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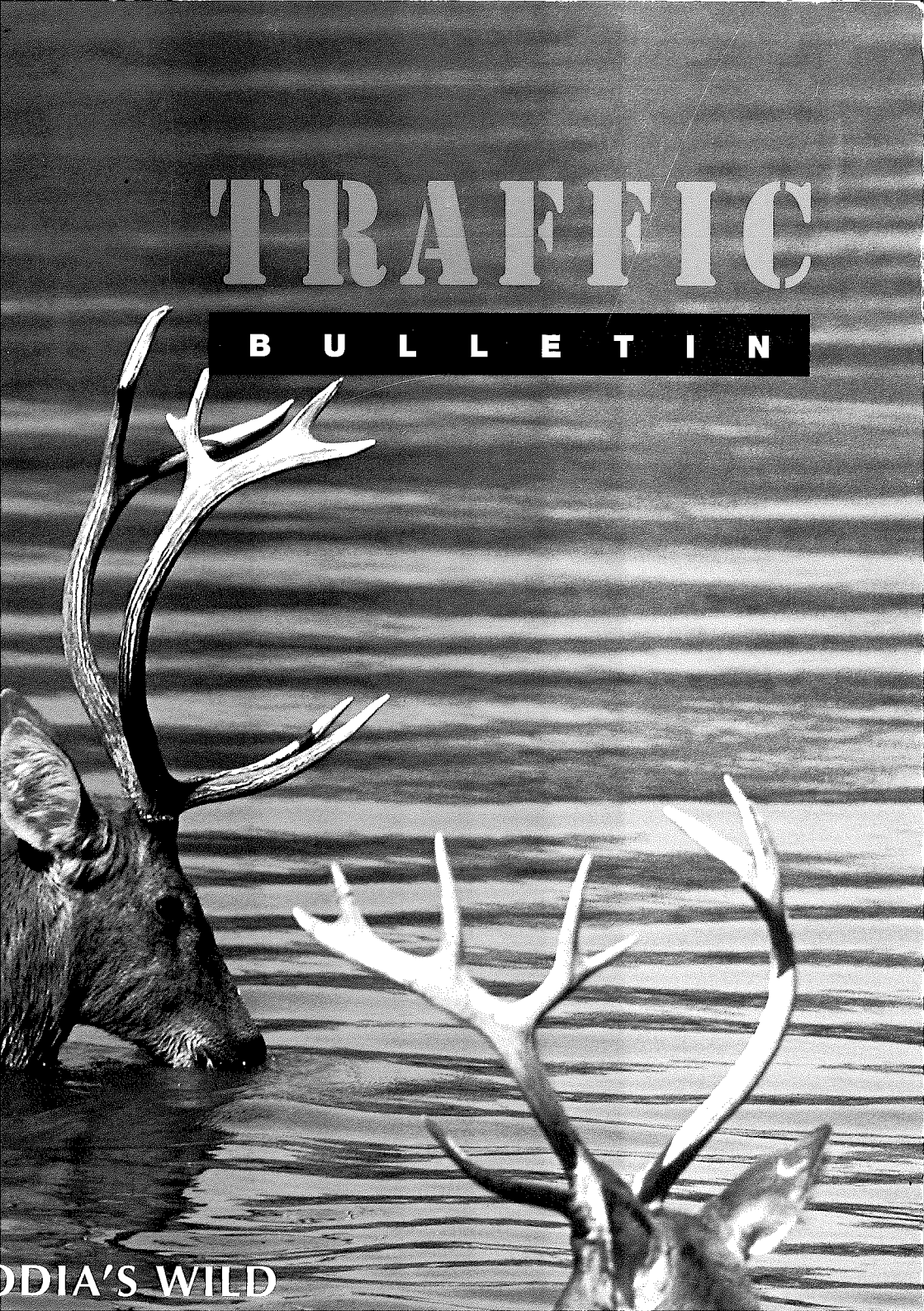

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Mongolia and Saudi Arabia Join CITES

The accession of Mongolia and Saudi Arabia to CITES brings to 132 the number of Parties to the Convention. Mongolia's accession became effective on 4 April 1996, and Saudi Arabia's, on 10 June 1996.

The Government of Saudi Arabia has entered a reservation on all birds of prey Falconiformes listed in CITES Appendix I.

Source: CITES Secretariat

Cash and Conditions for Elephant Translocation in South Africa

The National Parks Board (NPB) of South Africa has accepted a US$2.5 million grant to assist in the purchase of land that will extend national parks' boundaries and allow for the translocation of elephants that may otherwise have been culled.

For the past 28 years, the NPB has carried out a culling programme in Kruger National Park (KNP) to ensure that the elephant population remained constant at between 7000 and 8000 animals. Following a public debate on the NPB's elephant management policy last year, the Board decided not to cull in the park during 1995 and to review its elephant management policy. The NPB also launched the "Elephant Relocation Project" which aimed initially to raise money to translocate elephants from KNP, but later for land purchase to extend Marakele National Park, in the Northern Province, and Addo Elephant Park, in the Eastern Cape Province. In response, it received offers of funding from the International Fund for Animal Welfare (IFAW) and the Humane Society of the United States (HSUS). Under the terms of IFAW's grant, no elephants are to be killed on the land bought with their donation, although NPB has reserved the right to use culling as a management tool on all other land under its jurisdiction. The HSUS will also donate US$2.5 million, for research into elephant contraception.

Sources: TRAFFIC East/Southern Africa; International News for CAMPFIRE, Africa Resources Trust, April 1996

Ethiopia Game for Hunting

Ethiopia has lifted a ban on game hunting. The Wildlife Conservation and Development Enterprise, under the Ministry of Agriculture, announced the repeal on 15 May 1996. The ban had been implemented three years earlier, reportedly to allow for the volume and diversity of wildlife in the country to be registered.

Source: The Monitor (Ethiopia), 16 May 1996

South Korea Destroys Stocks of Tiger Bone

The Government of South Korea has incinerated 793.2 kg of Tiger *Panthera tigris* bone together with Tiger bone derivatives contained in over 48 000 packets of medicinal capsules and 159 semi-manufactured products being held by a pharmaceutical manufacturer. The items were destroyed in accordance with the amended *Pharmaceutical Affairs Law* which prohibits the sale, storage or display of medicines made from Tiger bones and derivatives.

Three pieces of Tiger bone weighing a total of 1 kg and 200 g of powdered Tiger bone were sent to the Korea Food and Drug Administration for research purposes.

Source: Jae-yun Ko, Director, Global Environment Division, Ministry of Environment, Republic of Korea, in litt. to *TRAFFIC East Asia, 12 July 1996*

Setback for Tortoise Recovery

The theft of 75 Ploughshare Tortoises *Geochelone yniphora* from the world's only captive breeding herd, represents a major setback to a recovery programme for this endangered species, which occurs only at a few sites in the Baly Bay area of Madagascar.

The reptiles, 73 young and two adults, were stolen on 6 May 1996 from a group of 163 specimens that formed part of a recovery programme for the species, set up in 1988 in Madagascar by the Jersey Wildlife Preservation Trust, in collaboration with the Ministry of Agriculture, Waters and Forests. Predominantly middle-sized juveniles, aged 18 months to four and half years, were taken, as well as some older specimens; it was the older tortoises in the programme that, pending recommendations of current ecological and demographic field research, had been intended for release into the species' natural range in order to augment the wild population or to start a new population. The loss of some of these will delay the start of the release project by several years. The number of Ploughshare Tortoises occurring in the wild may be as few as 400, and only six breeding females remain in the programme.

The theft of the tortoises highlights a serious problem concerning the wildlife trade in general out of Madagascar. Malagasy reptiles, amphibians and plants are appearing in large numbers in consumer countries, although nothing at all is known of the wild populations' capacity to sustain harvesting. A report on the export of reptiles and amphibians from Madagascar published in the *TRAFFIC Bulletin* (13(3):115-116), demonstrated that the export market for reptiles and amphibians from Madagascar was sizeable and increasing, and meriting concern.

Sources: TRAFFIC International;
Jersey Wildlife Preservation Trust, 6 June 1996

New TRAFFIC Staff

TRAFFIC is pleased to announce two new appointments to the Network. Mr Manoj Kumar Misra became the new Director of TRAFFIC-India in June 1996. Mr Misra has over 16 years' experience in National Park protection and conservation as a member of the Indian Forests Service. Most recently he was working as Additional Director with the World Bank-supported Madhya Pradesh Forestry Project.

Mr Roland Melisch is TRAFFIC Europe's national representative in Germany. Mr Melisch also serves as WWF-Germany's Species Conservation Officer, which includes responsibility for the Siberian Tiger Conservation Project. Formerly, Roland worked in Indonesia for the Asian Wetland Bureau (now a part of Wetlands International).

Netherlands Clamps Down on Leghold Pelts

The Netherlands becomes the first country in the European Union (EU) to ban the importation of furs from animals caught in leghold traps.

In 1991, the European Commission announced its intention to prohibit the introduction into the Community of pelts and manufactured goods of certain wild animal species originating in countries which catch them by means of leghold traps or trapping methods which do not meet international humane trapping standards. A Regulation (EC 3254/91) was to take effect on 1 January 1995. However, implementation of the ban has been delayed twice by the Commission in anticipation of the establishment of international humane trapping standards. The Commission left the way open for individual members of the EU to impose the ban, however, and the Netherlands is the first country to do so. Fur exporters from the USA, Canada, and Russia fiercely oppose the ban which, they argue, runs counter to the World Trade Organization rules.

Dutch Ministerial Decree of 24 December 1995, effective 1 January 1996, bans the import of pelts, skins and furs, and manufactured goods that contain pelts, skins or furs, of the following species:

American Badger *Taxidea taxus*; American Pine Marten *Martes americana*; Beaver *Castor canadensis*; Coyote *Canis latrans*; Ermine *Mustela erminea;* Fisher *Martes pennanti*; Grey Wolf *Canis lupus*; Muskrat *Ondatra zibethicus*; Otter *Lutra canadensis*; Raccoon *Procyon lotor*; Sable *Martes zibellina*

The ban does not apply to imports from other EU Member States.

Sources:European Commission Regulation 3254/91; TRAFFIC Europe; TRAFFIC USA

India Bans Release of Seized *Shahtoosh*

The Supreme Court of India has accepted a petition from WWF-India challenging an order issued by the Jammu and Kashmir High Court to release 400 kg of wool from the Tibetan Antelope *Pantholops hodgsoni*, seized from a warehouse in Delhi in January 1994.

In July 1995, the trader requested the Jammu and Kashmir High Court to release the consignment. The Court agreed to the request on 28 May this year, on the grounds that the court hearing relating to the seizure was taking a considerable time and that the produce was perishable; the release was to be subject to the trader undertaking to pay the penalty if found guilty of violating the law.

Following the Supreme Court of India order, the wool will now remain in the possession of Customs authorities, pending the outcome of the prosecution of the trader.

The antelope wool, which is known as *shahtoosh* ("king of wool", so-called on account of the supreme softness of the product) is alleged to have been smuggled into the country from China, via Nepal, together with a consignment of pashmina goat wool, and had been destined for a handicrafts shop in Srinagar, Kashmir. Of the 47 bales of wool, 17 were believed to be *shahtoosh*, although only nine bales could be found at the time of the seizure.

The Tibetan Antelope, or Chiru, occurs in treeless elevations in Tibet, China, and areas of northwest India. It is listed in CITES Appendix I and in Schedule I of India's *Wildlife (Protection) Act*, which prohibits hunting and trade in this species. The antelope is killed before its highly-prized wool is removed; the wool is traditionally spun into shawls which can fetch up to Rs.60 000 (US$1800) apiece. One animal yields approximately 125 g-150 g of wool and one pure *shahtoosh* shawl is made up of at least 350 g of wool.

Tibetan Antelope wool is believed to be procured primarily through barter trade, particularly of Tiger bones, across the Indian border with Tibet, China. It is also brought into India through Nepal and Bhutan.

Source: TRAFFIC-India

Philippines Suspends Clam Exports

On 4 April 1996, the export of Crocus Clams *Tridacna crocea* from the Philippines was banned.

The export of all molluscs listed in the CITES Appendices was prohibited in 1990. In September 1991, however, the export of specimens of Crocus Clams was permitted *(FAO No. 168-1)*. On 25 March 1996, the Management Authority of the Philippines for marine species, informed the Secretariat that *FAO No. 168-1* would be suspended indefinitely from 4 April 1996 (see pages 61-72).

Source: CITES Notification to the Parties No. 915, 20 June 1996

The Tiger Call

In March 1996, WWF India published a review of the current conservation situation of the Tiger *Panthera tigris* in India. Aimed to focus public, political and scientific attention on the threats facing this species, the report brings together contributions from WWF, TRAFFIC, government officials and eminent Indian conservationists. The authors analyze the history of Tiger conservation in the country, review its current status and highlight the lessons that must be learned to ensure effective long-term protection. The report includes up-to-date information and comment on poaching statistics and on attempts to halt illegal trade. It is available from WWF India (same address as TRAFFIC India), price US$10.

Enforcement Action in Hong Kong

Authorities in Hong Kong have called on members of the public to refrain from buying medicines containing or claiming to contain Tiger *Panthera tigris* or rhino ingredients and to report any illegal activities relating to endangered species. This announcement by the Agriculture and Fisheries Department (AFD) was issued after two traders were fined HK$250 000 (US$31 000) and HK$150 000 (US$18 500), respectively, in April, for possession of medicines purporting to contain Tiger and rhino horn ingredients. A month later, another herbalist was ordered to pay HK$425 000 for offering medicines containing protected species and, in June, a man was sentenced to 15 months' imprisonment for illegal sale of wildlife at a medicine store (see pages 74-75).

As part of a drive to eradicate illegal trade in endangered species, the AFD has updated an information leaflet which highlights the regulations which apply to the import and export of wildlife and lists some of the species that are covered by these regulations. The leaflet, entitled "Protect Endangered Species", has been printed in both Chinese and English and is being distributed to traders, schools and other relevant bodies.

The Department has been giving a series of training lectures to new recruits. So far, 19 lectures on endangered species trade have been delivered to over 600 participants, including staff from Securair Limited, the company responsible for carrying out security checks on departing and transit passengers at Hong Kong airport. In addition, AFD lectures are a regular feature of training for inspector trainees of the Customs and Excise Department. An "endangered species control" column has been included in the Customs & Excise Department's monthly video newsletter.

To further enhance CITES enforcement and awareness, Hong Kong will host a regional CITES enforcement training seminar, in collaboration with the CITES Secretariat, on 18 to 20 November 1996.

Sources: Agriculture and Fisheries Department; TRAFFIC East Asia; CITES Secretariat

Sample pages of the "Protect Endangered Species" leaflet, distributed in Hong Kong by the Agriculture and Fisheries Department.

South Korea's Whale Meat Trade

Significant commercial trade in whale meat has occurred in East Asia during the 1990s. In 1995, TRAFFIC East Asia conducted surveys of the whale meat trade in Japan, Taiwan, and South Korea (Republic of Korea). Although no whale meat was found for sale in Taiwan at that time, varying quantities were being offered for sale in South Korea and Japan (*TRAFFIC Bulletin*, 15(3):107-115).

In early 1996, TRAFFIC East Asia researchers returned to South Korea to see whether whale meat was still available. The investigation focused on the whale meat markets in the southern port cities of Ulsan, formerly South Korea's main whaling port, and Pusan, home to Chagalch'i Market, the country's largest and most famous seafood market. Whale meat was openly on sale in both locations. In Ulsan, nearly a dozen whale meat restaurants were discovered, openly advertising their fare; one restaurant offered a plate of whale meat for US$51. A retired whaler claimed that Russian vessels smuggle meat from whales caught in Eastern European waters, along with animal parts used in traditional Chinese medicines, such as seal penis, into South Korea. He stated that dolphin meat found in Ulsan is mostly from by-catch. In Pusan, where TRAFFIC had conducted whale meat surveys in 1993 and 1995, vendors were selling whale meat for US$64 a kg, compared to the 1995 prices of US$130 a kg for "high-quality whale meat" and US$25 a kg for dolphin or porpoise, termed "low quality whale meat".

South Korea instituted a whaling ban on 1 January 1986, since when whaling by Korean vessels has been illegal except scientific whaling granted by Government permit. Only visual scientific observations have been carried out. According to Mr Kim Yi-un, Assistant Director of the Coastal and Offshore Fisheries Division of the National Fisheries Administration of South Korea (NFA) (pers. comm., August 1996), whalers were compensated by the Government for the loss of earnings resulting from the whaling ban. He states that there are no whaling vessels in South Korea and that no application for a permit to carry out lethal scientific whaling has been made, nor would be granted by the Government.

The ban also covers the act of exporting, smuggling, transporting, storing, possessing or trading cetaceans caught illegally, and consigning or being consigned whale meat with the intention of trading. Guidelines accompanying the text of the ban indicate that live by-catch whales should be returned to the sea and dead by-catch specimens be buried or consumed by local people. The South Korean Government has not clarified queries by TRAFFIC as to the legality of the domestic sale of whale meat from dead specimens or by-catch.

In June 1996, the National Fisheries Administration of South Korea (NFA) mentioned to TRAFFIC East Asia that whale meat had been seen for sale in Namdaemun Market in Seoul, though the main consumers are said to be Japanese. When asked by TRAFFIC East Asia about the open domestic sales, staff at NFA's International Co-operation Department said that South Korea does not allow whaling and insisted that the whale meat sold on the domestic market is from by-catch or beached whales only. It confirmed that there are no whale meat stockpiles in the country.

