined for export to Japan for use in the cultured pearl industry.

George Borden, of Tennessee, owner of Borden Shell Company, was sentenced to one year and one day imprisonment, with two years' supervised release, and ordered to pay US\$4800; Billy, Parker and Thomas Maners, and Michael Brasher were sentenced to 15 days in gaol as a condition of terms of probation. A further three individuals will stand trial for their alleged roles in the mussel-gathering operation.

Gathering mussels is outlawed in areas where mussels are being depleted by collection for export, and interstate commerce of freshwater mussels is a violation of the *Lacey Act*.

According to the IUCN Invertebrate Red Data Book (1983), North American Unionidae shells were used heavily by the US pearl button industry in the early part of this century. Over-collection and the development of plastics led to a brief decline in the US industry but renewed commercial interest in certain species came about in the 1950s when the Japanese started to use crushed shells of Unionidae to seed oysters for commercial pearls. The eastern USA has been almost the sole supplier.

On 30 November 1992, in the Southern District of Ohio, Richard Stubbs of Lagos, Nigeria, and Ricky Duffield of Florida, were charged with illegally importing baby crocodiles.

The investigation began in 1991 when a US Fish and Wildlife inspector found 47 baby Dwarf Crocodiles *Osteolaemus tetraspis* and Nile Crocodiles *Crocodilus niloticus* concealed in two boxes labelled 'land crabs', in a shipment at John F. Kennedy airport in New York. Agents let the shipment continue on to its destination in Worthington, Ohio, where authorities arrested Stubbs and Duffield.

Stubbs was sentenced to 12 months' imprisonment; Duffield 14 months' imprisonment and a concurrent 14 months for aiding and abetting. Duffield will serve seven months of his sentence at home wearing an electronic bracelet to monitor his movements. The men were each fined US\$5000.

The crocodiles were taken to Columbus Zoo, and those that survived were eventually returned to Nigeria.

The Dwarf Crocodile is listed as endangered under the US *Endangered Species Act* and is listed in CITES Appendix I, while some populations of Nile Crocodiles - notably those of West Africa - have the same level of protection.

On 10 December 1992, in Baltimore federal court, Kenneth Loff, a US Department of State senior Foreign Service Officer, was charged with illegally importing ivory in the USA in violation of the *African Elephant Conservation Act*.

Acting on a tip-off, US Customs officers at the port in Baltimore discovered ivory pieces valued at over US\$60 000 among Loff's household goods which were being shipped through the port. Loff had purchased the ivory while stationed at the US embassies in South Africa and Zaire between 1985 and 1988.

Loff was fined US\$1000, the ivory was forfeited and his security clearance was lifted at the State Department.

On 19 January 1993, at the Southern District of Florida, Ricardo Linares was convicted of illegally smuggling 20 pieces of carved ivory from Nigeria into Miami in November 1990. Linares was charged with violating the *African Elephant Conservation Act* and the *Endangered Species Act*. He was sentenced to four months in prison and two years of supervised release including four months of home confinement.

On 16 April 1993, at the US District Court in Miami, Florida, Matthew Block of Miami, was sentenced to 13 months' imprisonment and fined US\$30 000 for conspiracy to violate the *Endangered Species Act* and CITES.

The offence relates to the Bangkok Six case which began in February 1990, when a crate marked 'live birds' in transit at Bangkok airport was found to contain 6 baby Orang Utans *Pongo pygmaeus* (App. I). Three of the animals had been packed upside down; a total of 4 animals died. The shipment, which had originated in Singapore and was bound for Moscow, had apparently been arranged by Block, who is the owner of Worldwide Primates Inc, based in Miami. After being charged last year, Block pleaded guilty to misdemeanour charges and agreed to co-operate with US federal prosecutors in the hope that he would receive a lighter sentence. Although his co-operation allegedly led to the apprehension of two animal dealers and a Yugoslav zoo director who had been involved in the Orang utan shipment, prosecutors refused to recommend a lighter sentence, questioning whether Block had fully co-operated with the Government. Block has yet to stand trial for charges which could lead to a suspension of his licence.

TRAFFIC USA Newsletter, 11(4), December 1992; *TRAFFIC International*; US Department of Justice News Release, 20 January 1993; *TRAFFIC USA*

Tiger Bone in Taipei

Kristin Nowell

INTRODUCTION

Although most Asian range states have protected Tigers *Panthera tigris* from hunting and banned international and internal trade in their products, "Tiger" bone has nonetheless been documented for sale in many countries throughout the region (Tan, 1987; Martin, 1992a,b; Anon., 1992a). Several incidents of heavy poaching in national parks of India and Nepal indicate that the threat posed to wild Tigers from poaching is a matter of serious concern (see *TRAFFIC Bulletin* 13(2):49). While the skin and other body parts of Tigers may be traded, the poaching in the Indian subcontinent seems to be motivated primarily by demand for bone for use in traditional medicine (Anon., 1992b). This paper reviews current knowledge of the trade in tiger bone and reports on the results of a brief study of the market for Tiger bone in Taipei, Taiwan, carried out in October 1992.

TIGER BONE MEDICINE

Mainland China, which is a major producer of manufactured medicines containing Tiger bone, appears to be the destination for much of Asia's poached Tiger bone. Prices that traders pay poachers for Tiger bone are reported to be US\$130 a kg in Nepal (Martin, 1992c), and from US\$60-US\$90 a kg in Laos, increasing to US\$170-US\$250 a kg if sold at Laos's border with China (Martin, 1992a). Bone from Tiger poached in India and Nepal is smuggled into China via Tibet (Martin, 1992c). In 1987, Tan (1987) reported that bone imported from Myanmar was sold to Chinese companies for about US\$200 a kg.