TRAFFIC's findings of whale meat availability in South Korea were released to coincide with the 48th IWC meeting held in Aberdeen, Scotland (see below).

Source: TRAFFIC East Asia

IWC Meeting

A Resolution on the illegal trade in whale meat was adopted at the 48th meeting of the International Whaling Commission (IWC) meeting, held in Aberdeen, Scotland, from 24 to 28 June 1996. The Resolution (IWC/48/48), sponsored by Austria, Brazil, New Zealand and the USA, sought to address the problem of growing stockpiles of meat and blubber which can facilitate the "laundering" of illicit supplies of these products derived from current and past whaling. The Resolution calls on all Parties to report in future on the status of any stockpiles of whale meat, the status of domestic laws governing the possession and sale of whale meat, and on domestic enforcement actions taken with respect to whale meat illegally obtained or sold. At its meeting the year before, the Commission had called upon countries to report to the IWC at each meeting thereafter on the volume of whale meat stockpiles.

Other decisions taken at the 48th meeting are summarized below.

- The IWC Scientific Committee ruled that the abundance estimate carried out by Norway of the Northeast Atlantic population of Minke Whales *Balaenoptera acutorostrata* is adequate for use in the Revised Management Procedure (RMP) (part of the Revised Management Scheme (RMS) which is being devised to regulate any future commercial whaling), under which catch limits for a particular stock would be calculated). This implies that if the moratorium is lifted, and the RMS is agreed and put in place, the abundance estimate could be used as the basis for calculating Norway's whaling quota. A key outstanding question with the RMS is the establishment of an international system of supervision and control of whale catches. In the meantime, however, the acceptance of the abundance estimate by the IWC Scientific Committee should not be used for the setting of current quotas by Norway. A Resolution was adopted by a large majority calling on Norway to reconsider its objection to the moratorium (under which Norway is legally entitled to continue commercial whaling) and to halt all commercial whaling operations immediately. There was agreement that the surveys used in making population estimates for any future whaling quota should be placed under international scrutiny.

- The UK/New Zealand proposal to ban the use of the electric lance, used to kill whales that are not killed instantly by explosive harpoon, failed, with a vote of 16 in favour, eight against and five abstentions.

- A Resolution requesting Japan to halt its scientific whaling, in particular in the Southern Ocean Sanctuary, was passed by a large majority. In the last Antarctic season, Japan killed 440 Minke Whales in the sanctuary.

- Japan's request for a quota of 50 Minke Whales from the North Pacific population was turned down for the ninth year in succession.

- The US delegation withdrew its proposal for an aboriginal subsistence quota of five Grey Whales *Eschrictius robustus* for the Makah Indian tribe in the Pacific Northwest because the subsistence need was not proven and many concerns expressed by delegates were left unresolved.

- A request by Russia for a quota of five Bowhead Whales *Balaena mysticetus* as an aboriginal/subsistence catch was withdrawn when it failed to receive unanimous support.

- Strong concern was registered about the possibility of Canada, a non-member country of the IWC, issuing a licence for aboriginal people to kill at least one Bowhead Whale from the highly endangered stock in eastern Canada.

The next meeting of the IWC will take place in Monaco, in October 1997.

Sources: Resolution IWC/48/48; WWF International Press Release, 28 June 1996; Ministry of Agriculture, Fisheries & Food, News Release, 4 July 1996

Transfrontier Turtle Sanctuary

Malaysia and the Philippines have signed an agreement that will establish the world's first marine turtle reserve to extend across two territories. The Turtle Islands Heritage Protected Area will cover nine islands which lie between north Sabah, East Malaysia, and southwest Philippines - six in the Philippines and three in Malaysia - and collectively covering 318 hectares. This area is important for nesting turtles and provides the only major breeding and nesting grounds for Green Turtles *Chelonia mydas* in Southeast Asia; one island is also a nesting site for Hawksbill Turtles *Eretmochelys imbricata*. From 1984 to 1994, over 15 million eggs were laid on these islands but over the last 40 years turtle egg production has dropped by 88% owing to overexploitation for trade and local consumption: the islands are home to some 400 families and most view turtle eggs as an easy source of income. Fishery-related deaths, and loss of habitat to coastal development have also contributed to the decline in these populations.

The sanctuary has been made possible with the support of WWF, Sabah Parks Office, the Department of Environment and Natural Resources of the Philippines, with funding provided by the MacArthur Foundation. A centralized database and information network on marine turtles will be established, and conservation awareness programmes aimed at the islands' inhabitants will be developed.

Source: WWF International New Release, 31 May 1996

Tuna Quota Agreement

Japan has agreed to join Australia and New Zealand in maintaining its 1995/96 quota allocation for Southern Bluefin Tuna *Thunnus maccoyii* at the same level as that set for 1995. Lack of agreement by Japan at earlier meetings of the Commission to the Convention for the Conservation of Southern Bluefin Tuna (CCSBT) (of which the three countries are signatories), was resolved at the end of April 1996 during a second special meeting of the Commission. To help efforts to minimize depletion of the species, whose parent stocks are at their lowest level ever, the Total Allowable Catch (TAC) for this season remains at 11 750 t, with 6065 t allocated to Japan 6065 t, 5265 t to Australia and 420 t to New Zealand.

At an earlier meeting of the Commission, Japan had requested that an additional catch of 6000 t be allowed on top of the existing global TAC for 1995/96. This 50% increase in catch was requested for an experimental fishing programme which aimed at reducing the uncertainty surrounding the scientific assessment of the population size. TRAFFIC Oceania, which has been participating as a non-Governmental member of the Australian official delegation at meetings of the Scientific Committee to the CCSBT and the Commission to the CCSBT, considers that at no time should any experimental fishing be permitted by the Commission outside the existing TAC framework unless:

- Australian Stock Assessments reflect that the stock is satisfactorily recovering and an increase in the global catch is sustainable and in keeping with the CCSBT meeting its objective of returning the stock to 1980 parent stock levels by the year 2020.

- it is scientifically credible and all Parties to the CCSBT follow that scientific rigour during the experiment.

The third meeting of the Commission to the CCSBT will be held in Canberra from 23 to 27 September 1996.

Source: TRAFFIC Oceania

Balancing Needs of Fish and Fishers

Unilever plc/nv, a major buyer of frozen fish and manufacturer of many of the world's best known frozen fish products, will form a joint initiative with WWF which aims to ensure the long-term viability of global fish populations and the health of the marine ecosystem on which they depend. To this end, the partnership will establish, through consultation with a broad spectrum of fisheries experts, an independent Marine Stewardship Council (MSC), which will be modelled on the successful Forest Stewardship Council (FSC) (page 43). The MSC will be responsible for drawing up a set of principles for sustainable fishing and for setting standards for individual fisheries. Only fisheries meeting these standards will be eligible for certification by independent, accredited certifying firms. Packages containing products from certified fisheries will bear the MSC trademark, allowing consumers to select fish products which come from accredited fishing grounds. The MSC will be established within two years, following approval of draft principles and agreement on a process for implementation of these principles worldwide.

The MSC forms a key objective of WWF's Endangered Seas Campaign, an ambitious, three-year project aimed at promoting the conservation and sustainable use of marine fishes worldwide and reversing the effects of overfishing. WWF has pledged more than US$1 million per year to build the necessary political will around the world to stop overfishing, restore devastated fisheries, improve management regimes, and reduce the use of destructive fishing practices. A Species Status Report entitled *Wanted Alive! Marine Fishes in the Wild*, released by WWF on 4 June, sets out a comprehensive 10-point action plan to deal with concerns related to the condition of marine fisheries worldwide; this plan is summarized below.

1. **Strengthen national, regional, and international capacity to manage marine fishes:** Government and international commissions must allocate sufficient funds to develop the scientific and technical capabilities necessary to adequately manage their marine fisheries.

2. **Focus management programmes on limiting effort and restricting access to fisheries:** Fishing effort should be reduced to levels consistent with sustainable fishing and the recovery of depleted species.

3. **Enact and implement recovery plans for depleted species:** Fishery managers should as a matter of priority develop and implement effective recovery plans for depleted species, including target population sizes and timetables for achieving them.

4. **Reduce and eliminate the subsidies that sustain commercial fisheries:** The US$54 billion in subsidies that are propping up unsustainable fisheries should be eliminated immediately, including those for shipbuilding and construction, refitting of fishing vessels, market research and development, industry bailouts, low-cost industry loans, and development of fisheries for so-called 'underutilized' species.

5. **Accelerate programmes for decommissioning excess fishing fleet capacity:** Funds for vessel buyback and decommissioning programmes should be increased as quickly as possible in order to expand these programmes to achieve an immediate reduction in fishing effort.

6. **Expand programmes for retraining fishers displaced by overfishing and effort limitation:** Retraining programmes are urgently needed in order to move displaced fishers into productive employment in other sectors as quickly as possible and prevent unnecessary social upheaval.

7. **Develop social and economic incentives for sustainable, well-managed fisheries:** Market forces and consumer power must be harnessed in order to create incentives for sustainable, well-managed fishing.

8. **Reduce the 'footprint' of developed countries on third-world fisheries:** International standards for distant-water fishing should be developed as a matter of priority and enforced by UN mandate.

9. **Eliminate destructive fishing practices such as the use of poisons and explosives:** Destructive fishing practices should be phased out immediately in favour of more sustainable, less destructive alternatives.

10. **Reduce and eliminate the bycatch of marine wildlife in commercial fisheries:** Incentives such as bycatch quotas should be imposed or made available to encourage the use of the least destructive fishing gear and practices.

The report is available from WWF-UK, Panda House, Weyside Park, Godalming, Surrey GU7 1XR, UK .

Sources: Media Natura News Release, 22 February 1996; WWF News Release, 6 June 1996

Herring Quotas Scaled Down

Measures to protect Herring *Clupea harengus* stocks in the North Sea have been implemented to avoid the risk of a complete closure of this fishery in 1997, when it is estimated that the population, at current fishing levels, would be in danger of collapse.

The European Commission has adopted an emergency regulation which reduces the Total Allowable Catch in 1996 by 50%; the regulation took effect on 2 July 1996. It implements agreement reached between the Commission and Norway on the required management measures for this year's fishery. In addition, the regulation also sets quantitative limits on the amount of herring which may be taken in industrial fisheries and as by-catch in the directed fishery for Sprat *Clupea sprattus*. EU Member States were required to submit detailed plans for control and enforcement by 10 July.

On 25 July 1996, the North Sea Sprat quota was reduced by 25%.

Sources: Ministry of Agriculture, Fisheries & Food News Release 2 July 1996; MAFF spokesperson, pers. comm., 13 August 1996

Stamp of Approval for Forest Certification Scheme

To counter the threat of commercial timber exploitation to forests, an independent international certification scheme under the control of the Forest Stewardship Council (FSC) was recently established that will assist consumers in selecting timber derived from well-managed sources. The FSC has taken on the responsibility for evaluating whether timber products are being sourced from forestry operations according to FSC's own strict criteria of forest management; it will accredit and monitor certifiers of timber products, who will then be subject to a 12-month probationary period.

The FSC's criteria apply to all types of forests and are designed to allow flexibility in their application through the development of national and regional standards, which fit local, ecological, social and economic circumstances. Products that have been certified according to these criteria will be stamped with the FSC trademark (as illustrated). Four certifying organizations have been sanctioned by the FSC so far: two in the UK and two in the USA. A further two - one in Costa Rica and one in Brazil - have initiated the process of accreditation. Twenty-seven forestry operations have been certified worldwide.

Procedures to enhance the growing market for certified forest products are presently underway in a number of countries. In Britain, a WWF initiative has brought together over 70 companies with an estimated annual trade of £2.6 billion (US$4 billion). Many of these companies have committed to phase out by the year 2000 any wood products that cannot be traced back to an FSC-approved, independently certified forest. A similar WWF initiative in Belgium has united more than 50 timber importing and retailing companies, making up more than half of the supply of sawn timber in that country. This group has pledged to bring independently certified timber into the Belgian market by 1 January 1997. In Sweden, a set of standards for independent certification based on FSC principles is being developed by a formal working group that includes representatives from the timber industry, manufacturers, indigenous peoples' groups, and non-governmental environmental organizations. Similar FSC-standard consultations have taken place in Finland, where an FSC seminar involving WWF national organizations in Denmark, Finland, Norway and Sweden will be held in October.

Major stakeholders in other timber producing and exporting countries like Bolivia, Brazil, Cameroon, Canada, Chile, Colombia, Costa Rica, Ecuador, Indonesia, Malaysia, Mexico, Papua New Guinea, Peru, South Africa, Venezuela and Zimbabwe, have shown substantial interest in the FSC certification scheme and some of them are already in the process of developing a national set of standards for timber certification.

The trademark of the Forest Stewardship Council (FSC) indicates that the wood used to make the product comes from a forest which has been independently evaluated as being well-managed according to strict environmental, social and economic standards.

Sources: WWF News Release, 21 February 1996; Forest Stewardship Council Fact Sheet;WWF News Bulletin 3(12), 15 July 1996; Forest Stewardship Council UK Working Group

The FSC, based in Mexico, was established in 1993 to promote management of the world's forests that is "environmentally appropriate, socially beneficial and economically viable". It is a non-profit, non-governmental organization composed of environmental institutions, foresters, timber traders, indigenous peoples' organizations, community forest groups and certification organizations from 28 countries. Currently there are at least 123 members. The main task of the FSC is to ensure that the claims of timber products to come from well-managed forests are based on adherence by forestry operators to strict FSC principles and criteria.

FSC Endorses US Menominee Indian Forest

The first, and probably the only commercial timber reservation in the USA to be certified as well-managed, has been endorsed by the Forest Stewardship Council. Along the banks on the Wolf River, in Wisconsin, the Menominee Indian tribe are demonstrating that logging timber can be profitable without inflicting losses on the natural environment. Their reservation consists of 250 000 acres of old boreal forest (oak, beech, maple, white pine,

hemlock and 20 other species). Most of the forest has been logged twice since the 1860s, yet it now boasts more high-quality, mature timber than when logging began. Two elements have been central to this success: a tribal ethic that emphasizes community, continuity and respect for nature, and some of the most advanced scientific forestry practices in the world. More than 800 plots distributed throughout the forest are constantly inventoried in order to assess the long-term effects on timber volume and quality of growth, disease and cutting. Most modern forestry techniques, while being highly productive in the short term, use single species of a uniform age (which support few other plants and animals), and are highly susceptible to disease. The Menominee prefer to encourage a diversity of species and ages across the reservation: the mix of species on a site varies according to soil moisture and nutrient levels and because different tree species thrive on different sites, it is possible to see whether those currently growing on a site are best suited to it. Habitat classification and geographic information systems are used to enhance productivity further. Although harvesting is conducted at a rate no faster than the forest is replenished, the timber stands yield twice the volume of quality sawn logs as the Nicolet National Forest, an area twice the size, which was clear cut at the end of the last century.

The Menominee tribe was virtually exterminated by European settlers in the 1850s and its survivors were left with less than 3% of their original territory. As surrounding forests were cleared for farming and timber needs over the following decades, the Menominee territory remained virtually untouched. The tribe first won the right to exploit their timber in the 1890s and a trust fund for timber revenue made the tribe among the richest in the USA. However, in 1960, a majority of the tribe voted for termination, enabling the division of the fund and the creation of private lots out of reservation land. In 1973, after a long campaign, the Menominee voted to become the first Native American nation ever to reverse termination, bringing all land back into common ownership. Menominee Tribal Enterprises, a corporation jointly owned by the 4000 or so Menominee Indians, had to buy back part of the tribe's own land and is still paying off the debts. Because the Menominee sell only those species and volumes that their forest can sustainably yield, the mill was running at a loss until three years ago. However, endorsement of Menominee timber by both Smartwood and Greencross - America's leading certifiers of timber that has been well-managed - has helped to boost sales. According to Larry Wakau, president of Menominee Tribal Enterprises, the operation has shown profits for the past three years - US$2.4m on turnover of US$12m, last year. The timber harvest remains 20 million board feet, as it has in virtually every year for more than 100 years. UK distribution of the Menominee timber is handled by Milland Fine Timber in Liphook, Hampshire.

Source: The Independent (UK), 4 March 1996

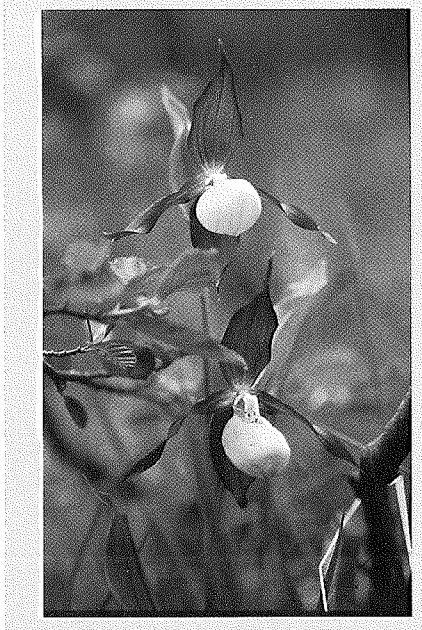
Plants Perspective at CITES Seminar

The CITES Secretariat recently ran a European CITES training seminar with the focus firmly on plants and plant-related issues. The seminar, held in Hyères-les-Palmiers, France, from 17 to 19 June 1996, was attended by over 70 participants from some 15 countries, including France, UK, Netherlands, Czech Republic, Slovakia and Monaco, and led on behalf of the Secretariat by Plants Officer, Ger van Vliet. It was supported financially by the Management Authorities of France and the Netherlands, with the Provost of Hyères providing the meeting rooms. The Parc national de Port-Cros and the Conservatoire botanique national de Porquerolles organized an excursion to the island of Porquerolles on the final day, thoroughly enjoyed by all.

Participants represented organizations ranging from Scientific and Management Authorities, to enforcement agencies. The Secretariat gave presentations on CITES, with speakers talking on subjects including enforcement, the medicinal plant trade, nomenclature and the main plant groups covered by the Convention. TRAFFIC was represented and gave a talk on the illegal trade in medicinal plants.

As well as being informative, the seminar provided an opportunity to forge valuable new links between those involved in CITES matters within Europe. The large number of participants at a seminar focusing entirely on CITES from a plants perspective, underlines the increasing seriousness with which the plant trade and conservation is being viewed in Europe; a very encouraging sign.

Marianne Syrylak Sandison, Conventions and Policy Section, Herbarium and Library, Royal Botanic Gardens, Kew



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Lady's Slipper Orchid *Cypripedium calceolus*.

A Review of the Wild Animal Trade in Cambodia

by Esmond Bradley Martin and Marcus Phipps

Cambodia is a country with few developed natural resources and little industry. Following the deposition of the Khmer Rouge *from effective power in 1979 and the withdrawal of Vietnamese troops (announced to have been effected by 1989), the country's economy increased generally and commerce in wildlife is reported to have escalated. This review is an attempt to understand the nature and scale of the consumption and trade of Cambodia's wildlife. It was found that a number of endangered animal species appear to be regularly traded, while other species are traded at levels which may not be sustainable. Severe structural and resource constraints at every level of Government and the ready availability of weapons and ammunition serve to compound the difficulties in controlling illegal hunting of and trade in Cambodia's wild animals.*

Introduction

Literature on Cambodia's native fauna is scarce. During the period of French occupation (1863-1954), no wild animal surveys are known to have been made, while from the mid-1970s to the late 1980s, it was impossible to carry out research owing to political instability in the country. Less is known about the numbers and distribution of wild animals in Cambodia than for any other country of the region. TRAFFIC Southeast Asia conducted the first survey of wildlife trade in Cambodia in 1992. Research by the International Primate Protection League and IUCN, and further surveys by TRAFFIC, followed in 1993. The findings forming the basis of this report are drawn from original survey work in Cambodia during 1994, which included visits to the main trading centres across the country and interviews with traders and Government officials. As a result, it was possible to gain an understanding of the country's wildlife legislation and potential for its enforcement, the location and importance of several of Cambodia's wildlife trade centres, and an insight into trade levels and trade routes abroad.

Background

Cambodia has a long history of wildlife utilization and trade dating back to the Funan period (1st-6th centuries AD) (Chandler, 1993). From that period, up to the early 20th century, Cambodia's main source of foreign exchange was the export of wildlife products. Records left by Chinese merchants and visitors such as Chou Ta-Kuan (1296-1297) during the Angkor period, list ivory, rhino horn, feathers, lacquer, pepper, cardamom, beeswax and honey as the principal forest products for export (Chandler, 1993). Until the nineteenth century with the beginning of the French colonial period, this list remained essentially unchanged.

The country gained independence from the French in 1954. In the late 1960s and early 1970s, the country was involved in the war between Vietnam and the USA, following which the *Khmer Rouge* held power from 1975 until overthrown by the invading Vietnamese four years later. The low human density of the country has enabled wildlife to survive relatively undisturbed in some areas compared with elsewhere in eastern Asia: the northeastern province of Ratanakiri, for example, has a small population and large areas of intact forest, reputed, at least in 1994, to have been a haven for wildlife. Cambodia is known to be home to 123 mammal species, 82 reptile species, 28 amphibian species, 429 bird species and at least 215 freshwater fish species (Anon., 1996a). Any consideration of wildlife resources in Cambodia should be made within the context of the country's several decades of war and resultant disrupted government. The effects of the prolonged warfare may have left some wildlife populations in a vulnerable condition, owing to increased reliance on them for subsistence and an increased availability of firearms (Nash, *in litt.*, February 1996). During the *Khmer Rouge* regime, virtually the whole population was deployed to clear jungle, forest and scrub (Famighetti, 1996), thereby destroying wildlife habitat, and there was a total absence of wildlife legislation in force. In addition, one group in particular, the Poro (freedom fighters who fled Vietnam for Cambodia when South Vietnam fell to the communists in 1975) were known as active hunters in Ratanakiri and Mondolkiri Provinces, where most of Cambodia's large wild animals are found. In late 1993 to early 1994, over 300 Poros were relocated to the USA by the US Government, and this may have significantly reduced hunting pressure in Ratanakiri and Mondolkiri (Phipps, 1994b).

Internal struggles in Cambodia have continued since the deposition of the *Khmer Rouge* government, despite United Nations intervention in the establishment of a democratically elected Government in 1991. Large parts of the country are infested with land-mines and the Khmer Rouge are still fighting a guerilla war, especially in the western part of Cambodia. This group and other armed brigands sometimes act as guardians of illegal shipments across provincial and international borders. They also supplement their meagre pay and poor diet by hunting wildlife themselves. The United Nations and foreign aid agencies have helped to restore the country's infrastructure by repairing roads and bridges and defusing many land-mines. Although the years of fighting in Cambodia devastated the economy, business is increasing now, especially in the capital, Phnom Penh. By early 1994, the economic situation in Phnom Penh and in some other towns had greatly improved and foreign business had been attracted; the national currency, the riel, was easily exchanged for the US dollar at a rate which had been stable for many months. However, any possible gains for wildlife conservation as a result of the cessation of full-scale warfare are now expected to be more than offset by increased levels of trade in wildlife. Demand from wealthier middle-class Cambodians includes that for game

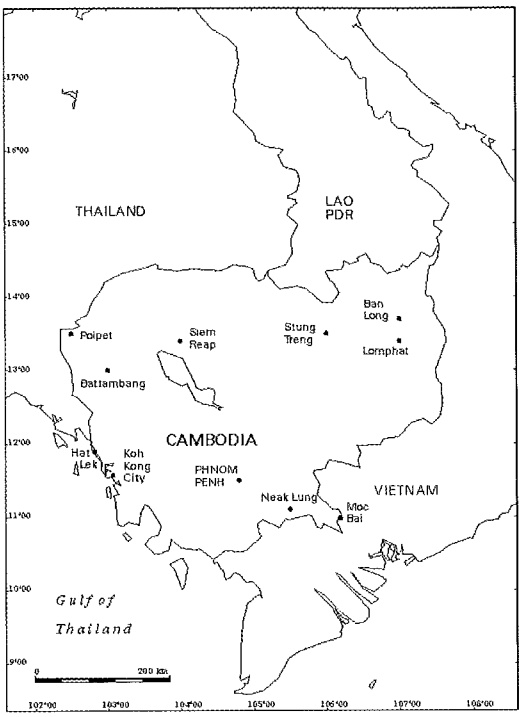


Figure 1. Map of Cambodia featuring survey sites.

meat, medicinal products from native fauna and flora, and a liking for wildlife trophies, while poorer Cambodians depend on wildlife for food, medicine and income. Vietnamese, Singaporeans and Thais are coming to Cambodia to buy such products also, while large wholesale consignments go to China, Singapore, Taiwan and Thailand (Stiles and Martin, 1994).

While current legislation includes a ban on the hunting of wild animals in Cambodia, there is at best haphazard enforcement of the law. The availability of weapons and involvement of influential interests in wildlife trade, coupled with only nominal control over exports across Cambodia's national borders, are two of the salient aspects of the complex problem of regulating the commerce.

Cambodia's largely rural human population of around ten million has an annual growth rate of 2.5%, a literacy rate of about 50%, and had an annual per capita GDP in 1995 of US$215 (Anon., 1996b).

Methods

Material for this article is based primarily on surveys carried out by the authors in 1994:

- The main retail areas of Phnom Penh, Neak Lung, Battambang, Poipet and Siem Reap were surveyed by Martin in February. He examined all 22 wildlife product shops at the O Russei market of Phnom Penh; 75 souvenir shops and stalls in the main retail parts of Phnom Penh (including at the city's other markets, Tuol Tom Pong market and the Central market); four wildlife restaurants in Phnom Penh; the stalls at Neak Lung; the market and one souvenir shop elsewhere in Battambang; the Poipet market; and the eleven souvenir shops at Siem Reap's airport and town. Meetings with wholesale dealers and Government officials were held as part of Martin's research. The surveys were carried out over a period of 16 days.

- Several visits to the same markets of Phnom Penh as those surveyed by Martin were made by Phipps between 23 April and 3 June. He also visited two wildlife restaurants in the capital; Koh Kong City market (28 May) and the nearby Thai border (29 May); Ban Long and Lomphat in Ratanakiri Province, near the Vietnamese border (single visits between 25-28 May); and Neak Lung and Moc Bai at the border with Vietnam, over two days in May.

Supplementary information from TRAFFIC Southeast Asia's investigations has been included in this report. Specifically, trips included visits to Central market (Phnom Penh), on two separate days in May 1992; a single visit to Tuol Tom Pong market (Phnom Penh), in May 1992; meetings with Government officials in May 1992; a visit to Poipet market on 20 October 1992; a single visit to Central market in April 1994; a single visit to O Russei market in April 1994; visits to Government ministries and non-governmental conservation organizations in April 1994. Information provided by a reliable source who wishes to remain anonymous is cited in the text as Anon., *in litt.*, February 1996.

While it is recognized that trade in some of Cambodia's native flora is of concern in conservation terms, the scope of the findings in this report is confined to those relating to fauna.

The exchange rates used to convert the local currencies are R2500 (Cambodian riel), Bt25 (Thai bhat) and K700 (Lao kip) to the US dollar.

Legislation

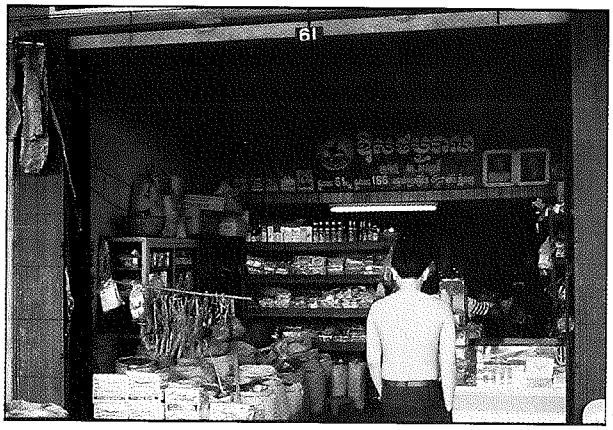
During the French colonial period, various ordinances were passed to control hunting in Cambodia, culminating in *Royal Ordinance No. 24*, issued on 12 February 1940. Among other provisions, this established a closed hunting season (from 1 June until the last Sunday in November) and prohibited hunting without a licence (Anon., 1940). *Decree (Prakas) No. 191* of 20 January 1960 listed animals exempt from hunting, including the Asian Elephant *Elephas maximus*, Wild Asiatic Buffalo *Bubalus arnee*, Banteng *Bos javanicus*, Kouprey *Bos sauveli*, and six deer species. Both the 1940 and 1960 laws were presumably functioning at least up to 1975, but during the *Khmer Rouge* regime many decrees were either declared null and void or were not enforced (P. Le Billon, pers. comm., 1994), or documented regulations were literally destroyed (Nash, 1992a).

After the end of the *Khmer Rouge* regime, the *Fiat-Law on Fishery Management and Administration (Kret No. 33)* was issued by the Council of State, on 9 March 1987, supplemented by *Forest Practice Rules (Kret No. 35)*, issued by the Council of Ministers, on 25 June 1988

(Anon., 1988). The former forbids the capture, sale and transport of "fingerling, fish egg, crocodile, Giant Catfish *Pangasianodon gigas*, Jullien's Golden Carp *Probarbus jullieni* and *Grossochilus latius*". The Department of Fisheries is permitted to impose fines for certain fisheries violations, but confiscation for serious offences can be implemented only by a court of law. The latter decree includes regulations relating to hunting as well as to timber extraction: article 22 of the *kret* states that "hunting of wild game and birds shall be absolutely prohibited until a new law is issued". Thus, at least until the end of 1994, the hunting of all wildlife was prohibited and the trade in "new" wildlife products was also forbidden, but sales of old wildlife items such as antique elephant ivory were technically legal (Chhim Somean, pers. comm., 1994).

The Government does not allow the export of wildlife. With the exception of crocodile exports which were banned with effect from December 1993, the Ministry of Agriculture has not issued permits for the export of any wildlife or wildlife products in the last 14 years (excluding timber and fish products).

Cambodia expressed strong interest in joining CITES during recent discussions with TRAFFIC Southeast Asia.



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A medicine shop at O Russei market, Phnom Penh.

RESULTS

Description of Markets Visited

Phnom Penh: Street 166, part of the O Russei market, is the wholesale and retail centre for wild animal and plant products in Phnom Penh. The shopkeepers in the O Russei market are Chinese and Cambodians who have re-established business at the market since the end of the *Khmer Rouge* regime (Phnom Penh was taken by the Vietnamese in January 1979). More than two-thirds of the sales value of wildlife products is from plants used mostly by Cambodians for medicinal purposes, but since 1989, following the relative recovery of the economy, there has been a strong demand, especially from the Vietnamese, for animal products.

Details of animal products found for retail sale at O Russei in 1994 are recorded in Table 1.

Other markets in Phnom Penh: The other city markets generally do not sell many wildlife products. Tuol Tom Pong market, the "Russian" market, is generally known for its antiques, but a few stalls had wild animal parts, including from Malayan Pangolins *Manis javanica*, pythons *Python* spp. and Slow Lorises *Nycticebus* spp., but no trophies or skins. The Central market did not appear to have much wildlife for sale, although one stall was selling several animals, perhaps as pets or food, including freshwater turtles, a Clouded Leopard *Neofelis nebulosa*, and Fishing Cats *Prionailurus viverrinus*.

Phnom Penh has scores of souvenir shops in its main retail areas, where the most common wildlife item on sale was elephant ivory (Table 2).

***Ban Long*:** Ban Long, with a population estimated at 60 000, is the capital and main market town of Ratanakiri Province. There is evidence of well-organized wildlife trade in the province and, although secondary to slash-and-burn style farming in economic importance, hunting in Ratanakiri has escalated in scale in step with the greater availability of firearms and improved transportation and distribution systems to meet demand in neighbouring countries (Phipps, 1994b).

Ban Long is known to many as a centre of wildlife trade but while several shops at the Central market contained one or two wildlife trophies in 1994, two stood out as being well-stocked, although one of these was less overt in its display of items. There was no fresh meat for sale at the market during the survey period, which was conducted at the end of the dry season when hunters would have been occupied with preparing to plant crops.

***Battambang*:** Battambang is the second-largest city in Cambodia, with a population of over 200 000. Its economy is still depressed relative to that of Phnom Penh, and both foreign and local traders, as well as tourists, avoid the area owing to the presence of *Khmer Rouge* rebels (Brown, 1994). At the main market, Psar Phom, some trade in ivory was discovered.

***Koh Kong City and Hat Lek*:** Although investigators expected to find a well organized trade in wildlife based in Koh Kong City, owing to Koh Kong Province's strategic importance in Cambodia's illegal timber trade (Davies, 1993; Kanter, 1994), no trade in game meat or any other wildlife was evident at the time Koh Kong City market was visited. Hat Lek market in Thailand, on the border with Cambodia, consists of around 20 small shops. Locals said that many residents of Bangkok visited the market at the weekends. A limited amount of wildlife products was on sale.