A total of 24 companies in China export medicines containing Tiger bone (Liu, *in litt.*, 1992), which is most commonly used to treat rheumatism and aches and pains, but in combination with different substances is prescribed for a variety of ills. According to Liu (*in litt.*, 1992), all the Tiger bone used to produce the medicines was purchased before China became a Party to CITES in 1981. According to official Government sources in China, in 1991 the export of such medicinal products included 15 079 cartons of tablets, 5250 kg of liquid medicines, and 31 500 bottles of wine; the total amount of real Tiger bone contained in the products, however, is unknown (Liu, *in litt.*, 1992). According to incomplete CITES data for 1991, China was the major exporter of manufactured medicines containing Tiger products, most of which were destined for Hong Kong, Malaysia, Singapore and Thailand. Prior to this, for the years 1985 to 1990, few direct exports of Tiger products were reported. Furthermore, few countries report imports; the main amounts recorded are US seizures (Headley, 1992). Imports of products containing Tiger bone are illegal under the US *Endangered Species Act*. Hong Kong is consistently reported as the major exporter of Tiger products seized in

the USA. Hong Kong is the major transit point for international trade with China and plays an important middleman role in the traditional medicine trade.

TRADE IN PRODUCTS FROM CAPTIVE-BRED TIGERS

At the eighth meeting of the Conference of the Parties to CITES, the Chinese Government submitted a proposal to allow commercial trade in Tiger bone products derived from animals bred in captivity at the Hengdaohezi Felidae Breeding Centre. The Centre breeds Siberian or Amur Tigers *P.t. altaica*, of which around 300-400 wild specimens persist in Russia and a handful in northeast China. The proposal sought recognition of the Centre as a "commercial farm" (similar to those already established for deer and for the extraction of bile from live bears in China and neighbouring countries), in order to allow Tiger parts from culled or naturally deceased animals to enter into international trade. The Chinese Government argues that legal trade in Tiger products from captive-bred animals would reduce the demand for products derived from threatened wild Tigers. Indeed, Tigers breed well in captivity and the total world captive population may well outnumber the wild population. In light of the continued demand for Tiger bone and a burgeoning captive population, China's proposal deserves serious evaluation and should not be rejected out of hand. However, the potential of legal trade in Tiger products as a conservation strategy cannot be evaluated until more is known about the market for these goods. Because of this, the Chinese deferred their proposal until the ninth meeting of the Conference of the Parties in 1994; *TRAFFIC*, the IUCN/SSC Cat Specialist Group and WWF Hong Kong are currently developing plans for market surveys.

SURVEY OF TIGER BONE IN TAIPEI

As a preliminary contribution to data on the market for Tiger bone, spot checks were carried out by the author on 29 October 1992 at Taiwan's main wholesale traditional medicine market, which is situated on Ti-Hwa Street, in Taipei. The current survey was carried out in order to answer two important questions of relevance to an understanding of the world trade in Tiger bone: i) how significant is the consumer market for unprocessed Tiger bone, and ii) to what extent are bones of other animals sold as "Tiger" bone. The import to Taiwan from Mainland China of manufactured medicines containing animal parts is illegal. No manufactured medicines containing Tiger bone are produced legally in Taiwan (Council of Agriculture and National Health Administration, pers. comm.). Animal parts (e.g. bear gall, deer antler, rhino horn) which are sold for medicine tend to be marketed in their raw state and ground up and mixed with other natural materials at the point of sale to customers within Taiwan. The bones of Leopard *Panthera pardus*, Snow Leopard *Panthera uncia*, and Asian Golden Cat *Felis temmincki* have been reported to be sold to the Chinese medical industry as Tiger bone substitutes (Liao and Tan, 1988; Tan, 1987; Jackson, *in litt.*, 1992). The author has also

seen Tibetan street peddlers selling fake Tiger bones made from cattle bones to tourists in Guangzhou.

METHODS

To prepare for this survey, leg bones of six mammal species were examined at the British Museum of Natural History, London, UK. The humerus is the most readily identifiable of the large cat bones, with a conspicuous foramen - a small opening which permits passage of blood vessels and nerves - near the distal end. According to Chinese pharmacists, the leg bones of the Tiger, particularly those of the front legs, are considered to contain the most potent properties and it is typically leg bones which are put on display, while an assortment of other bones may be stored in a back room, as witnessed by the author. The leg bones of large cats are distinct from those of other animals and, with a little experience of samples, an observer should be able to distinguish them reliably. Bear bones, which show the closest superficial resemblance to those of large cats, can be differentiated by their greasier texture. Manufacture of fake Tiger bones is something of an art in mainland China; usually they are made from cattle bones, which are much larger, thicker and heavier than Tiger bones and resemble Red Deer *Cervus elephas* bones (Fig. 1).

It can be difficult to differentiate between Tiger bones and bones from other large cats; indeed Tiger bones are indistinguishable from those of the Lion *Panthera leo*. However, commercial poaching of Lions for their bones has not yet been reported. Other large cats' bones may be distinguished from those of a Tiger by size. Adult

Femur and humerus measurements for four species (length in cm)

Species (n=1)	Femur	Humerus
Tiger <i>Panthera tigris</i>	35	30
Tiger (sub-adult)	33.5	29
Leopard <i>Panthera pardus</i>	25.5	22.5
Red Deer <i>Cervus elephas</i>	31	25
Asian Black Bear <i>Selenarctos thibetanus</i>	32	29

All samples from adult animals unless otherwise stated.

Leopards *Panthera pardus* are much smaller than adult Tigers (see Table and Fig. 2). The bones of sub-adult Tigers, which may otherwise be confused with those of Leopards or other large cats, are characterized by incompletely fused epiphyses or bone ends; the bone end may appear rough and is often circumscribed by a distinctive hairline crack. Size may again play a part in identification: one sub-adult Tiger humerus measured 29 cm, nearly as long as that of an adult Tiger.

RESULTS

Approximately 50 medicinal goods wholesalers operate from Ti-Hwa market area and of these 15 displayed bones labelled "Tiger" when surveyed in October 1992. Between one and 30 such bones were on show in each

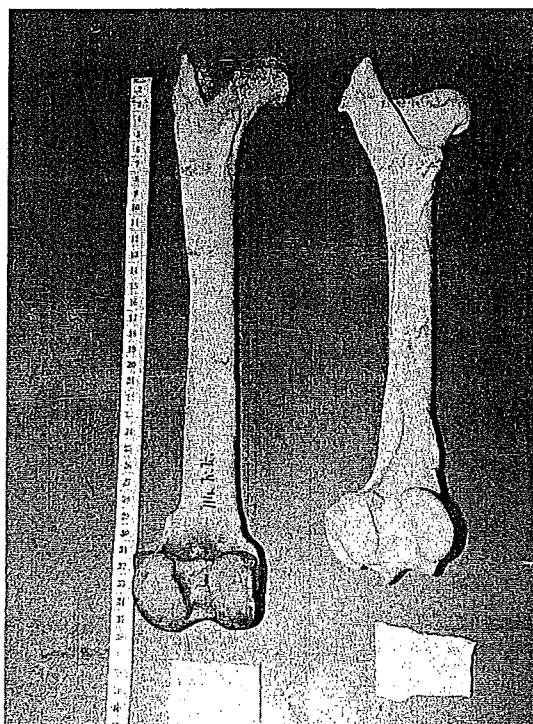


Fig. 1. Femurs of adult Tiger (left) and Red Deer.

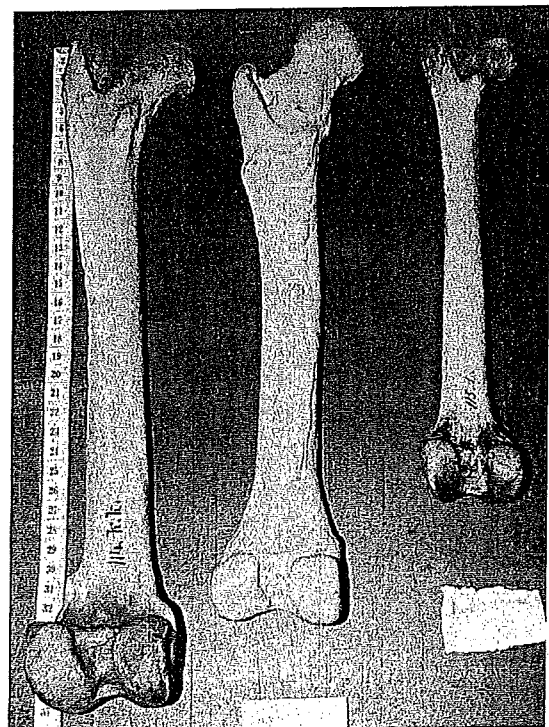


Fig. 2. Femurs of adult Tiger, Leopard and Bear.

SHORT COMMUNICATIONS

shop, an average of 8.3 per shop. Only leg bones were seen and when these were examined for authenticity, the number of shops displaying authentic Tiger bone was found to be 13. One shop had a mixture of Tiger and bear bones and two others had cattle bones falsely labelled "Tiger".

Real Tiger bone sold at an average price of NT\$1200 (US\$48) per liang (37.5 g) (n=3), or NT\$12900 (US\$516) per jin (600 g) (n=6), equivalent to US\$1.28 per g and US\$0.86 per g respectively. One Tiger humerus weighed by a pharmacist had a mass of 195 g. In one case, fake Tiger leg bone was offered at a price of NT\$800 per liang (US\$0.86 per g). Another pharmacist offered small pieces of bone from other animals which he identified as a cheaper variety of "Tiger" bone: these were on sale for NT\$500 per jin (US\$0.03 per g). After persistent questioning by the author, and with great reluctance, the pharmacist allowed that the bones were probably not derived from Tiger. All prices were quoted as wholesale, although some dealers may have inflated their price for a foreigner. Ti-Hwa dealers also sell directly to patients; a small piece is sliced off a bone and crushed to fragments. Pharmacists claimed the bones, which are either made into a poultice, boiled with other materials to make a broth, or soaked in wine, are prescribed mainly for aches and rheumatic disorders but are also used as a fortifying tonic by men. China was most frequently cited as the source of Tiger bone, although the main dealer said he purchased Tiger bone throughout Southeast Asia, as well as in China.

DISCUSSION

It is clear that only a minority of Ti-Hwa Street shops deal in Tiger bone and, of these, only five dealers displayed more than 10 leg bones. Most dealers claimed that their sales of Tiger bone are very low, saying it is not a medicine frequently prescribed and is thus not in high demand from retail pharmacies. However, one trader claimed that his sales averaged 30-40 jin (18-24 kg) a week. While such a brief survey cannot begin to estimate trade volumes nor describe consumer demand to the level required to develop solutions to the problem of commercial Tiger poaching, it does point out that, at least in Taiwan, there is a market for Tiger bones, most of which displayed for sale are genuine. Retail prices per kg of real Tiger bone in Taipei are much higher than the reported prices paid to Tiger poachers in Southeast Asia - from a minimum of 3.5 to a maximum of 21.3 times greater. This implies the existence of a string of middlemen between the poacher and the retail market, as Low (1991) found for the broader wildlife smuggling trade which goes on across the Taiwan Strait between Mainland China and Taiwan.