Animal parts	Use/Cure in Cambodia	Average price (US$)	% shops with item
Asian Elephant *Elephas maximus* bone	poison cure	?	5
skin	acne cure	6/kg	9
tail	decoration	0.80	5
teeth	?	?	5
tusk	decoration, carving	400/kg	9
Banteng *Bos javanicus* horns	decoration	?	5
Black-spined Toad *Bufo melanostictus*	sexual diseases	0.11	32
Burmese Hare *Lepus peguensis* skin	several diseases	2	5
Deer (various spp.) antlers	tonic	500/kg	5
foot	tonic after childbirth	5	5
penis	aphrodisiac	20	5
Fishing Cat *Prionailurus viverrinus* skin	decoration	16	9
Gaur *Bos gaurus* horns	decoration	45/pair	14
Hog Deer *Axis porcinus* antlers	decoration	30/pair	5
Indian Smooth-coated Otter *Lutra perspicillata* tail	labour pains	45	27
Leopard *Panthera pardus* skin	decoration	133	9
Lesser Mouse Deer *Tragulus javanicus* antlers	decoration	?	5
bone	bone tonic	4/kg	5
Malayan Pangolin *Manis javanica* claw	?	8/kg	5
dried	decoration	3	9
Monkey (various spp.) head	headache	4	5
skin	?	5	5
Oriental Small Clawed Otter *Amblonyx cinereus* tail	labour pains	45	27
Porcupine *Hystrix brachyura* stomach and Asiatic Brush-tailed Porcupine *Atherurus macrourus* stomach	tonic after childbirth	9	36
Reticulated Python *Python reticulatus* bone	fever cure, tonic	3.2/kg	36
skin	belts, bags wallets, etc	4/metre	41
Sambar *Cervus unicolor* antlers	decoration	50/pair	18
Serow *Naemorhedus sumatraensis* horn	decoration	?	5
Slow Loris *Nycticebus coucang* dried	tonic	4.40	50
Snake (various spp.) dried	medicine	1.60	27
Sun Bear *Helarctos malayanus* bile	fever cure	1000/kg	5
head	decoration	20	5
skin	decoration	40	14
tooth	decoration	40	5
Thamin *Cervus eldii* antlers	decoration	50/pair	9
Tiger *Panthera tigris* bone	rheumatism	100/kg	5
nail	ornament	4	9
skin, no hair	fever	20/kg	5
tooth	ornament	5	5
Tokay *Gekko gecko*	aphrodisiac, coughing	0.30	14
Tortoise head (various spp.)	tonic after childbirth	2.90	27
shell	tonic after childbirth	6/kg	27
Water Monitor Lizard *Varanus salvator*	medicine	5	5
Wild Asiatic Buffalo *Bubalus arnee*	dropsy	?	5
Wild Pig *Sus scrofa*	decoration	?	9

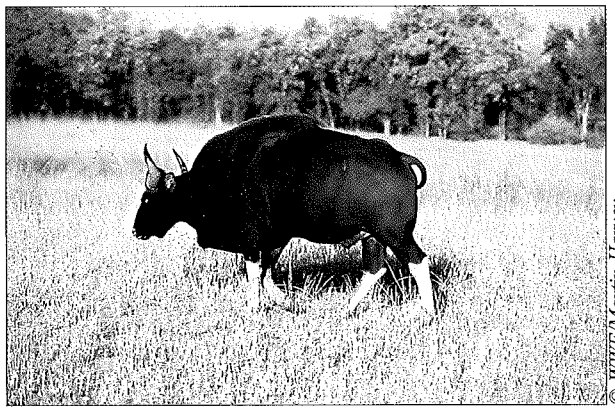
Table 1. Wild animal products for retail sale in O Russei market, Street 166, Phnom Penh, February 1994.
Survey by Martin

***Lomphat*:** The home of a couple in the town of Lomphat is a major collection point for an area covering most of southern Ratanakiri and northern Mondolkiri, for wild animals destined for trade; many of these animals come from areas surrounding the villages of Samut and Soda, which are important hunting grounds. Such trade was said to be conducted from Lomphat on a significant scale by traders visited.

***Neak Lung*:** Sixty kilometres southeast of Phnom Penh, on the road to Ho Chi Minh City, the town of Neak Lung straddles the Mekong River and is a ferry crossing point for traffic going to Vietnam from Phnom Penh and western Cambodia. It is known to many locals as a centre for wildlife trade, principally in reptiles. These animals become harder to find in the dry season which, combined with the increased demand for freshwater turtles for food during Khmer and Chinese New Year, may explain why fewer specimens were on display in May 1994 than in February of that year (Table 3).

***Poipet*:** Poipet, a village with only a few stone buildings about one kilometre from the Thai border in northwest Cambodia, is dominated by a large covered market with several hundred stalls, which was developed to cater for Thai demand: although Thais may move freely across the border into Cambodia, they may not go beyond the market at Poipet. Prices are lower in Poipet than in Thailand because few taxes are paid in Cambodia (Nash, 1992a). Most products in the market are priced in Thai baht rather than in Cambodian riels or US dollars. One of the largest assortments of wildlife products to be found in Southeast Asia was discovered at Poipet's covered market, including products from some of the most endangered animals in the region (Table 4). Almost all the wildlife products were from animals native to Cambodia.

***Siem Reap*:** Siem Reap is the closest town to the Angkor Wat ruins which are an attraction to foreign visitors. Few of Siem Reap's shops and market stalls were found to be selling wildlife, but in 1993 several endangered wildlife species were on sale at the town's main market (Salter, 1993), a fact explained by the itinerant nature of the vendors (D. Ashwell, pers. comm., 1995).



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A Gaur *Bos gaurus* grazing.

Animal part	Use	Average price (US$)
Asian Elephant *Elephas maximus* bone		
Buddha carving 2.5 cm high	ornament	2
elephant carving 9 cm high	ornament	?
Asian Elephant ivory		
Buddha carving 2.5 cm high	ornament	19
on *tror ou* (instrument)	music	?
cigarette holder	cigarettes	10
earring	jewellery	28
finger ring	jewellery	25
flower bud 5 cm	ornament	16
necklace (beaded)	jewellery	35
Tiger carving 15 cm long	ornament	?
tusk, poor condition	decoration/carving	100/kg
Banteng *Bos javanicus* horns	decoration	100/pair
Common Palm Civet		
Paradoxurus hermaphroditus (stuffed)	decoration	16
Gaur *Bos gaurus* horns	decoration	70/pair
Green Peafowl *Pavo muticus* feathers	decoration	?
Hog Deer *Axis porcinus* antlers	decoration	50/pair
antler-handled knives	knives	10
Python *Python* spp. skin		
drum 30 cm diameter	music	8
on *tror ou* (instrument)	music	11
Schomburgk's Deer *Cervus schomburgki*		
antlers	decoration	10/pair
Sun Bear *Helarctus malayanus* nail	ornament	3
Thamin *Cervus eldii* antlers	decoration	100/pair
Tiger *Panthera tigris* nail	ornament	5
skull	decoration	70
tooth	ornament	67
Tortoise (various spp.) (stuffed)	decoration	25
Wild Asiatic Buffalo *Bubalus arnee* horn		
(faked as rhino horn)	decoration	60
Wild Pig *Sus scrofa* tusk	decoration	25
tusk Buddha carving 2.5 cm	ornament	16

Table 2. Wildlife products for retail sale in souvenir shops in Phnom Penh, February 1994.
Survey by Martin

Animal	Average price (US$)	End market
Cobras Lapidae	8/kg	Phnom Penh
Fishing Cat *Prionailurus viverrinus*	10 each	Phnom Penh, Thailand
Monkeys, small, (various spp.)	2 each	Phnom Penh, Thailand
Pigeons (various spp.)	0.80 each	Phnom Penh
Pythons *Python* spp.	3/kg	Phnom Penh, Thailand, Vietnam
Tortoises (various spp.)	2.2/kg	Phnom Penh, Thailand, Vietnam

Table 3. Live animals for retail sale at West Neak Lung, February 1994.
Survey by Martin

SPECIES FOUND IN TRADE

Bears

Bear parts, including gall bladders from Sun Bear *Helarctos malayanus* and *Ursus* spp., were seen for sale (Tables 1, 2 and 4) and three bear skulls were on sale at O Russei; in Lomphat, a soldier was observed offering a bear gall bladder to one author's driver: it was said to be worth US$100 in Phnom Penh. Six or more bear skulls were displayed for sale at O Russei in May and December 1995 (Anon., *in litt.*, February 1996). Broad and Phipps (1994) recorded parts of Asiatic Black Bear *Ursus thibetanus* and Sun Bear in trade in Cambodia (Table 6).

Birds

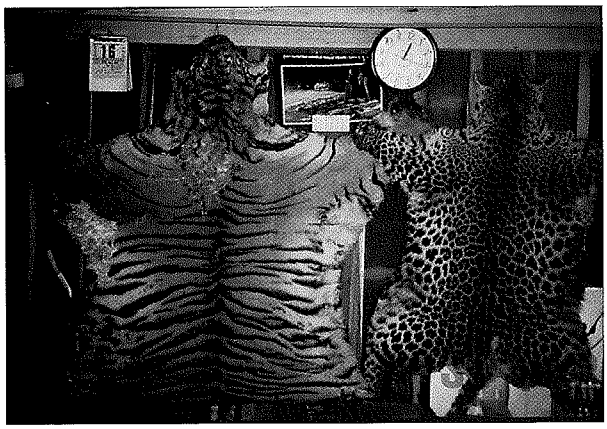
The trade in live birds appears to be quite limited, with birds such as parakeets and mynas being sold locally or for export to Thailand by individuals, rather than in large commercial shipments (Phipps, 1994a). Pigeons and 25 doves were seen on sale at Neak Lung and pheasants and parakeets at Poipet markets in 1994 (Tables 3 and 5). The doves were on sale for R1000 per bird (US$0.40) and the stallholder reported selling an average of 10-15 doves a day. A wholesale trade from Neak Lung in pigeons, herons, ducks and watercocks goes mostly to Phnom Penh for food and is managed by Vietnamese. Mundkur *et al.* (1995) also mention a trade in water birds for restaurants and in Siem Reap rails, egrets, tree ducks and doves were available for local consumption (Salter, 1993).

Sixty Baya Weavers *Ploceus philippinus*, 150 Scaly-breasted Munias *Lonchura punctulata*, 20 Black-headed Munias *L. malacca* and 60 Barn Swallows *Hirundo rustica* were being hawked outside a temple opposite the Royal Palace gates in Phnom Penh in April 1994, apparently for release by Buddhists (Broad, 1994). Large numbers of swallows, weavers and Yellow-breasted Buntings *Emberiza aureola*, and a smaller quantity of Oriental Reed Warblers *Acrocephalus orientalis* were seen in the capital in December 1995, on sale for release by Buddhists. Many of these birds were in poor condition (Anon., *in litt.*, February 1996). Brahminy Kites *Haliastur indus* are often trapped, possibly to be kept as pets (Anon., *in litt.*, February 1996).

Green Peafowl *Pavo muticus* feathers were seen on sale in Phnom Penh (Table 2), at Ban Long Central market six complete peacock tails were on sale at one shop, and dead peacocks were reported as being regularly exported to Vietnam by one shopkeeper at the market, who had a stuffed specimen on sale for US$100. The only use of peacocks is decorative. Dried coucals *Centropus* spp. were noted as being very common (in quantities of over 100) at O Russei market during a visit there in December 1995 (Anon., *in litt.*, February 1996); they are used for medicinal purposes (S. Broad, pers. comm., 1996).

Cats

Reliable estimates of the number of Tigers living in Cambodia are unavailable and there has been no formal survey of the country's Tiger population. Tigers no longer raid villages, according to inhabitants of Lomphat, interviewed in 1994, but in another part of Ratanakiri Province, local people still kill Tigers with traps when they raid villages, keeping the animals' skins and bones until a businessman visits the village: in April 1994, villagers in Ratanakiri had killed two or three Tigers.



People from Thailand make special trips to the border village of Poipet in northwest Cambodia to buy Tiger and Leopard skins.

Tiger products are found openly on sale in Cambodia. Two of the most important Tiger traders in O Russei market said that they had sold an estimated 33-43 dead Tigers. Traders at O Russei market and at Siem Reap and Poipet were seen selling Tiger parts, such as skins, bottled fat, bones, teeth and nails, observations similar to those made by Nash (1992c) and Salter (1993). One to two Tiger skins were seen on two separate visits to O Russei market during May and December, 1995 (Anon., *in litt.*, February 1996).

Prices for Tiger bone have risen markedly from the early 1980s, when Thais were said to have bought bones for US$40 per kg from O Russei. By 1991, market traders were selling bones for US$55 per kg, while average 1993 prices in the O Russei market were US$80-US$100 per kg, depending on bone size. The skeleton of the largest male Tigers in Cambodia weighs up to 20 kg, while that of an average adult Tiger weighs 12 kg-15 kg. In December 1993, a Cambodian soldier sold a whole carcass to a trader in Phnom Penh for US$1500 who in turn sold the nails and skin (after tanning) for US$900 to a Cambodian who shipped them to Thailand and Singapore. In 1992, a trader from Singapore bought Tiger bones for US$250 per kg in Koh Kong Province, the highest price known to have been paid.

Other reports indicate that hunters sell live Tigers for US$200-US$250 each to traders in Phnom Penh. The animals are sent to Vietnam, especially to Ho Chi Minh City, where they can be sold retail for as much as US$5000

Animal part	Use/cure in Cambodia	Average price (US$)
Asian Elephant *Elephas maximus* bone	carving	10/kg
bone ring	jewellery	1
ivory bangle	jewellery	40
ivory dice	game	6
penis piece	aphrodisiac	200/35 cm
tail	decoration	40
trunk	?	40/25 cm
tusk, small	decoration/carving	240/kg
Banteng *Bos javanicus* horns	decoration	?
horns with skull	decoration	120
Bear *Ursus* spp. gall bladder	fever	80
gall bladder (fake)	fever	20
Deer antler, deformed	decoration	500/5 cm
Deer penis (various spp.)	aphrodisiac	8
Gaur *Bos gaurus* horns with skull	decoration	40
Hare *Lepus peguensis* skin	diseases	4
Indian Muntjac *Muntiacus muntjak*		
antlers	decoration	30/pair
antler (fake, deformed)	decoration	?
Kouprey *Bos sauveli*		
horns with skull (female)	decoration	400
Leopard *Panthera pardus* skin	decoration	140
Lesser Mouse Deer *Tragulus javanus*		
antlers	decoration	5/pair
skull	decoration	5
Malayan Pangolin *Manis javanica* scales	medicine	12/kg
stuffed	decoration	60
Porcupine *Hystrix brachyura* and		
Asiatic Brush-tailed Porcupine *Atherurus macrourus*		
quills	decoration	?
skull	colds	2
stomach	tonic after childbirth	3.20
Reticulated Python *Python reticulatus*		
fat	skin disease	2/200 ml
gall bladder	fever (child)/dysentry	1.20
skin drum	music	10
skin on *tror ou* (instrument)	music	4.80
Saiga Antelope *Saiga tatarica* antlers	fever	36/pair
Sambar *Cervus unicolor* horns	decoration	40/pair
Serow *Naemorhedus sumatraensis* horns	decoration	52/pair
Siamese Crocodile *Crocodylus siamensis*		
skull	decoration	20
Snake skin (various spp.)	decoration	2
Sun Bear *Helarctus malayanus*		
bone	?	3.20/kg
nail	ornament	3
paw	decoration	50
skin	decoration/ medicinal	4/45 cm
skull	decoration	44
Thamin *Cervus eldii* antlers	decoration	55/pair
Tiger *Panthera tigris* bone	rheumatism	80/kg
head	decoration	120
nail	ornament	10
skin (badly tanned)	decoration	400
skin pieces	?	various
skull	decoration	20
tooth	ornament	80
Tortoise shell (various spp.)	postpartum tonic	2
Wild Asiatic Buffalo *Bubalus arnee* horn (faked as rhino horn)	decoration	2-50
Wild Asiatic Buffalo *Bubalus arnee* horn	decoration	?
Wild Pig *Sus scrofa* tooth	decoration	2
tusk	decoration	6

Table 4. Wildlife products for retail sale in the Poipet market, February 1994.
Survey by Martin

Animal	Use	Origin (province)	Average price (US$)
Crab-eating Mongoose *Herpestes urva*	pet	many	12
Fishing Cat *Prionailurus viverrinus* cub	pet	Siem Reap-Oddar-Meanchey	8
Monkey (various spp.)	pet	Pursat	40
Parakeet *Psittacula* spp.	pet	all	4
Pheasant *Lophura* spp.	pet	Pursat	80
Reticulated Python *Python reticulatus*	pet/skin	all	20

Table 5. Live animals for retail sale in Poipet, February 1994.
Survey by Martin

each (Galster, 1994). In 1993, the two main Tiger traders in O Russei market sold two to five live young Tigers to Vietnamese traders for US$400-US$500 each.

Leopards *Panthera pardus* were also noted in trade (Tables 1 and 4). In 1994, a small Leopard was for sale at US$30 at Ban Long Central market and two skins at O Russei market, while one or two Leopard skins were seen for sale at the market on two visits, several months apart, in 1995 (Anon., *in litt.*, February 1996). One live, year-old Clouded Leopard *Neofelis nebulosa* was on sale at the Central market of Phnom Penh and two skins from the species were on sale at the Central market of Ban Long for US$50 each, in 1994.

Crocodiles

Siamese Crocodile *Crocodylus siamensis* skin products on sale in Siem Reap come from crocodile farms in the town, but also from crocodiles in Tonle Sap Lake. Traders at Poipet market reported that live young Siamese Crocodiles were being smuggled to Thailand to supply crocodile farms (Nash, 1992c), but according to one trader this was no longer such a profitable activity as it had been prior to 1993. Before 1993, when the price of crocodiles was US$200-US$300 per animal, one trader claimed to have imported crocodiles from Vietnam and sent them to Thailand, via Phnom Penh. Nonetheless, Siamese Crocodile products were observed for sale on the outskirts of Poipet in 1994 (Table 4), and a trader in Ban Long claimed to ship crocodiles to Vietnam regularly.

A crocodile farm has existed in Phnom Penh since 1979, when the price of a three-metre adult was said to be the same as in 1994, namely US$5000. The farm reports selling about 300 live crocodiles a year, mainly to Thai and Malaysian customers, for whom it claims export permits can be arranged. Although Cambodia is not a Party to CITES, importation of this Appendix I-listed species to Thailand or Malaysia would likely be illegal. At the time the farm was visited, it held about 40 adult animals, believed to be *C. siamensis*, all taken from the wild around Battambang and Siem Reap.

Deer

Like cattle horns, deer antlers are prized in Cambodia as decorative objects and trophies, but also used in medicines. There were many deer parts for sale at O Russei, usually from animals killed in the mountainous northeast provinces of Ratanakiri, Mondolkiri and Stung Treng. The owners of a shop in Lomphat reported receiving 100-300 whole Sambar *Cervus unicolor* and other deer per month. At US$200-US$300 per set, naturally-shed Sambar antlers were the most expensive horns or antlers found on sale in Cambodia, apart from Kouprey horns. Five to ten sets of Sambar antlers, otherwise priced at US$100-US$200 per set, were seen for sale at the Central market of Ban Long, as were 14 sets of Thamin *Cervus eldii* antlers, at US$150-US$200 per set, and one set of Indian Muntjac *Muntiacus muntjak* antlers. As mentioned above, one stall was selling Sambar meat, together with Banteng meat, in quantities of about 20 kg each week. Four sets of Sambar antlers were selling at Hat Lek market for between Bt1000-Bt1800 (US$40-US$72) per set.