Although the import of Tiger bone has been prohibited in Taiwan since 1985 and internal sale and possession banned since 1989, trade continues essentially unhindered and Ti-Hwa Street dealers gave no indication of awareness that it is illegal to sell Tiger bone. The chief reason for the

failure of the internal trade ban in Taiwan is not the result of a difficulty in identifying Tiger bone, but rather the lack of effective implementation of conservation law. Enforcement of a ban on the sale of Tiger bone in Taiwan did not at the time of this survey appear to be a priority for the responsible authorities.

POSTSCRIPT

In November 1992, former Premier Hau Pei-Tsun made a public announcement to reaffirm the ban on trade in Tiger bone and in subsequent months there has been considerable press coverage in the region on the effect of such trade on Tiger populations. In order to determine what effect the publicity of this issue has had in Taiwan, the survey area has been revisited on several occasions and no bones of any kind were on display (J. Loh, pers. comm., 1993). TRAFFIC Taipei will undertake a further investigation of the Tiger bone trade later in the year.

ACKNOWLEDGEMENTS

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Kristin Nowell, former Director of TRAFFIC Taipei, is currently based in Etosha National Park, Namibia, where she is studying Cheetah predation and finalizing the Cat Action Plan for the IUCN/SSC Cat Specialist Group.

The Export of Reptiles and Amphibians from Madagascar

Olivier Behra

INTRODUCTION

The brief overview presented here demonstrates that the export market for reptiles and amphibians from Madagascar is sizeable and increasing yet often underestimated in economic and conservation terms. This trade is at present almost uncontrolled and benefits only a small number of individuals. If it is to be managed and certain threatened species conserved, urgent measures are required.

BACKGROUND

Several species of primates, other mammals and birds have already met with extinction on Madagascar. Remaining endemics include over 6000 species of plants, 106 species of birds, 142 species of amphibians and over half of all known *Chamaeleo* species. Despite this, no more than 1.5% of the territory is accorded protected area status. Madagascar is a CITES Party and the most commonly-exported reptiles in reported trade from this country are listed in Appendix II. Compliance with the Convention is incomplete, however, as identification of these species and determination of levels for their sustainable exploitation is often problematic.

CURRENT EXPLOITATION

Madagascar's reptiles and amphibians are subject to considerable demand in international trade, owing to their rarity, aesthetic appeal and uniqueness. Live specimens exported from Madagascar find a ready market as pets with amateur herpetologists and certain zoos.

The data presented in this report are not official published data but can be considered as reflecting legal exports (sources consulted include Government officials and traders). A degree of illegal exports is recognized but is impossible to quantify. Several problems complicate the analysis of the available export data, for example, species names: data derived directly from import and export documents include numerous names which it is impossible to reconcile with actual Malagasy species.

Table 1. Number of certain species of amphibians reported as legally exported January-June (inclusive), 1990.

<i>Mantella aurantiaca</i>	3237
<i>M. betsileo</i>	330
<i>M. cowani</i>	3090
<i>M. viridis</i>	1470
<i>Mantella</i> sp.	2470

Table 1 lists certain amphibian species reported in trade in 1990. Other species appearing in international trade include *Dyscophus* spp., *Hyperolius* sp. (= *Heterixalus* sp.), *Racophorus* spp. (= *Boophis* spp.), *Boophis hilleni*, *Heterixalus betsileo*, *Mantidactylus* spp., *Platypelis grandis*, *Ptychadena mascareniensis* and *Rana tigrina*. (The last two species are not endemic to Madagascar: *Rana tigrina* (Appendix II) is an introduced species.)

Table 2. Number of certain species of reptiles reported as legally exported January-June (inclusive), 1990.

<i>Phelsuma abbotti</i>	806
<i>P. barbouri</i>	720
<i>P. dubia</i>	675
<i>P. guttata</i>	1010
<i>P. laticauda</i>	3502
<i>P. lineata</i>	4565
<i>P. madagascariensis</i>	2846
<i>P. pusilla</i>	440
<i>P. serraticauda</i>	1360
<i>P. standingi</i>	321
<i>Chamaeleo antimenae</i>	405
<i>C. brevicornis</i>	795
<i>C. campani</i>	590
<i>C. lateralis</i>	1481
<i>C. oustaleti</i>	292
<i>C. pardalis</i>	2231
<i>C. parsonii</i>	798

While *Chamaeleo* spp. and *Phelsuma* spp. (both genera are listed in Appendix II) are the major reptile genera reported in trade, others are also exported for commercial purposes including the snakes *Leioheterodon madagascariensis*, *Mimophis mahafalensis*, *Typhlops arenarius* and *T. decorsei* and the lizards *Chalarodon madagascariensis*, *Mabuya elegans*, *Oplurus cyclurus*, *O. quadrimaculatus*, *O. cuvieri*, *Uroplatus fimbriatus* and *Zonosaurus maximus*.