Officials in Cambodia reported that Thamins and Sambars were usually hunted with dogs in the wake of forest fires, which are sometimes started deliberately. Some hunters apparently use torches to hunt at night and can catch more deer on moonless nights.

Elephants

About 2000 wild Asian Elephants remain in Cambodia (Kemf and Jackson, 1995): only the males bear tusks. Elephant hunting takes place, apparently not generally for meat, but for ivory: at least in Ratanakiri Province, minority peoples have an ancestral taboo against eating elephant meat. Moreover, it would seem that live elephants are valued in Cambodia for work in the forests, including for transportation of wildlife: one farmer, who had bought a young elephant for a sum equivalent to US$250, had been offered 18 times that amount for the seven-year-old animal in 1994, but refused to sell it. Several individuals in Ratanakiri, however, mentioned the practice of killing elephants to draw Tigers to the carcass.

Elephant ivory has been carved in Cambodia for at least several hundred years, although only a few study the art of carving now. Over recent years, very little raw ivory has been available for this purpose at the Beaux Arts University, according to Por Tieng Doy (pers. comm., 1994). At the *Centre de la Production d'Objet d'Arts Cultures*, where the art of ivory carving may also be learned, students used only two kilogrammes of ivory in 1993, and in Battambang, two ivory craftsmen, who claimed to be the only ones in the town, reported using four to five kilogrammes of ivory each year.

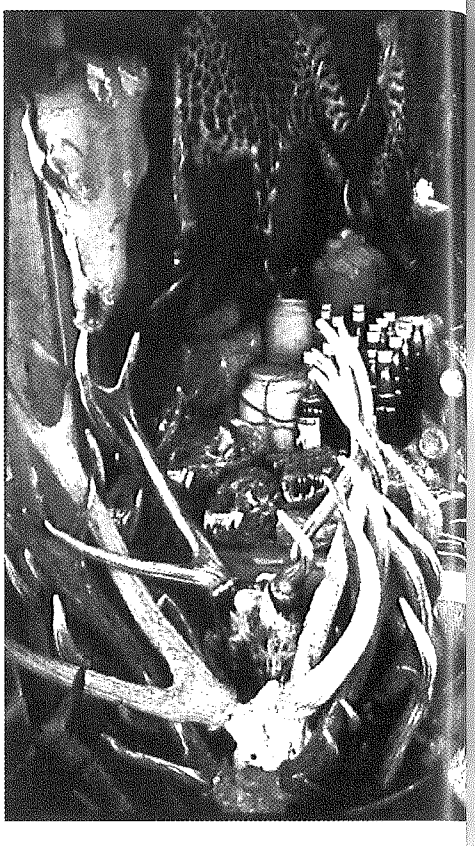
The 30 or so craftsmen carving elephant ivory in and around Phnom Penh, work part-time owing to the scarcity and high cost of the tusks, most of which are reported to come from wild elephants in northeastern Cambodia.

Carvers in one of the larger ivory workshops spend approximately 16% of their working time carving ivory, according to the manager. Most ivory carvings are ornamental and small (Table 2), which allows them to be easily concealed in luggage belonging to foreign buyers, who are said to be mainly Thai, Japanese and French.

Good quality ivory was purchased by carvers for the equivalent of US$340 per kg in 1992 and US$400 per kg in late 1993. Small, cracked pieces were only US$100 per kg. In 1994, good quality ivory could fetch over US$400 per kg. Carvers in Battambang reported buying raw ivory from Phnom Penh and Lao PDR for US$150 per kg in 1991, a price which rose to US$350 per kg by 1993, and has since remained stable. Once carved, the ivory may sell to a retailer for US$5 for a flower bud ornament, for example, and in turn to the next buyer for US$15-US$25 retail. The large mark-up in Battambang may be owing to a small turnover in the shops, as Thai and American tourists are reported to buy directly from the carvers.

Among the retail shops visited in Phnom Penh in 1994, the most common wildlife product for sale was elephant ivory. Ivory was also for sale at Battambang, and at Poipet market and Siem Reap main market where it was also observed by Salter (1993). However, only two of the 77 jewellery shops in Siem Reap, and six of the many jewellery shops in Battambang were selling ivory (in the form of trinkets, such as flower buds and Buddhas). Not all the "ivory" encountered during research visits was genuine: in 1992, Nash observed fake "ivory" made from animal bone, for sale at Poipet market (Nash, 1992c).

Some ivory is said to be smuggled into Lao PDR by Cambodian traders, and then transported to Thailand. In 1992, Lao PDR officials confiscated a young elephant from Cambodian traders who were planning to sell it in Thailand (Baird, 1993b).



Despite the presence of land mines and the threat of ambush by the *Khmer Rouge*, people from all over Cambodia bring shot, snared or poisoned wildlife, by road to Poipet on the Thai border to sell for ready cash.

Fishes

Fish is the single most important source of protein in the Cambodian diet (40-60%) with average yearly consumption ranging from 13 kg-16 kg per person, an amount significantly lower than the 1960s average of 20 kg-25 kg (Phipps, 1994a). There is little information available on the scale of fishing, the species caught, or the trade, but it is known that large shipments of freshwater fish are reported by Cambodian fisheries officials to be delivered for sale in Thailand (Phipps, 1994a). High-value species are known to be exported to Thailand via Lao PDR (possibly 750 t-1500 t of fish to the latter in 1992) and, conversely, Cambodians import small quantities of fish from Lao PDR (Phipps, 1994a; Nash, 1992b; Baird, 1993b). Baird (1994) noted that the CITES Appendix I-listed Giant Catfish and Jullien's Golden Carp are traded to Lao PDR and Thailand, for food (Table 6).

Latterly, fishing methods likely to be more damaging than traditional methods have been introduced in Cambodia. Fishers have developed traps to catch fish in streams feeding the Mekong River. This is an apparently lucrative practice, judging from the R1 500 000 (US$600) paid for the seasonal fishery to provincial Stung Treng officials by three Cambodians owning the concession at the mouth of Hooai Talat stream. Similarly, one Lao trader reportedly paid the concession-owners an advance of Bt100 000 (US$4000) for exclusive buying rights for fish caught. The seasonal catch from this stream is 20 t-30 t, much of which may be sold to Lao traders. This type of fishery is said to have been in existence for the past three to four years (Baird, 1993b).

Cambodians are known to use explosives to catch fish along part of the border between Lao PDR and Cambodia, between November and June each year, when river levels are low. Many fish killed or injured by explosives either sink to the bottom or cannot be retrieved. Most of the fish caught by this method are exported to Lao PDR as dried or fresh fish (Baird, 1993b). King Norodom Sihanouk, Head of State in Cambodia, has announced his opposition to fishing with explosives in Cambodia and stated he would work to bring an end to this destructive practice (Casey, 1993).

Frogs

Frogs form a significant part of the diet in many of the poorer rural areas of Cambodia. However, heavy exploitation, combined with increased use of pesticides could quickly reduce populations of frogs (Phipps, 1994a). A remarkable seasonal trade of as many as 25 000

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bullfrogs, daily, across the border from Cambodia to Thailand was noted at the Poipet-Aranyaprathet crossing during October 1992. The trade appeared to comprise one species only of the genus *Rana*. Frogs were collected by hand in Cambodia and arrived, apparently every afternoon during the wet season, at the market in Aranyaprathet, where they were sold, live, to Thai middlemen. Thereafter, the frogs were transported by road to Bangkok, for sale there the following day (Nash, 1992c).

Monitor Lizards

Water Monitor Lizards *Varanus salvator* are caught in the northeastern provinces. They are sent to Phnom Penh, where traders at the O Russei market pay the equivalent of US$3.50 per kg, selling them to middlemen for US$3.80 per kg for export live to Vietnam (Table 1). Alternatively, they are transported from the northeastern catchment areas directly to Vietnam where the skins are processed; some may also be sent to China. According to the O Russei market traders, this species has recently become scarcer owing to the demand in Vietnam.

In Ban Long Central market, four monitor lizards *Varanus* were found on sale for R5000 (US$2) per kg. Their owner claimed to ship 100 kg of monitor lizards to Vietnam every fortnight, often himself, by truck. In Lomphat, one shop stocked seven monitor lizards at the beginning of the rains (May), in 1994. The vendor sold the animals to Ban Long, for R1000 (US$0.40) each.

Pangolins

Malayan Pangolins *Manis javanica* are obtained from most parts of Cambodia. Dried pangolins and their claws were observed on sale at O Russei market (Table 1) and three stuffed pangolins were also seen in souvenir shops in Siem Reap, for US$25 each. A trader at Ban Long Central market gave the price of live pangolins as R5000 (US$2) per kg. Five stalls were selling pangolin parts at Tuol Tom Pong market in Phnom Penh. Besides selling pangolin meat, one restaurant in Phnom Penh sells the scales and bottles of blood, said to improve the blood circulation of the taker (Table 7). Restaurateurs purchasing pangolins paid and then charged varying prices (Table 7). Thai customers pay Bt500 (US$20) for skin and scales, which has resulted in higher prices for these products in Cambodia.

Porcupines

Traders in O Russei market sell about 50 porcupines (Malayan Porcupine *Hystrix brachyura* and possibly Asiatic Brush-tailed Porcupine *Atherurus macrourus*) a day, a few being exported to Vietnamese and Cambodians living in the USA or France, but most being consumed locally (Tables 1 and 4). Seventeen porcupine stomachs (used medicinally - see section *Wildlife as medicine),* quills (for good luck charms) and skin (use unknown but probably medicinal) were seen for sale at O Russei. In 1993, an unknown number of porcupine gall bladders were found for sale at Siem Reap's main market (Salter, 1993), and 75 porcupine stomachs were observed on sale at Poipet market by Nash (1992b).

Rhinoceroses

Rhinoceroses are probably extinct in Cambodia and imports of rhino horn from neighbouring countries would be extremely surprising, since there is little demand in Cambodia for such an expensive medicinal product. Both Nash (1992c) and Martin were informed by wildlife traders that no authentic rhino products were available. Fake rhino horns made from cattle horn were observed on sale at Poipet in 1992 (Nash, 1992c) and at the same market in 1994, those made from Wild Asiatic Buffalo horn were priced from US$2-US$50. Martin observed no genuine rhino horn on sale in 1994, the only country in Southeast Asia surveyed by him for which this has been the case.

Slow Lorises

Slow Lorises were found by several investigators to be very common at wildlife sales points. They are sold dead, usually dried, for use in medicinal tonics. Bezuijen found that dried bodies of this species were the most numerous wildlife item on sale during his one-day visit to O Russei in 1993 (204 bodies), while Baird also recorded large amounts of these animals, dried, at the market (Bezuijen, 1994; Baird, 1993a). Slow Loris bodies were

still the most common animal product on sale at O Russei in 1994 (Table 1). In 1993, dried Slow Lorises were found at Siem Reap (Salter, 1993), and Broad found approximately 120 dried specimens on one day at O Russei market in 1994 (Broad, 1994). Slow Lorises, at least in Ratanakiri, are said to be hunted by minority tribes using crossbows.

Dried Slow Lorises *Nycticebus* stretched on sticks, O Russei market, Phnom Penh.

Snakes

Snakes and snake products were found to be the second-most abundant type of animal, after Slow Lorises, on sale at O Russei market. More pythons were traded at west Neak Lung market (Table 3) than any other animal. In 1993, 4.4 t of pythons were sold at Neak Lung, where about 20 stalls sell snakes during the rainy season, when they are most plentiful (Salter, 1993). Additionally, approximately 200 kg-300 kg of pythons, from every province in Cambodia, are sold in the capital every day. One shop in Lomphat reported selling 500 kg of pythons per year, although, by contrast, relatively few snakes were on sale at Neak Lung market in May 1994, at the end of the dry season. However, one King Cobra *Ophiophagus hannah*, amongst other cobras, was being offered for sale by a trader who reported selling a daily average of one or two cobras. Cobras on sale in Phnom Penh are caught mostly from Lake Tonle Sap, and some at least are destined for the table (Table 7).

Although used in local medicines (see section: *Wildlife as medicine*), most pythons are exported live to Vietnam. An unrecorded number of pythons were intercepted at the Vietnamese border by Cambodian Customs officials in November 1993. Cobras, too, are exported to Vietnam: during the wet season, trade is very active and at least 200 kg are exported daily from Phnom Penh.

Wholesalers in Phnom Penh pay the equivalent of US$2 per kg for pythons and US$12 per kg for cobras, and sell them for US$2.60 and US$13 per kg, respectively, for export to Vietnam. Python skin belts were observed on sale for US$8 at Neak Lung market, and bottles of wine containing cobras were displayed at US$7 each. The King Cobra observed at Neak Lung market was on sale for R15 000 (US$6).

Tortoises and Turtles

According to several traders, tortoises are collected all over Cambodia and brought to Phnom Penh. These are probably Elongated Tortoises *Indotestudo elongata* as this is the only species known to be native to Cambodia, but Impressed Tortoise *Manouria impressa* and Asian Brown Tortoise *M. emys* may also occur in Cambodia (Jenkins, 1995). Tortoise heads were seen to be common at O Russei by a visitor to the market in May and December 1995 (Anon., *in litt.*, February 1996). Tortoises have by far the largest turnover, by weight, among wildlife on sale in Neak Lung: in west Neak Lung, approximately 9.5 t of tortoises were sold in 1993, while in east Neak Lung, about 10 kg of tortoises were sold a day in 1994. They are transported by taxi or bus to Phnom Penh, from where two to four tonnes are exported daily, by boat, bus or taxi to Vietnam, and sometimes to Thailand and China.

There is some domestic trade in turtles: close to Phnom Penh, near Bassat Marsh, roadside cafes were visited by hawkers selling dead turtles with their eggs exposed. On two occasions in December 1995, 30 to 40 animals were seen, each weighing about 1 kg-2 kg. Presumably these turtles and their eggs do not keep for longer than a day, so it may be assumed that they were quickly sold (Anon., *in litt.*, February 1996).

Prices of tortoises and tortoise products at Cambodian markets are recorded in Tables 1, 2, 3 and 4. Prices of Cambodian softshell turtles were recorded as K400 per kg (US$0.57 per kg) to a Lao trader in February 1994, who sold them on for K1800 (US$2.60) per kg (Baird, 1994). Softshell turtles apparently fetch more in Stung Treng Province than in southern Lao PDR, however (Baird, 1994). Turtles (species unknown) were reported to cost R5000 (US$2) wholesale per kg in Lomphat in 1994. Cambodian and Vietnamese middlemen usually bought tortoises from collectors for three to four US dollars per kg, live weight, depending on quality, a price corroborated by investigations by Broad (1994).

Most chelonians exported from Cambodia are destined for Vietnam, at least in the first instance. One trader in 1994 reported shipping one tonne of chelonians from Cambodia to Vietnam every month, and one shop in Lomphat reported trading 500 t-800 t of turtles per year for sale to Vietnam. Mundkur *et al.* (1995) observed that chelonians, which comprised the majority of wildlife seen in trade in Stung Treng Province, were mostly exported direct to Vietnam. The volume of the trade was reported to exceed several tonnes per month. Customs officials at Moc Bai, on the border with Vietnam, reported confiscations of four large shipments of chelonians (1500 kg, 200 kg, 100 kg, and 300 kg) between November 1993 and the end of January 1994. All shipments were thought to have originated from O Russei market in Phnom Penh, and presumably represent a fraction of this cross-border trade.

Jenkins (1995) records Cambodian species of freshwater chelonians thought or known to be involved in local trade and for export. Hawksbill Turtles *Eretmochelys imbricata* have been noted in trade from Cambodia to Vietnam (*TRAFFIC Bulletin* 15(2):29).

Wild Cattle

Among the parts of several endangered species of wild cattle seen at Poipet market were two pairs of horns from female Koupreys attached to their skulls (Table 4). The owner said they had originated from Mondolkiri Province and they may have been the same horns seen by Nash in 1992 (Nash, 1992b). Although the Kouprey is one of the rarest species in the world, the price for these horns was US$400 per pair, much cheaper than other recorded prices in Southeast Asia. For example, as much as US$6000-US$8000 was asked for a female pair on the Thai-Lao border in 1991 (Srikosamatara *et al.*, 1992). It should be noted that horns of other animals, for example, Banteng, are used to fake male Kouprey horns, but to a trained eye, these are possible to discern (Nash, *in litt.*, February 1996).

Gaur *Bos gaurus* horns were found on sale in several locations visited by the authors (Tables 1, 2 and 4) and it is reported that considerable numbers of Gaur horns were on sale at O Russei during visits in May and December 1995 (Anon., *in litt.*, February 1996). One pair of traders in Lomphat claimed to have bought an average of 40-60 Gaur horns per month, between 1988 and 1993. They paid US$20 per set and had two sets of male Gaur horns at the time of the visit in 1994. At the Central market in Ban Long, two sets were on sale at US$50 for a female pair and US$150 for a male pair, while at Hat Lek market, five sets of male Gaur horns were on sale at prices between Bt4000 and Bt5000 (US$100-US$200).