Increase in exports 1988-1990

The increase in exports of amphibians is best characterized as an "explosion", the number of legally exported specimens having increased from 230 in 1988 to 11 058 in 1989 and in the first six months of 1990, almost 11 000 exports were made of *Mantella* spp. alone. The number of importing countries has likewise increased: only Denmark is recorded as having imported amphibians from Madagascar during 1988, while in 1989 no fewer than 13 countries did so. In descending order of volume imported these were the Netherlands, Germany (F.R.), France, USA, Switzerland, Belgium, Sweden, UK, Austria, Japan, Italy, Mauritius and Spain.

By 1990 a rise in the level of exports of species of *Phelsuma* and *Chamaeleo* was also detected. From January 1990 to mid-July 1990 exports of these species exceeded those for the whole of 1989. (There are no seasonal trends in these exports that might distort these figures.)

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ECONOMIC SIGNIFICANCE OF THE MARKET

It is noteworthy that even relatively common Madagascan reptiles and amphibians can fetch high prices. It is significant that the system operates with few middlemen, the usual tiers being collector, exporter, wholesaler and retailer. The price of the merchandise between collection and sale can increase by as much as 5000-fold, bringing vast profit even when the costs of a high mortality rate and air transport are taken into account.

As an example of prices paid, a villager collecting a day gecko *Phelsuma* sp. in the forest may earn FMG50 (US\$0.03), a native exporter quoted prices for *Phelsuma madagascariensis* as FF75 (US\$13) and for *Phelsuma laticauda* as FF50 (US\$9), and wholesale prices for the same species in the USA are cited as US\$75 and US\$40, respectively. In France a retail price of FF850 (US\$150) was quoted for *Phelsuma madagascariensis*. Certain endemic snakes, listed in Appendix I, for example, *Acrantophis* spp. or *Sanzinia madagascariensis*, can easily fetch over US\$1000 in the USA. The amphibian *Mantella aurantiaca* was found to sell at FF20 (US\$4) on export and can fetch FF350 (US\$64) once on retail sale in France.

The economic value of this trade seems to be of increasing interest to the Government of Madagascar, although until now practically nothing has been done to organize the trade system officially.

EXTINCTION THREATS

Efforts to identify the degree of threat posed to various species of Madagascan reptiles and amphibians and thereby identify conservation priorities are fettered by insufficient information. For example, *Phelsuma serraticauda*, of which 1360 specimens were exported during the first six months of 1990, is known only from a few museum specimens, is not easily identified, and knowledge of its distribution is scarce.

Considering those species for which export figures have been given, a varying amount is known. Little is known about *Phelsuma abbotti*, *P. dubia*, *P. lineata pusilla*, *Chamaeleo antimesa* and *C. campani*. *Mantella*

aurantiaca, *M. cowani*, *M. madagascariensis*, *M. viridis*, *Phelsuma guttata*, *P. serraticauda*, *P. standingi* and *Chamaeleo brevicornis* are known to be limited to a few areas of primary forest. Intensive collection in one area is likely to have grave consequences for such species. *Phelsuma barbouri*, *Phelsuma laticauda*, *Phelsuma lineata*, *P. madagascariensis*, *Chamaeleo lateralis*, *C. oustaleti* and *C. pardalis*, while not restricted to primary forest habitats are not necessarily widespread: indeed, *Phelsuma barbouri* is found in a very few areas only and should be considered rare.

CONCLUSION

The exploitation of reptiles and amphibians from Madagascar is unarguably of economic significance and in a developing country, the importance of an economic activity that is not detrimental to natural resources and the environment cannot be overlooked. At present, the lack of data on the majority of exploited species has meant that Government control of the trade and accordance with CITES are possible only in theory. The situation merits serious concern, especially given the substantial increase in trade over the past two years.

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The Genus *Trillium* in Trade

M.C. Sawkins and H.N. McGough

INTRODUCTION

Thomas Fretz wrote in the *American Horticulturalist* (Fretz, 1983) that "of all the native American wildflowers, probably none are more universally known and appreciated than the trilliums". Indeed this appreciation has grown over the last few years with more and more nurseries offering an increasing number of *Trillium* species. Many of these species, also known as wake-robins, have a wide natural distribution with large and healthy populations and even large-scale collection could not be seen to threaten their survival. However, the interest generated in the genus has led to concern that some species may become locally threatened from collection.

In response to this concern, the Conservation Unit at the Royal Botanic Gardens, Kew, has undertaken a study into the conservation and trade status of *Trillium*. The study, which was carried out in 1991-92, aimed to identify those species which are currently in the horticultural trade and the conservation implications of collection from wild sources.

METHODS

The number of trilliums in international trade is not monitored and therefore figures are not readily available. The present investigation is based on information gathered from a number of sources including:

- i. literature and nursery catalogues;
- ii. horticulturists and botanists;
- iii. responses to a questionnaire addressed to firms dealing in trilliums in the UK, Germany and USA; and
- iv. a survey of listings in the UK and German plant directories.

The names of UK firms were obtained from *The Plantfinder* (Philip, 1992), those of firms in Germany from *Pflanzen-Einkaufsführer* (Erhardt, 1990), and those in the USA from a survey carried out by the Natural Resources Defense Council (NRDC, 1991) and from TRAFFIC USA. The questionnaire, which sought to determine the origin of trilliums in trade, numbers in cultivation and propagation techniques, was circulated to 56 companies and specialist nurseries identified in these three countries. Twenty-seven were sent to UK firms (18 returned completed), 13 to German firms (four returned completed) and 16 to firms in the USA (five returned completed).

DESCRIPTION

Originally placed in the family *Liliaceae*, the genus *Trillium*, which contains around 46 species, is now in its own family, the *Trilliaceae* (Patrick, 1985; Mitchell, 1989c).