Horns of Wild Asiatic Buffalo and Banteng were also observed on sale (Tables 1, 2 and 4). Several Banteng horns were noted at O Russei in May and December 1995 (Anon., *in litt.*, February 1996) and were reportedly traded in quantities of between 60 and 90 a month from 1988-1993 by just one couple in Lomphat. At the Central market of Ban Long, three sets of Banteng horns were on sale and also two sets of Wild Asiatic Buffalo horns at US$250 per set.

A dried meat stall at Ban Long Central market sold Banteng meat for R8000 (US$3.20) per kg in May 1994. The stallholders had 20 kg-30 kg of mixed Banteng and Sambar *Cervus unicolor* meat displayed and said they sold an average of 20 kg per week during the dry season (dried meat is only available during the dry season, as it cannot be cured during the wet months). Occasionally, buyers from Phnom Penh would purchase all the stock in the town at one time. Several individuals indicated that fresh meat was regularly available but none was seen by the authors, probably because the surveys were carried out at the end of the dry season when hunters are preparing for the planting season.

Other animals

Products from other species, including Serows *Naemorhedus sumatraensis*, Wild Pigs *Sus scrofa*, hares, toads, monkeys and otters were seen in varying quantities during investigations in Cambodia (see Tables).

Species	IUCN Status[1]	CITES Listing
Asian Elephant *Elephas maximus*	EN	I
Asiatic Black Bear *Ursus thibetanus*	VU	I
Asiatic Brush-tailed Porcupine *Atherurus macrourus*	LR	-
Banteng *Bos javanicus*	EN	-
Clouded Leopard *Neofelis nebulosa*	VU	I
Gaur *Bos gaurus*	-	I
Giant Catfish *Pangasianodon gigas*	EN	I
Indian Muntjac *Muntiacus muntjak*	-	-
Jullien's Golden Carp *Probarbus jullieni*	EN	I
Kouprey *Bos sauveli*	CR	I
Leopard *Panthera pardus*	LR	I
Malayan Pangolin *Manis javanica*	LR	II
Monitor Lizard *Varanus* spp.	-	I/II
Malayan Porcupine *Hystrix brachyura*	VU	-
Reticulated Python *Python reticulatus*	-	II
Sambar *Cervus unicolor*	-	-
Serow *Naemorhedus sumatraensis*	-	I
Siamese Crocodile *Crocodylus siamensis*	CR	I
Slow Loris *Nycticebus coucang*	LR	II
Sun Bear *Helarctos malayanus*	DD	I
Tiger *Panthera tigris*	EN	I
Tortoises Testudinidae	-	II
Turtles Emydidae/Trionychidae	-	-
Wild Asiatic Buffalo *Bubalus arnee*	EN	III

Table 6. Notable species in trade in Cambodia.

[1]IUCN categories: Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Lower Risk (LR); Data Deficient DD; Indeterminate (I); Insufficiently Known (K)
Source: IUCN (in press).

Uses of Wildlife in Cambodia

Wildlife as food

Cambodians are especially dependent upon fish as a source of protein, but pythons, tortoises and many types of mammal are also eaten. A food and nutritional survey conducted in Cambodia by UNICEF found foraging for wild food to be an important source of protein in the Cambodian diet (T. Hamano, UNICEF, pers. comm., 1994). The survey involved 50 households in 12 villages located in the provinces of Kompong Speu, Kg Chhnam, Prey Veng, and Kampot. The findings indicated that 87.5% of households foraged for wild protein and vegetables; 40.7% consumed wild-caught protein (fish, frogs, snakes, birds) three to four times a week, compared to 21.5% who consumed domestic meats (pork, beef, chicken) or eggs (20.1%).

Hunting for food was described to investigators during their visits to Cambodia. During the *Khmer Rouge* regime, hunting of birds, monkeys and deer for food was said to be common in the area around Siem Reap, where birds

Animal	Wholesale price (US$) (whole animal)	Retail price (US$) (per serving)
Frog and toad	2.80	3.20
Hare	8	4
Indian Muntjac *Muntiacus muntjak*	12	4
Lesser Mouse Deer *Tragulus javanicus*	26	4
Malayan Pangolin *Manis javanica*	12	4
Wild Pig *Sus scrofa*	8	3.20

Survey by Martin

Menu item	Purchase price	Sales price	Quantity sold
Restaurant A			
Cobra Elapidae	-	R30 000/kg	2 kg/day, in season
Indian Muntjac *Muntiacus muntjak*	R120-140 000/animal	US$6/medium dish	1-2 animals per day
Malayan Pangolin *Manis javanica*	US$8/kg US$4/bottle of blood US$11/kg scales	US$4/med. dish meat	occasionally
Wild Pig *Sus scrofa*	-	US$2/medium dish	1 every 3-4 days
Rabbit	-	US$4/medium dish	1-2 per day
Restaurant B			
Dove	R2500/bird	R10 000/large plate	20 birds/day
Indian Muntjac *Muntiacus muntjak*	R150 000/animal	R10 000/large plate	2-3 animals/day
Malayan Pangolin *Manis javanica*	R13 000/kg	R10 000/large plate	5 animals/day
Sambar *Cervus unicolor*	R15 000/kg	R10 000/large plate	5 kg/day
Rabbit	R10 000/animal	R10 000/large plate	5-6 animals/day
Wild Pig *Sus scrofa*	R45 000/kg	R10 000/large plate	4-5 kg/day

Survey by Phipps

Table 7. Wild game meat sold in restaurants in Phnom Penh, February 1994.

were still rare in the forests as a result in 1992, but are now becoming more common (Knuchel, pers. comm., 1994). In Ratanakiri Province, where hunting is not a popular activity, nor conducted on a professional scale, it is nevertheless necessary to supplement a diet based on farmed rice, with game meat. Elsewhere, animals may only be hunted if they damage crops, and in some places, for example Battambang, game meat can only be obtained if ordered from traders in advance. Most hunting takes place in the dry season, which is also the season for curing meat, but hunting for subsistence continues during the wet season. Surplus meat from hunting can sometimes be sold, depending on the area, to teams of businessmen visiting villages to buy domestic cattle, pigs and game meat.

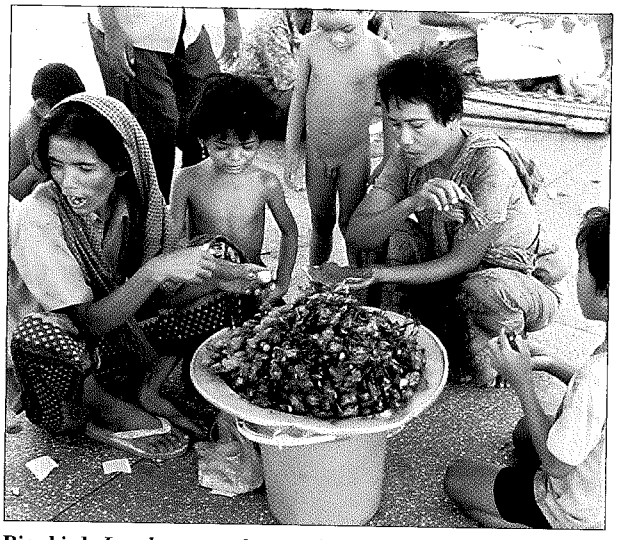
Dried Sambar and Banteng meat is mainly destined for Phnom Penh, where several restaurants specialize in wild animal meat. The restaurant managers usually go to market several times a week to buy meat; occasionally they buy a live animal. The main markets visited by restaurateurs are reportedly in the provinces of Kompong Speu, Kompong Chhang and Kampot, close to the capital, but animals to supply the restaurant trade come also from Pursat and sometimes northeast Cambodia. Sometimes traders go to the restaurants to sell meat. The most popular meats were Lesser Mouse Deer *Tragulus javanicus* and hare, but Indian Muntjac, Sambar, Malayan Pangolin, cobra and Wild Pig were also available. At one restaurant, Cambodians preferred Indian Muntjac meat. Most meat is usually roasted or made into soup. The majority of customers of the restaurants surveyed were Cambodian, but included significant numbers of Thais and Taiwanese.

A wholesale trade in birds, as mentioned earlier, also supplies the food market in Phnom Penh. Many birds are caught in nets in the rice fields, especially in Preh Veng Province, east of the capital, and are sold to wholesalers for just US$0.05 each. They are plucked and cleaned, and about 700-800 are sold to restaurants each day during the dry season.

On the streets of Phnom Penh, vendors were seen selling deep-fried munias (rice birds) *Lonchura* for R150 (US$0.15) (Nash, 1992a). The birds are skinned, lightly battered and fried whole, served with salt, chilli paste and lime juice. Everything is eaten but the legs and feet. Since the birds were skinned, the species could not be identified.

Wildlife as medicine

Medicinal shops in Phnom Penh, particularly in O Russei market, carry a wide variety of plant and animal products for traditional medicinal purposes. Customers are both Cambodian and foreign nationals. Items used include dried Slow Loris carcasses, porcupine stomachs, pangolin skin and scales, python oil, antlers, Serow horns, Tiger and other cat parts, otter skins, elephant parts, and



Rice birds *Lonchura* on sale opposite the Royal Palace, Phnom Penh.

bear gall bladders and bile. Slow Loris bodies are immersed in a liquid which is drunk by Cambodians to give energy and as part of a tonic to be used after giving birth. Consumption of "loris wine", which is mass-produced and sold at many market stalls, has dropped recently since it is rumoured to be produced without loris ingredients. Python oil is used to treat wounds, and snakes are sometimes eaten for medicinal purposes, while porcupine stomachs, including their contents, are used to prepare a postpartum tonic for women. These are often faked, however, where the stomach of a pig is substituted and stuffed with herbs.

Outside the capital, three traditional Chinese medicine shops in Battambang had no unprocessed wildlife products, only patent medicines from China and Thailand, which purport to contain wild animal products.

Wildlife as decoration

Tiger teeth, fake rhinoceros horn, elephant ivory, deer antlers, as well as other trinkets made from bone and horn, are sold as ornaments and trophies, as well as charms. Elephant ivory is often carved into flower buds and Buddhas, but the most valuable ivory curios are made from parts of tusk broken off while an elephant forages. Because the animal has not been killed, the ivory is of great spiritual value, an explanation repeated by several different individuals. Investigators were shown a small but good quality Buddha pendant carved from this so-called "sacred" ivory. Similarly, deer antlers from Thamins and Sambars used as trophies by Cambodians fetch a higher price if lost or shed naturally by the animal. Horns of Gaurs and Wild Asiatic Water Buffaloes and porcupine quills are also prized.

Cat skins are on sale as trophies in Cambodia, but are not liked by Cambodians, and are usually bought by Thais.

Wildlife as pets

Wild animals, including Indian Muntjacs, Sambars and Sun Bears are occasionally sold as pets, especially to more affluent customers. Brahminy Kites on sale were possibly to be kept as pets, also (Anon., *in litt.*, February 1996). One live bear had been kept for three years by a shopkeeper visited in Ban Long and was habituated to human contact and used as a "watch dog" in the shop at night. In Ratanakiri Province, most bird hunting was said to be for peafowl, to be kept as pets.

Wildlife for export

Investigators were repeatedly informed of the export trade in wildlife from Cambodia, despite its illegality. Vietnam and Thailand were most frequently cited as export destinations.

Trade with Vietnam is doubtless facilitated by the fact that the population of Cambodia includes 1-2 million ethnic Vietnamese (Anon., 1996b; Famighetti, 1996). Most pythons are for live export to Vietnam, often for onward transit to China and Taiwan for the skin trade. Malayan Pangolins are also exported live to Vietnam, perhaps in quantities of 100 kg a day - one trader claimed to send 100-150 pangolins a month to Vietnam. Tortoises on sale in Phnom Penh are mostly for export to Vietnam and China, to be consumed there for food and medicine. Water Monitor Lizards are exported, either directly or via Phnom Penh, to Vietnam, and one trader alone was found to ship monitor lizards, cobras, tortoises and turtles to Vietnam in quantities of hundreds of kilogrammes a week. According to one shopkeeper in Ban Long, Slow Lorises are both imported from and exported to Vietnam, depending on supply and price. Live Tigers are sold to Vietnamese by traders in Phnom Penh, while bones are often exported to Vietnam or Thailand, and one trader was found to ship Tiger skins to Vietnam.

The border areas of Moc Bai in Svay Rieng Province, together with those of Ratanakiri and Mondolkiri Provinces, are the major crossing points into Vietnam. One regular trader in Ban Long gave the route for most wildlife shipments from Ratanakiri Province as Ban Long to Oyadau, to Pleiku, to Hanoi, to China (Phipps, 1994a). A Cambodian Customs official interviewed asserted that the ultimate destination of wildlife exported to Vietnam was China.

Cat and python skins on sale in Cambodia are bought chiefly by Thai customers, as are many deer and cattle trophies. Thailand was found to be the destination for one exported Tiger skin (see section: *Cats*), and the main customers of one shop in Battambang selling muntjac antlers and elephant bone carvings were Thais. Thais appear to be among the principal buyers of elephant ivory in Cambodia (as well as Japanese, Americans and French) while Cambodia was cited by Thai police as the main source for bears found in July 1991 at a farm in Thailand that sold bears and bear parts to tourists (Mills and Servheen, 1991). Thai and Chinese men purchase the

cobra wine found on sale at Neak Lung, and prices paid for pangolin skin and scales in Thailand have driven up the local asking prices in Cambodia. Fish and frogs from Cambodia were found to be exported to Thailand in considerable quantities.

Most of the wildlife exported from Cambodia to Lao PDR, including fish, is ultimately destined for Thailand (Phipps, 1994a), while the most common item sold in souvenir shops at Siem Reap, the *tror ou*, a traditional stringed instrument made using python skin, sold for US$4 in 1995, presumably to foreign tourists.

Enforcement

Jurisdiction responsibilities relative to the *Forest Practice Rules (Kret No. 35)*, which prohibit hunting of all wildlife and trade in "new" wildlife products, lie with the Forest Department, which employs about 400 personnel, just over half of whom are in provincial Forest Offices. Although the Forest Department has a Wildlife Protection Office in Phnom Penh, whose main function is to enforce the hunting ban, with a small staff of 14 only a minimal level of action is possible (Olivier and Woodford, 1994). Different Government agencies have different understandings of what is permissible and what is not and only the Customs Department in certain parts of the country appears actively involved in wildlife protection.

There appears to be some awareness of legal restrictions applying to the use of wildlife: some market stallholders were nervous about keeping live animals openly because of the risk of confiscation, and one Vietnamese lorry driver who had previously transported tens of tonnes of wildlife on a regular basis to Vietnam in 1993 had now switched to transporting fruit and passengers, claiming that Customs had begun to enforce the wildlife export ban in 1994 only; not only did they confiscate wildlife in illicit traffic, but also fined transporters R50 000 (US$20). Passage between Cambodia and Vietnam was said to have been very easy prior to the election of the current Royal Government of Cambodia in 1993, since when Vietnam has tightened regulations for Cambodians crossing its border. People living in border areas have an identity card and may pass freely, while others require a passport and visa. Since 1992, Customs officials have been checking the principal highway linking Phnom Penh with southern Vietnam and have intercepted some illegal exports. A Customs official reported that little wildlife was crossing the border now, owing to effective confiscations. According to Customs officials at Bavet, 600 kg of turtles and tortoises were confiscated at the Moc Bai border post during January 1994 and 1500 kg during November 1993 and, in 1992 and 1993, some 2000 monkeys, five large baskets and 128 sacks of tortoises, 14 large baskets and 15 sacks of cobras and two large baskets of ducks were confiscated.

One Cambodian Government official felt that cross-border wildlife trade reached a peak between 1991 and 1993, a period of political and economic instability. While some enforcement of wildlife laws, at least across the border to Vietnam, seems to be noticeable, it was found during research for this report that *Forest Practice Rules (Kret No. 35)* were apparently rarely enforced. During the 1994 survey, only one person commented that she might be breaking the law. Nobody else apparently feared talking about their trade or was reluctant to have photographs taken. Local people use numerous unofficial border crossings to Vietnam, and Customs officials will only stop wildlife shipments when three or more of them are on duty, since wildlife smugglers have a reputation for enforcing their will, and sometimes employ armed guards to escort their shipments. One trader, who admitted to shipping diverse types of wildlife to Vietnam in significant quantities, three times a month, noted that the Vietnamese were stricter about checking vehicles when fighting intensified between the Government and the Khmer Rouge, but that because the trader was ethnic Vietnamese, he was able to cross the border unimpeded. Customs officials have the power to confiscate only. No fines or other punishments may be administered directly, although fines may be imposed later by the courts. A substantial number of Vietnamese are located in Ratanakiri Province and in many ways the ties between provinces and their neighbours are stronger than those between provincial authorities and central Government (Phipps, 1994b). Moreover, disagreements between Cambodia and its neighbours persist as to the location of national borders. According to local officials, the Cambodian border control station at the official crossing from Ratanakiri Province to Vietnam is located five kilometres within the internationally-recognized Cambodia/Vietnam boundary (Phipps, 1994b).

The border between Cambodia and Thailand is said, by one former trader, to be crossed freely, although Nash (1992b) noted that in 1992 the Thai Government had moved to reduce wildlife trade at the Poipet-Aranyaprathet border point, at least.

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Wildlife products for sale at O Russei market, Phnom Penh.