Trillium grandiflorum

Trilliums are herbaceous perennials. From an underground rhizome one to several stems are produced, bearing single whorls of modified floral bracts or leaves. The flowers, which appear in spring, have three green sepals and three petals which can vary in colour from pure white to pink and purple, and from yellow to green. The fruits of the plant contain many seeds.

The genus is found in the northern temperate regions of the world in three distinct geographical zones: Asia, eastern North America and western North America. The largest number of species occurs in North America, where the greatest concentration is found in the eastern states.

Essential requirements for growth are moisture, cool temperatures and shelter. The preferred habitat is woodland but plants can also be found in scrubland if the soil is rich in organic matter (Zimmerman, 1968; Mitchell, 1989a).

ASSESSMENT OF THE TRADE

The major threat to this genus is the loss of its natural habitat. Wild populations are also depleted by collection for trade, both domestic and international. It is known that in North America collection from the wild is widespread (N. Marshall, pers. comm., 1992). Because it can take a number of years to raise saleable plants from seed and division - the two main methods of propagation favoured for this genus - it is seen as more economical to remove plants from their natural habitat, hold them over in beds for a year and then sell them.

Historical trade

Trilliums have been advertised for sale from as early as the eighteenth century. In 1777, *Trillium erectum* was offered for sale by John Brunton and Co. of Birmingham, UK. Just over 30 years later, further species, such as *Trillium cernuum*, *T. grandiflorum*, *T. luteum* and *T. sessile*,

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Table 1. *Trillium* Taxa in Trade 1989-1992.

TRADE TAXON	NATURAL DISTRIBUTION	TRADE OUTLETS			COMMENTS (Mitchell, 1989-92)
		UK ¹ ¹ =Oldfield 1989	USA ¹ Japan ¹	UK ² Germany ² ² =Present survey	
<i>Trillium apetalon</i>	Japan	-	-	1	Can be confused with <i>T. smallii</i> . Also includes <i>T. stylosum</i> .
<i>catesbaei</i>	USA	5	-	9	
<i>cernuum</i>	USA; Canada	8	6	9	
<i>chloropetalum</i>	USA	4	-	6	
<i>chloropetalum rubrum</i>	USA	-	1	-	
<i>cuneatum</i>	USA	1	-	1	Name not known.
<i>decumbens</i>	USA	1	-	15	Sometimes traded as <i>T. sessile</i> .
<i>discolor</i>	USA	1	-	1	Closely resembles <i>T. stamineum</i> and <i>T. reliquum</i> .
<i>erectum</i>	USA	1	-	1	
<i>erectum album</i>	USA; Canada	16	9	>25	
<i>erectum luteum</i>	USA	5	-	-	<i>T. erectum</i> var. <i>album</i> .
<i>e. var. albiflorum</i>	USA	3	3	-	<i>T. erectum</i> form. <i>luteum</i> .
<i>erectum form. luteum</i>	USA	-	-	8	Synonym of <i>T. erectum</i> var. <i>album</i> .
<i>erectum roseum</i>	USA	-	5	-	
<i>flexipes</i>	USA	-	-	1	Name not known.
<i>grandiflorum</i>	USA	1	-	-	
<i>hibbersonii</i>	USA; Canada	21	13	-	
<i>kamtschaticum</i>	USA; Canada	1	2	>25	<i>Trillium ovatum</i> form. <i>hibbersonii</i> .
<i>lanceifolium</i>	Japan; Korea; China	1	-	-	
<i>luteum</i>	USA	1	-	5	
<i>luteum</i>	USA	9	7	1	
<i>nervosum</i> (see <i>catesbaei</i>)				19	
<i>nivale</i>	USA	1	-	3	Closely related to <i>T. recurvatum</i> .
<i>ovatum</i>	USA; Canada	5	-	5	Can be confused with other yellow forms.
<i>o. form. hibbersonii</i>	USA; Canada	-	-	5	A distinct species but traded as <i>T. catesbaei</i> .
<i>pusillum</i>	USA	-	-	2	Confused with <i>T. rivale</i> .
<i>p. var. virginianum</i>	USA	-	-	3	
<i>recurvatum</i>	USA	6	1	12	
<i>rivale</i>	USA	2	1	5	
<i>rugelii</i>	USA	1	-	3	See <i>T. nivale</i> .
<i>rugelii</i> pink form	USA	-	-	1	Can be confused with <i>T. cernuum</i> .
<i>sessile</i>	USA	-	5	14	
<i>sessile</i> var. <i>luteum</i> , see <i>luteum</i>				9	
<i>smallii</i>	Japan; Korea	1	-	2	See <i>T. cuneatum</i> .
<i>stamineum</i>	USA	1	5	1	Synonym of <i>T. luteum</i> .
<i>stylosum</i>	USA	2	-	-	See <i>T. apetalon</i> .
<i>sulcatum</i>	USA	-	1	1	
<i>tschonoskii</i>	Japan; Korea; China; Taiwan	2	-	3	Synonym of <i>T. nervosum</i> .
<i>undulatum</i>	USA; Canada	9	5	9	
<i>vaseyi</i>	USA	1	1	4	
<i>viride</i>	USA	2	1	5	Closely related to <i>T. recurvatum</i> .
<i>viridescens</i>	USA	1	-	-	Closely resembles <i>T. viride</i> .

were advertised for sale in catalogues in the UK. These species have remained popular. In the Netherlands, the bulb firm E.H. Krelage and Son was selling *Trillium grandiflorum* in the years 1855 and 1858. However, only North American species were available at this early time: advertisements offering Asiatic species for sale began to appear in European nursery catalogues in the 1970s.