Conclusion

Cambodia's diverse native fauna includes many which are rare or threatened, including Kouprey, Gaur, Thamin, Clouded Leopard, Tiger, Giant Catfish and Asian Elephant. Population data for these do not exist, but hunting for subsistence purposes is being replaced by a steadily increasing harvest for commercial trade in wildlife products, to supply markets in Thailand, Vietnam, China, and beyond. There is little doubt that some of the rarest mammals in Southeast Asia are threatened by over harvesting in Cambodia.

In March 1994, the first aerial wild animal survey ever in Cambodia was carried out in Mondolkiri Province to look for Koupreys. None was seen during 35 hours of flying, but other rare mammals were recorded: 97 Bantengs, 13 Thamins and four Gaurs; no wild elephants were seen. The authors of the survey report concluded, "These results suggest that the large mammal populations of eastern Cambodia have undergone serious decline, and that species such as wild cattle and, in particular, Asian elephant probably occur in the areas at far lower densities than previously estimated" (Olivier and Woodford, 1994). One Cambodian official, similarly, referred to a part of Svay Rieng Province which, before 1970, contained many wildlife species, including Tigers, Sambars and muntjacs, but which now was home only to Wild Pigs, rabbits and a few turtles. Nonetheless, investigators visiting Cambodia's wildlife markets from 1992-1995 repeatedly found incidence of trade, much of it for export, in many rare CITES Appendix I-listed mammals, in contravention of Cambodia's national legislation.

Besides the apparent decline in some wild mammal populations, the illegal shipments of fish out of Cambodia, in conjunction with destructive fishing practices, are particular matters for concern, since they relate to one of the most important staple foods in Cambodia, and inland fisheries are reporting a decline in catch-per-unit effort (Phipps, 1994a). The scale of reptile exports, many of which are CITES-listed, is seemingly largely unrestricted and may pose a major threat to certain species.

The paucity of information on the status of the country's wild fauna and flora is a major handicap to developing appropriate legislation for the effective regulation of the trade. Although some officials in Cambodia acknowledge the threat to Cambodia's native fauna posed by its large-scale trade, enforcement of wildlife legislation is a sensitive issue, and is impeded by villagers' feeling of distance from central Government and their dependence on wildlife resources for their livelihood. There is a need to improve the economic situation of rural Cambodians before they may be expected to turn from wildlife trade as a means of livelihood. This will not be simple in a country where alternative employment opportunities are scarce, as sizeable areas of Cambodia cannot be used for agriculture owing to the presence of land mines and there are few jobs in industry. However, given the high level of dependence of Cambodians on their native wild animals and plants, critical to the diets of the poorest of Cambodia's poor as well as for trade purposes, ensuring sustainable levels of use of Cambodia's natural resources is all the more necessary. Moreover, any potential long-term contribution to Cambodia's economy of a sustainable trade in wild fauna and flora is presently being diminished by smuggling of its valuable natural resources.

Recommendations

- Basic population data for species of fauna (and flora) in Cambodia are lacking: more surveys of wildlife are needed, especially in parts of Cambodia not yet investigated, and also in the provinces where the highest density and diversity of wildlife are thought to exist, for example, Ratanakiri, Pursat and Stung Treng.

- Given the lack of financial and human resources, the Government should focus its attention on improving the morale and capacity of existing wildlife protection staff if areas with threatened populations of wildlife are to be better protected.

- Existing forestry and fishery legislation needs to include a conservation focus and provide effective regulation of any wildlife harvests permitted. Jurisdiction needs to be more clearly defined and interagency co-operation expanded.

- In the longer term, new legislation will be needed to strengthen the hunting and wildlife trade laws with stronger penalties for those breaking such laws.

- Also in the longer term, the number of Government officers involved in implementing wildlife laws should be increased and their training in identification of wildlife species addressed.

- Cambodia should consider joining CITES as a matter of urgency, but this will only be an effective step if domestic legislation, allocation of manpower to enforce it, and Government commitment to the Convention are addressed.

- Education and awareness activities should be initiated first within the Government and then expanded to the general public. An education campaign to inform traders and consumers of the illegality of trade in live wild animals, game meat, and other animal parts which are not "old" stock is necessary, if compliance with the law is to be expected.

- The Government needs to place a higher priority on investigation of wildlife trade malpractice in order to improve law enforcement. To combat smuggling, the Government needs to co-operate closely with Lao PDR, Thailand and Vietnam.

Slow Loris *Nycticebus coucang*.

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Esmond Bradley Martin, PO Box 15510, Mbagathi, Nairobi, Kenya.

Marcus Phipps, National Representative, TRAFFIC East Asia-Taipei.

The Utilization of Seashells in the Philippines

A.M. Salamanca and M.G. Pajaro

Marine molluscs provide an important source of income to many coastal communities in the Philippines. As well as being utilized for food, specimens are in demand for ornamental and industrial purposes and form the basis of a major shellcraft industry. There are indications, however, that marine molluscs in the region have both diminished in number and size over the years. This has been attributed to increased consumption by a growing human population, a greater number of gatherers, and illegal fishing practices. Restrictions have been imposed to regulate the harvesting of marine resources, but these have been opposed by many traders who claim deleterious effects of such regulations on the socio-economic fabric of coastal communities. The basis of such a claim is that the majority of the fishers of marine molluscs are supported and sustained by the shell fishery. This report, based on the findings of surveys carried out in 1993/94 by the Haribon Foundation for the Conservation of Natural Resources, on behalf of TRAFFIC Southeast Asia, examines these claims by investigating the ornamental shell and shellcraft trade and its structure in key areas in the Philippines.

Introduction

The Philippines, an archipelago composed of over 7100 islands, has a rich marine environment. Approximately two-thirds of the human population of 62 million live in the coastal areas and many are engaged in various types of fishing (Anon., 1992a). Traditionally, marine animals and plants have been hunted or collected for food, medicine, ornaments and implements. This is especially true of many species of marine molluscs which have been put to varied uses, serving in particular as a medium of exchange, building material, and as ornaments and jewellery. Talavera and Faustino (1931) observed that commercial trade in shells from the Philippines in 1927-28 amounted to a total of 694 873 kg and included the mother-of-pearl-bearing Gold-lip Pearl Oyster *Pinctada maxima*, Black-lip Pearl Oyster *P. margaritifera*, Smooth Top Shell *Trochus niloticus*, Green Snail *Turbo marmoratus* and Chambered Nautilus *Nautilus pompilius*, as well as the Window-pane Oyster *Placuna placenta*. Most of these shells were shipped from the ports of Jolo and Zamboanga, to the USA, Spain, UK, Singapore, Hong Kong and Japan. During this time, there were no laws to regulate the collection of these shells and excessive harvesting is reported to have been commonplace.

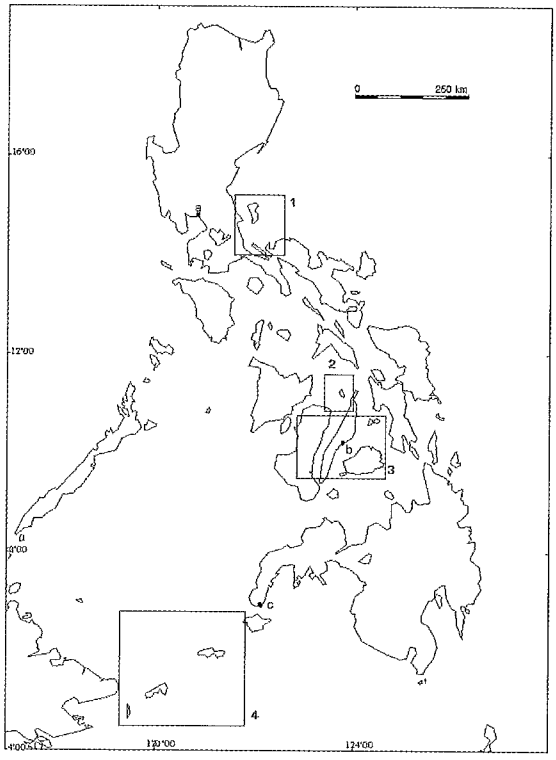
Figure 1. Map of the Philippines.
a. Manila b. Cebu City c. Zamboanga City
1. Polillo Islands 2. Bantayan Island 3. Cebu, Negros and Bohol 4. Tawi-tawi Islands and Sulu archipelago
Map not drawn to scale.

Currently, the Philippines is a major exporter of shells for ornamental and industrial purposes. Despite restrictions placed on the collection of certain molluscs in 1983 and 1990, export earnings from the country's main shell and shellcraft trading zones still amounted to an impressive US$12 430 324 in 1992. This included sales of frozen or dried meat of marine molluscs such as abalones *Haliotis*, and Crocus Clams *Tridacna crocea*, the meat of these taxa being of greater commercial value than the shell. The majority of CITES trade in giant clam meat and shells during 1987 to 1992 originated in the Philippines (Anon., 1995).

Ecological factors such as sedimentation are believed to contribute to population declines of giant clams; however, at present this threat appears minor in comparison with that posed by harvest for trade (Anon., 1995).

Methods

The surveys described below were undertaken in 1993/94. Information was gathered through direct field observation and interviews with gatherers, middlemen, exporters, fish vendors, local government officials and consumers. The sites visited included villages in the island groups of Polillo in the north-east, the central Philippines (Visayas) and the Tawi-tawi Islands and Sulu archipelago in the south (Figure 1). The selection of specific areas was based on secondary data obtained from various agencies, such as the Bureau of Fisheries and Aquatic Resources, Department of Trade and Industry, and local government units. Trade figures for giant clams were also obtained from CITES annual report data.



LEGISLATION

Five administrative orders have regulated the gathering of marine molluscs since controls governing shell collection and export were first introduced in the Philippines in 1935 (Ronquillo, cited in Mangaser and Lantican, 1987). Foremost among them is *Fish and Game Administrative Order (FAO) No. 11*, issued in December 1935, which continues to offer protection to several species by prohibiting the harvesting of specimens below a minimum size. This order affects the Black-lip Pearl Oyster (minimum 11 cm), Smooth Top Shell (minimum 8 cm across diameter of base), Hirose Shell *Trochus noduliferus* (minimum 5 cm) and Green Snail (minimum 9 cm).

More recently, over the past 10 years or so, further restrictions and conditions have been placed on the collection of shells. The principal laws in this regard are summarized in Table 1. *FAO 168*, issued in 1990, stipulates that a permit to gather and culture shelled molluscs must be obtained from the Bureau of Fisheries and Aquatic Resources (BFAR) in the Department of Agriculture, normally for a fee. A permit to collect is valid for one year; a licence to culture shelled molluscs is valid for five years and is renewable for a similar period. It is also important to note that, for the purposes of monitoring, *FAO 168* obliges shell collectors to submit to the BFAR a monthly statement of the number and species of molluscs gathered and a permit must always be carried for presentation to an inspecting officer, if required.

The Philippines has been a Party to CITES since November 1981. All seven giant clam species occurring in Philippine waters are listed in Appendix II (Crocus Clam *Tridacna crocea*, Southern Giant Clam *T. derasa*, Giant Clam *T. gigas*, Small Giant Clam *T. maxima*, Scaly Clam *T. squamosa*, Bear Paw Clam *Hippopus hippopus* and China Clam *H. porcellanus)*; in 1990, the export of these species from the Philippines was banned under *FAO 168*; the following year *FAO 168.1* allowed for limited export of Crocus Clam, but this order was suspended in April 1996 (*FAO 168.2*).

FAO Number	Subject	Status
157	Regulates the removal of the Window-pane Oyster *Placuna placenta* in Philippine waters; specimens less than eight centimetres in diameter are prohibited from trade. Bans use of mechanical rakes, dredges and motorized vessels in the collection of this species.	Effective 17/9/86
158	Prohibits collection, sale, transportation or possession of molluscs belonging to the *Triton* and *Cassis* genera.	Effective 17/9/86
168	Regulates collection, culture and exportation of shelled molluscs. Prohibits the collection of Southern Giant Clam *Tridacna derasa,* Giant Clam *T. gigas* and China Clam *Hippopus porcellanus*; collection of other giant clam species is allowed under permit. The order also prohibits the export of all CITES-listed shelled marine molluscs, and/or their derivatives, unless proof can be presented that they have been cultured.	Effective 22/5/90
168.1	Allows limited export of Crocus Clam *Tridacna crocea.*	Effective 15/9/91
168.2	*168.1* suspended indefinitely.	Effective 4/4/96
187	A revised schedule of fees for services rendered by the Bureau of Fisheries and Aquatic Resources (including the licensing of boats, fisher's licence and renewal of permit). Covers mother-of-pearl species, certain *Trochus* specimens, Green Snail *Turbo marmoratus*, giant clam *Tridacna* and Window-pane Oyster *Placuna placenta.*	Effective 16/5/93

Table 1. Summary of recent legislation governing the harvest and export of marine molluscs in the Philippines.
FAO (Fish and Game Administrative Order)

Structure of the Shell Trade in the Philippines

Methods of collection

Marine molluscs and other marine resources, such as octopuses, lobsters, seahorses, seaweeds and aquarium fishes, are mainly collected by local fishers on an opportunistic basis to supplement incomes. Most fishers from the islands of Bantayan, Bohol, Cebu and Polillo are from the Bisayan and Tagalog ethnic groups and, in the Tawi-tawi area, shell-gathering is dominated by the Badjaos. A number of Badjaos and Bisayans solely collect shells according to the specifications of a buyer, who will sometimes provide them with petrol and food expenses for their fishing trips. Badjaos inhabit the Sulu archipelago but are also found in Indonesia and Malaysia (Nimmo, 1972). Traditionally, they live along shorelines - mainly in houses raised on stilts, or on boats ("bancas") - and travel great distances.

Most shell gatherers, particularly males, learn their craft while very young. Some have their own paddled "bancas", while others may fish in groups on motorized vessels, a practice more common among the Badjaos. In recent years, Bisayans scattered around the Bantayan and Polillo Islands have been using diving equipment, known as 'hookah', that uses air supplied through a line from a surface compressor. This allows greater mobility and visibility, and increased time underwater - up to an hour or more per dive - to depths of 9 m to 30 m; two to three dives a day is the average. Deafness as a result of diving is not an uncommon occurrence among the divers in the areas visited and deaths resulting from decompression sickness and other complications are also said to be fairly common. Badjaos are reported to find the use of hookahs too cumbersome. The number of 'hookahs' in operation by other fisher groups is not known.

Gatherers using motorized vessels spend six to eight hours at sea, including up to two hours travelling to the fishing grounds. Those in paddled "bancas" may take three hours to reach fishing grounds, returning four or five hours later. Some collectors may spend 15-20 days at sea in Malaysian territories, travelling in groups of three to four boats. The Badjaos fish with their immediate families (husbands, wives, children and parents) while fishers from Bohol, Cebu and the Polillo Islands fish with other male family members or with neighbours.

Shells are gathered by hand and placed in a bag tied around the neck or waist of the collector. Shells attached to rocks - the Donkey's Ear Abalone *Haliotis asinina* for example - are prized free with a crow bar or "bareta"; a chisel-like tool, a "panil-it", is used to extract the meat of the Crocus Clam. Meat for local sale and consumption is preserved in brine; meat destined for export is chilled (abalone and Crocus Clam), or dried (abalone).

In the Polillo Islands during the monsoon (from November to February/early March), abalones are handpicked at night by lamplight, after coconut oil has been spread over the surface of the water to improve clarity and to reduce the movement of the water.

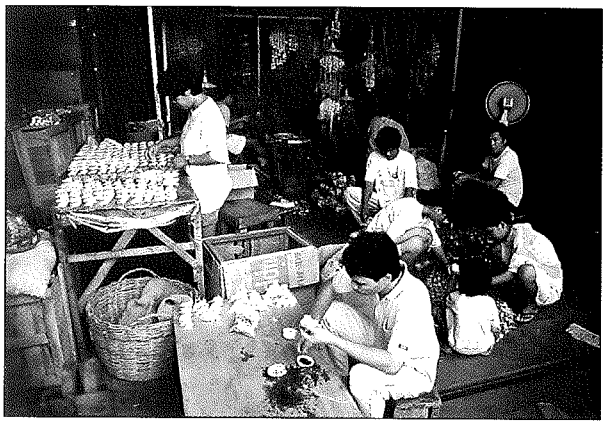
Role of women and children

Women and children assist in the collection of shells used in the shellcraft industry. These shells (which commonly include Strawberry Conches *Strombus luhuanus* and Ring Tops *Cypraea annulus*) are gathered from intertidal zones at low tide, and are cleaned and boiled before being made into finished products. In most instances where the shell of a mollusc is of more commercial value than its meat, the meat is removed for domestic or local consumption. Where the meat is difficult to extract - in the case of freshly caught smaller gastropods, for example - it is left to rot away so that the shell remains intact for sale.

In Santa Fe, Bantayan Island, women mostly specialize in making elaborate hanging decorations made up of the smaller variety of cowrie shells *Cypraea* (mainly Ring Tops), strombs *Strombus* and Bubble Shells *Atis naocum*. Some women buy the shells and other required materials from a middleman, who also purchases the finished product. As much as PhP50 (US$2) can be earned per finished item. Women are also hired by shopowners, who may pay them PhP15 a day on condition that they finish at least three pieces. Children may assist with simple tasks, such as drilling holes in the shells and stringing them together.

Middlemen

Those engaged in the direct buying of shells from gatherers and their subsequent resale to warehouse owners, manufacturers and exporters, are referred to in this report as the middlemen. At least 20 middlemen were noted to be operating in Bohol, two on the Polillo Islands and about eight on Bantayan Island. On Bantayan Island, the municipal mayor and the village chief of Santa Fe and Pantalan, respectively, are the main buyers of the finished shellcraft products, which they sell to exporters. On Tawi-tawi Island, there are approximately 10 warehouses (bodegas), eight of which are owned by native Tausugs, and the other two by villagers of Chinese descent. Those involved in the direct purchase of shells from gatherers in this area are all based in Bonggao, the provincial capital of Tawi-tawi Island.