Present trade

The majority of respondents to the questionnaire in the UK have stocked trilliums for fewer than 10 years, and of these almost half the nurseries have stocked trilliums for fewer than five years. In the context of commercial horticulture this represents a recent introduction to the trade. Similarly, replies from the USA showed that while the trade in *Trillium* species is obviously not new, there has been increasing interest in the genus over the last five years. Lear (in Anon., 1990) has already demonstrated an increase in exports from the USA, from 3000 rhizomes in 1981-82 to 13 000 in 1986-87. In 1989, Tennessee authorities noted that at least 600 000 wild-collected plants of several trillium species were transported from the state (Brumback, 1991).

A number of UK daily newspapers and popular gardening magazines with large circulations have offered collections of these plants in the past two years, another example of heightened interest and of the numbers of plants entering trade.

Responses to the questionnaire also provided information regarding the proportion of artificially propagated trilliums for sale. The majority of replies suggested that stocks were from artificially propagated sources. This may, of course, be accurate. However there is often confusion over the term 'artificially propagated': stock which is wild-collected but grown on in the nursery and then treated as 'cultivated' or 'nursery grown stock' is sometimes erroneously considered artificially propagated. The matter is further complicated by the fact that many nurseries buy plants which may be wild in origin from other sources. One third of the firms who replied to the questionnaire in the UK, for example, buy trilliums from the same UK nursery, which did not return the questionnaire. The remaining two-thirds of UK nurseries who replied obtain plants from the Netherlands, Japan, the USA and other minor sources in the UK, hence many trilliums on sale in the UK are obtained third-hand by which time knowledge of their origin may be obscure.

Using *The Plantfinder* and its German equivalent, 37 British nurseries and 14 German nurseries were surveyed to establish which trillium species are in trade and how many of the nurseries are offering each species. The results of this investigation are set out in Table 1, which also provides, for comparison, the results published by Oldfield (1989). An examination of Table 1 shows that over half of the species in the genus are represented in the nursery trade. Most are sold by small nurseries specialising in bulbous, alpine and native plants.

From the information gathered it appears that more species and forms of trilliums are being offered for sale in

the nursery trade in the UK at present than in 1989. Also apparent is an increase in the number of outlets in the UK offering trilliums for sale. New taxa are *Trillium apetalon*, *T. chloropetalum rubrum*, *T. pusillum* and the variety *virginianum*, the pink form of *T. rugellii*, and *T. sulcatum*. *Trillium sessile*, which also appears to be new since Oldfield's survey, is often confused in the horticultural trade with *T. erectum*. *Trillium flexipes*, *T. stamineum* and *T. viridescens* are apparently not now offered for sale.

Wild-collected stock is offered at garden centres throughout the USA (A. Cusick, pers. comm., 1992). In Europe and the USA rhizomes are now frequently sold in garden centres in plastic packets which may contain soil or other packing material (M. Jenkins, pers. comm., 1993; Campbell, *in litt.* to TRAFFIC International, 29 January 1993).

Most commonly-traded species

The results outlined in Table 1 give an indication of the popularity of each species. Six species seem to be the most popular in trade; all are North American endemics. These species and their range of distribution are as follows:

Trillium cuneatum is found in North Carolina, South Carolina, Alabama, Kentucky, Georgia, Illinois, Mississippi and Florida (Gates, 1917).

Trillium erectum is an eastern species which ranges from southern Ontario to Georgia (Fretz, 1983).

Trillium grandiflorum extends from Quebec in Canada, south to Georgia and westwards to Minnesota and Missouri (Gates, 1917; Pringle, 1970).

Trillium luteum is found growing in eastern Tennessee northwards to south Kentucky and as far east as North Carolina and northern Georgia (Freeman, 1975; Scoggan, 1978).

Trillium recurvatum can be found in Indiana, Illinois, Iowa, Wisconsin, Michigan, Texas, Louisiana, Mississippi, Alabama, and it has been introduced in Pennsylvania (A. Cusick, pers. comm., 1992; Case and Burrows, 1962; Freeman, 1975).

Trillium sessile occurs in eastern North America (Case, 1983).

LEGAL PROTECTION

Although trilliums are not listed in the CITES Appendices, certain species are protected under certain national laws which are summarized below.

USA: Two federal laws protect certain trillium species: the *Endangered Species Act* and the *Lacey Act*. The former lists *Trillium persistans* and *T. religium*, which means that their collection from federal land, such as



Trillium erectum

national parks, is prohibited. Furthermore, it protects these same species if they are gathered from private or state land in contravention of a state's laws, and prohibits their sale across state borders or their export, unless accompanied by an authorised permit. The *Lacey Act* prohibits the transfer across a state border (not necessarily for sale) of any trillium species which has been collected in contravention of a state endangered species law (Campbell, *in litt.* to TRAFFIC International, 29 January 1993).

State laws which govern collection from their territory vary considerably from state to state - see Table 2.

Canada: Canada has no federal plant protection legislation. British Columbia, New Brunswick, Ontario, Quebec and Saskatchewan have all adopted their own laws protecting endangered plant species. It is not known whether any *Trillium* species are protected.

Asia: The authors are not aware of any specific legislation protecting *Trillium* species but collection and export of plants from China can only be carried out under licence.

European Community: The genus *Trillium* has been included in Annex D in a proposal to revise EC Regulation 3626/82 implementing CITES in the European Community (Anon., 1992). If this listing stands when the new regulation enters into force, all imports would be subject to an import declaration system.

DISCUSSION

A substantial amount of knowledge exists concerning the taxonomy, distribution and cultivation methods of this plant group. The compilation of the report has highlighted the fact that little information is available on national and international trade. Data on the conservation status and trade in the Asian species are particularly wanting.

It is clear that there is large-scale use of wild-collected plants in the USA. Worldwide artificial propagation of *Trillium* species in commercial terms is limited and in practice the majority of plants in trade are probably wild-collected or wild-transplanted stock. Information on collection systems, details of harvesting practice and how this affects sites and populations would be invaluable.

The economics of the trade are unknown. It is a frequently quoted tenet of the plant trade that it is cheaper to collect from the wild than to propagate. *Trillium* would seem an ideal group for studying the economics of propagated versus wild-collected material.

The present paper has probably raised more questions than it has answered. Its purpose is to bring the results of a limited study to a wider audience and to stimulate further research. The Conservation Unit at Kew will continue to gather information on this group but the most valuable work can only be done at source.

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Table 2. Conservation and protection status of *Trillium* taxa in trade.

Trade taxon	Conservation and protection status
<i>Trillium cernuum</i>	Delaware: Imperilled; Illinois: State Endangered & protected; Maryland: watchlist; Ohio: Presumed Extirpated (1972); South Dakota: Rare; Vermont: Imperilled; West Virginia: Critically Imperilled.
<i>c. var. macranthum</i>	Indiana: State Endangered.
<i>cuneatum</i>	Illinois: State Endangered & protected.
<i>decumbens</i>	Alabama: Rare; Tennessee: State Endangered & protected.
<i>discolor</i>	North Carolina: State Threatened & protected; South Carolina: State Undetermined.
<i>erectum</i>	Illinois: State Endangered & protected.
<i>flexipes</i>	Possibly Extirpated in Canada (Pryer & Argus, 1987); Maryland: State Endangered & protected; Mississippi: Critically Imperilled?; New York: State Exploitably Vulnerable & protected; North Carolina: State candidate; Pennsylvania: Rare; South Dakota: Undetermined; West Virginia: Critically Imperilled.
<i>grandiflorum</i>	Maine: Special concern-possibly Extirpated (1926).
<i>lancifolium</i>	Alabama: Rare; Florida: State Endangered & protected; South Carolina: Critically Imperilled; Tennessee: State Endangered & protected.
<i>nivale</i>	Kentucky: State Endangered; Maryland: State Endangered & protected; Michigan: State Threatened; Minnesota: Special concern; Ohio: State Potentially threatened; Pennsylvania: Rare; South Dakota: Rare; West Virginia: Imperilled; Wisconsin: Protected and listed as threatened.
<i>pusillum</i>	Alabama: Critically Imperilled, Candidate Species; Mississippi: Critically Imperilled?; North Carolina: State Endangered & protected, Candidate Species; South Carolina: State of concern, national; West Virginia: Critically Imperilled.
<i>p. var. virginianum</i>	Maryland: State Threatened & protected, Candidate Species.
<i>recurvatum</i>	Alabama: Imperilled; Louisiana: Imperilled; Michigan: State Threatened & protected; North Carolina: State candidate; Ohio State: Potentially threatened.
<i>rugelii</i>	Tennessee: State Endangered & protected.
<i>sessile</i>	Alabama: Imperilled; New York: Critically Imperilled; Michigan: State Threatened & protected.
<i>sulcatum</i>	Alabama: Critically Imperilled.
<i>tschonoskii</i>	China: Vulnerable (Jian-Ming & Li-Kuo, 1992). Global: Vulnerable (WCMC).
<i>undulatum</i>	Kentucky: State Threatened; Michigan: State Endangered & protected; New Jersey: Rare; Ohio: State Threatened & protected; South Carolina: State undetermined.
<i>vaseyi</i>	Alabama: Critically Imperilled.
<i>viride</i>	Illinois: State Threatened & protected; Michigan: possibly Extirpated & protected.
<i>viridescens</i>	Kansas: Critically Imperilled.

Key: The conservation status information has been gleaned from numerous sources. Within the USA, state Natural Heritage Programs have been consulted to determine which native species are protected, which occur on state rare plant lists, and which have been given a ranking by The Nature Conservancy. The terminology used for the status descriptions and their definitions differ considerably from state to state. The only consistent status ranks are those of the US *Endangered Species Act* and The Nature Conservancy (TNC). According to TNC, 'Critically Imperilled' means that the species is extremely rare, with 5 or fewer occurrences in the state; 'Imperilled' means that the species is very rare, with between 6 and 20 occurrences in the state; 'Rare' indicates that there are between 20 and 100 occurrences in the state

Based on a review of US State Rare Plant Lists carried out by Nina T. Marshall and *The Gardener's Guide to Plant Conservation*, Nina T. Marshall; published by World Wildlife Fund-US.

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TRAFFIC is supported by WWF - the World Wide Fund for Nature and IUCN - the World Conservation Union - to monitor trade in and utilisation of wild plants and animals. As the majority of the Network's funding is provided by WWF, the Network is administered by the WWF Programme Committee on behalf of WWF and IUCN.

The mission of TRAFFIC is to enhance, in accordance with the principles of the World Conservation Strategy, the conservation of biological diversity by: monitoring and reporting on trade or other forms of utilisation of animals and plants and their derivatives; identifying areas of such utilisation that may be detrimental to any species, and; assisting the Secretariat of, and Parties to, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and other appropriate bodies in facilitating the control of trade and in curtailing possible threats to species created by trade or other forms of utilisation.

The TRAFFIC Network shares its international headquarters in the United Kingdom with the World Conservation Monitoring Centre.