Shell factory in Cebu, 1992.

Shellcraft factory, Santa Fe, Bantayan Island, Cebu.

Exporters

Most of the large-scale shellcraft manufacturers and exporters are concentrated in Cebu City and Zamboanga City. In Cebu City, there are 93 known buyers and exporters of raw and processed seashells who, in 1992, earned a total of US$11 685 666 (Anon., 1992b). All the shellcraft companies in Cebu City rank among the top 1000 export earners in the country. Some of these companies also export handicrafts made of bamboo and rattan; in these cases, it was not always possible to establish the percentage of earnings that were derived from shells or shellcraft. Interviews with staff at the main shellcraft exporting company in Cebu, however, revealed that, of the 80% of recent sales relating to shells, 70% were shellcraft products and 30% were raw shells; the remaining 20% of products sold were crafted from wood.

Zamboanga City has 26 companies known to be involved in the export of shells and shellcraft. Data on the value of export earnings, available for only 17 of these establishments, amounted to a total of US$744 657 in 1992 (Anon., 1992c).

Exporters in the cities of Zamboanga and Cebu, who are mostly of Chinese descent, are often engaged in the trade of other marine products, such as dried seahorses, sea cucumbers, octopuses and squid. They normally pay out cash advances to those middlemen who can assure them of a steady supply of the raw materials.

The number of shell and shellcraft exporters in Manila is insignificant, perhaps fewer than five.

Status of the Shell Trade in the Philippines

Species exploited, collecting grounds and traditional uses

Although shell gathering takes place year round, the most favourable period is during the dry months, from March until May, when the waters are calm and clear. Shells are collected for ornamental use (for decorative purposes, bought in bulk and usually of low commercial value), commercial use (commanding a high commercial value by industrial consumers) or as specimens (quality shells which are in limited supply and command high prices) (Table 2).

Where previously Smooth Top Shells, giant clams *Tridacna gigas, T. elongata* and *T. squamosa*, Scallop Shells *Pecten pallum,* and Brown-lip Pearl Oysters were the most commonly exploited species (Anonuevo and Zaragoza, cited in Mangaser and Lantican, 1987), presently Tiger Cowrie *Cypraea tigris*, pearl oysters *Pinctada maxima, P. margaritifera* and *P. martensii*, Donkey's Ear Abalone and Nylon Shells *Paphia undulata* appear to be the species most heavily exploited in the Philippines for food, ornamental and shellcraft purposes, based on the observations of those interviewed. It is possible that declining stocks and an export ban on certain giant clam species since 1990 may have caused this shift in demand and a decline in exploitation.

Despite the 1990 ban, some Badjaos have been encouraged by buyers to collect giant clams and store the

shells in the hope that the ban will be lifted. A priest who visited a Badjao settlers site in Sabah, Malaysia, in 1990, reported seeing a pile of clam shells, some six metres high. The last strongholds in the Philippines of several species of giant clams - in the Sulu archipelago and southern Palawan - are reported to have been overharvested (Villanoy *et al.,* 1988).

The Giant Clam and Southern Giant Clam reach shell lengths of 100 cm and 50 cm, respectively (Anon., 1995). The other tridacnid species grow to a maximum size of 30 cm to 40 cm, with the exception of the Crocus Clam which reaches only about 15 cm (Anon., 1995). Specimen shells (Glory-of-the-Sea Cone *Conus gloriamaris*; Egg Shell *Ovula ovum*; Giant Triton *Charonia triton*, volutes *Cymbiola imperialis* and *Voluta aulica*, for example) are more commonly collected in Bohol and Mindanao. Being rare, they are collected regardless of their size, and even if the consignee has specified the desired size to a supplier. The smaller variety of cowrie shells - Ring Tops, for example - and Strawberry Conches *Strombus luhuanus* are said to be obtained from Cebu, while Bubble Shells are from Negros Occidental; all are used in the shellcraft industry. Some marine molluscs used for commercial and ornamental purposes would seem to be too small to allow harvesting to be sustainable - for example 5 cm-Tiger Cowrie specimens (adults grow to about 8 cm to 9 cm).

Currently, the most sought-after shells in the Philippines are the mother-of-pearl bearing Smooth Top Shells, the Gold- and Black-lip Pearl Oysters, and Green Snails. The nacre, or iridescent pearly deposit lining the inside of the shell is used to make buttons, jewellery, and cutlery handles.

The Philippines has the only major commercial fishery for the Window-pane Oyster shell industry, with over two million shell articles exported in 1985 (Wood and Wells, cited in Kay, 1995); species-specific information on numbers exported in later years is not available. The translucent shells, largely of *Placuna placenta*, are known commercially as 'capiz' shells, and used in the crafting of wind chimes and lamp shades and as a substitute for glass in the manufacture of windows. Most of the supply comes from the Western Visayas. In 1992, three companies in Central Visayas were listed by the Department of Trade and Industry as dealing mainly in Window-pane Oyster shells/shellcraft, with combined earnings for that year of US$887 153 (Anon, 1992b). One exporter based in southern Luzon employs 70 workers at his Window-pane Oyster shellcraft business.

Commercial farming of Window-pane Oysters has not been implemented (G. Mathias, pers. comm., 1996) although Talavera and Faustino (1931) record that fishers in Cavite, Luzon, gathered undersized shells which were then transferred to fenced off areas in shallow waters and left to grow to a marketable size. This allowed large numbers of the oysters to spawn at least once before they were harvested. This practice may have disappeared as demand increased and undersized shells became marketable. In 1986 regulations on the gathering and collection of *Placuna placenta* were implemented (Table 1).

Shell types	**Examples**	**Outlets/Products**
Ornamental shells	Mostly large, colourful, relatively cheap, plentiful. Giant clams Tridacnidae; Helmet Shells *Cassis* spp. and Triton *Charonia* shells.	Whole shells used as souvenirs and decorations
Rare or specimen shells	Few in trade; expensive; mostly narrow endemics and/or deep water gastropods*. Spider Shell *Lambis lambis* Glory-of-the-Sea Cone *Conus gloriamaris*; Egg Shell *Ovula ovum*; Giant Triton *Charonia triton*	Collectors' items
Shellcraft	a) Window-pane oysters *Placuna* spp.; b) small shells such as cowries *Cypraea* spp.; Helmet shells *Cassis* spp.; Strawberry Conch *Strombus luhuanus*; Bubble Shell *Atis naocum*	a) lampshades, windchimes; b) hanging ornaments, jewellery; a) & b) decorative souvenirs
Mother-of-pearl/ commercial shells	High commercial value. Top Shell *Trochus niloticus*; Green Snail *Turbo marmoratus*; Gold-lip Pearl Oyster *Pinctada maxima*; Black-lip Pearl Oyster *Pinctada margaritifera*	Buttons, inlay work, jewellery, shellcraft

Table 2. Examples of marine molluscs in trade and their uses. *Adapted from Wood and Wells, cited in Kay, 1995.*

**Families of molluscs particularly popular with collectors include cones* Conus *spp., cowries* Cypraea *spp. and murexes* Murex *spp.*

Food, medicine and other uses

Traditionally, marine molluscs are also used for food and as medicine (Alino *et al.,* 1990). The species most commonly harvested for their meat as well as for their shells include giant clams, melon shells *Melo brideripii* and *M. melo*, Spider Shells *Lambis lambis* and Donkey's Ear Abalones. It is not uncommon to see freshly caught specimens of these species for sale in the market with both shell and meat intact. In Infanta, Quezon, small stores selling miscellaneous items, known as "sari-sari" stores, sell giant clam meat, sliced and preserved in brine. During the monsoon in the northeast of the country, Crocus Clams, and other species of *Tridacna* that inhabit shallow waters, are more commonly gathered for food to augment the fisher's income when conditions further out to sea hamper efforts to harvest more valuable species. In other areas, giant clams are harvested and kept alive in shallow waters, for consumption as required and particularly on special occasions.

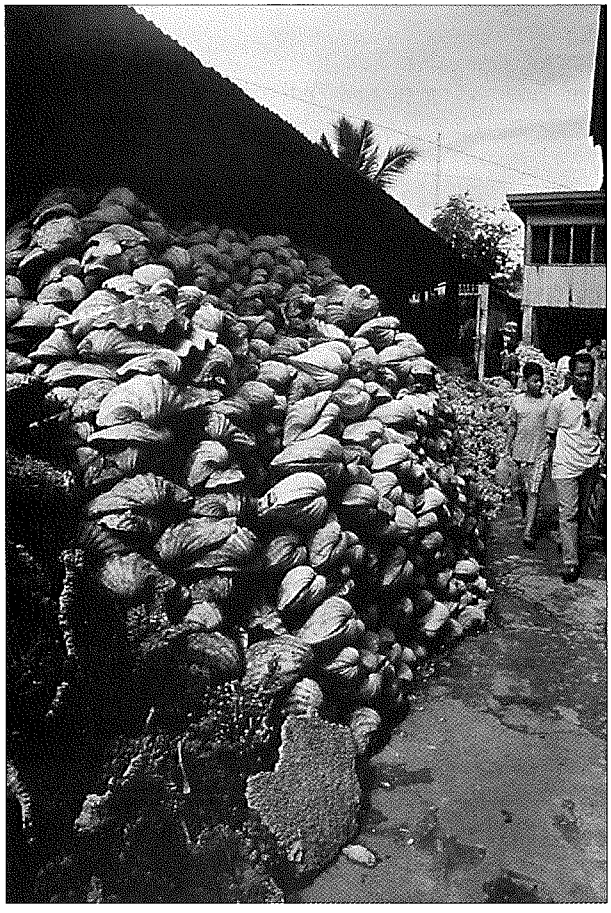
The Philippines is the most important exporter of giant clam meat recorded in CITES annual report data (Anon., 1995). According to BFAR, 39 050 kg of frozen Crocus Clam meat were exported to Japan in 1992, an export level similar to that reported for 1991 and approximately 10 000 kg more than was reported in the Philippines' 1992 CITES annual report (Anon., 1995). Juinio *et al.,* (1987), suggest that the 1991 exports of 41 t from the Philippines to Japan represented some 250 000 clams. Most of the meat imported by Japan is processed (Anon., 1995). The Crocus Clam is also collected alive for the aquarium industry.

Area of extraction	Frozen meat (kg) 91	92	93	Live (pieces) 92	93
Quezon	750	-	-	-	100
Palawan	25 100	32 480	50 469	-	100
Lubang Is/ Batangas	-	-	-	-	5840
Cebu	-	-	-	13 320	14 800
Zamboanga	530	1650	1200	-	-
Others	-	-	1300	370	1540
Total	**26 380**	**34 130**	**52 969**	**13 690**	**22 380**

Table 3. Volume of Crocus Clam *Tridacna crocea* exports, 1991-1993
- = no data available. Source:Licensing Division, BFAR National Office

In Cebu, the Tulip Shell *Fasciolaria trapezium* is gathered by fishers mainly for the purported medicinal properties of the mollusc's operculum (the bony plate closing the aperture of the shell when the organism is retracted). This is broken into pieces, threaded onto nylon string and worn around the fisher's waist to relieve joint pains in the pelvis induced by prolonged exposure to water. The meat of this species is also eaten.

Other shells of cultural value include *Seragra murex,* which is displayed in windows to ward off bad spirits; a bracelet made of shells of the Textile Cone *Conus textilis* is worn by women to break off magic spells that may be cast on them by rejected suitors. Mysterious legends relating to giant clams abound, particularly in the Tawi-tawi and Polillo Islands. Some believe that clam divers who have never surfaced have been engulfed by the species' gaping valves, as an offering to the gods.



Giant clam stocks at a warehouse in Zamboanga, 1992.

Volume and frequency of trade

As there has been no systematic monitoring of the volume of specimens harvested or of the main collecting areas, it is difficult to quantify the total number of shells being traded in the Philippines. The rate of exploitation depends upon the availability of the resource: in Polillo Islands, one of the few areas where Giant Clams and Crocus Clams are still abundant (Juinio *et al.,* 1989), as much as 10 kg of clam meat may be collected during one trip. About the same amount is gathered daily by transient fishers, like the Bisayans; if a buyer cannot be found, clams may be collected twice a week for home consumption. Some Badjaos in the Sulu archipelago specialize in gathering mother-of-pearl shells and pearls. A middleman from one of the Polillo group of islands delivers about two tonnes of assorted clams and some 200 kg of *Trochus* and Black-lip Pearl Oysters to a warehouse owner in Manila each month. This harvest decreases during the monsoon season.

Product	Locality	Weight (kg) 1990	1991	1992
Assorted raw seashells	Cebu	90 460	142 199	149 982
	Bohol	11 426	43 000	10 748
	Siquijor	10 942	-	16 176
	Negros Oriental	3 854	5 142	7 250
Total		**116 682**	**190 341**	**184 156**
Frozen abalone (excluding shell)	Cebu	-	1 992	2 875
	Bohol	-	3530	710
	Siquijor	-	4 106	2 979
	Negros Oriental	-	-	-
Total		**-**	**9628**	**6564**

Table 4. Production of shells and frozen abalone (excluding shell) in central Philippines, 1990-1992.
- = *no data available. Source: Anon., 1992b*

Destination	1990	1991	1992
South Korea	157 453	190 533	110 178
USA	147 910	149 640	63 417
Italy	100 387	63 797	45 932
Japan	85 752	30 420	29 155
Greece	35 750	24 645	20 842
Brazil	-	19 900	12 600
UK	4 151	6 850	12 339
Taiwan	2 001	1 500	8 000
South Africa	7 575	5 946	3 496
Singapore	38	15	3 385
Netherlands	5 250	4 400	3 200
Turkey	-	-	2 500
Belgium	3 050	505	1 455
Poland	-	-	1 060
Cook Islands	-	500	500
Germany	188	41	30
Thailand	-	-	30
France	180	6 445	3
Argentina	50	-	-
Australia	1 371	1 711	-
Austria	15	-	-
Canada	2	-	-
Cyprus	1 000	2 280	-
French Polynesia	2 670	3 685	-
Israel	-	200	-
New Zealand	130	-	-
Spain	42 665	19 005	-
not specified	5 000	-	1 000
Total	602 589	532 022	319 123

Table 5. Destination and quantities (kg) of seashells exported from Zamboanga City, 1990-1992.
- = no information available. *Source: Anon., 1992c*

Species	1987 Item/kg	1988 Item/kg	1989 Item/kg	1990 Item/kg	1991 Item/kg	1992 Item/kg	1993 Item/kg
Carvings							
Hippopus spp.	0/0	3536/543	1066/0	981/0	8513/0	3918/0	0/0
Hippopus hippopus	305473/13535	160916/13254	209821/0	273193/275	329822/4927	29165/0	2/0
Hippopus porcellanus	81101/15066	59362/10753	45758/4722	14043/500	36894/1900	2450/0	11/0
Tridacnidae spp.	1292/0	5984/0	9359/5900	1081/0	1908/0	19341/0	32/0
Tridacna spp.	0/0	0/0	0/0	0/0	1494/0	501/0	5/0
Tridacna crocea	3582/0	24883/0	3117/0	46498/50	7594/0	4614/0	0/0
Tridacna gigas	9770/12281	1811/918	275/1610	3633/0	144/5776	112/0	0/0
Tridacna maxima	6321/0	0/0	0/452	1904/0	289/5	0/0	0/0
Tridacna squamosa	63258/1972	44582/0	50877/1310	87162/0	73460/2753	9263/0	0/0
Shells							
Hippopus spp.	7521/0	0/0	9526/3500	11521/0	48575/2521	36371/0	25/0
Hippopus hippopus	326177/74359	210750/3563	172317/14138	749142/92894	559187/82346	144853/23990	3150/0
Hippopus porcellanus	104336/44880	81761/7787	69784/32775	149197/49631	137602/18210	41673/6995	90/0
Tridacnidae spp.	3584/570	54837/13372	49740/2099	34657/1760	84353/1950	11296/1700	460/0
Tridacna spp.	155/0	13/0	321/497	4142/0	510/19718	12434/0	48/0
Tridacna crocea	8090/0	6235/5082	12403/34700	34260/16865	20639/3500	59319/0	43202/0
Tridacna gigas	12189/44129	4522/61037	7425/16244	11513/63221	6996/27842	781/3600	2/0
Tridacna maxima	38626/0	273/0	13647/325	33621/125	7406/881	0/0	3/0
Tridacna squamosa	169016/16609	314083/829	169436/9131	266918/30370	324939/14024	67321/3428	224/0
Meat							
Tridacna crocea	0/11412	0/1500	0/6060	0/0	0/41180	0/29475	1500/65111
Tridacna squamosa	0/4470	0/0	0/0	0/0	0/0	0/0	0/0

0 = zero exports in this category

Table 6. Net trade in giant clams from the Philippines, 1987-1993. *Source: CITES annual report data*
Note that, with the exception of *Tridacna crocea*, the export of all giant clams from the Philippines was banned in 1990.

Until 1989, data on all shell exports from the Philippines were held by the national office of the Bureau of Fisheries and Aquatic Resources (BFAR) in the Department of Agriculture (DA), the body responsible for issuing export licences. After BFAR was directed to report to local government in 1989, only exports of Crocus Clams were monitored at a national level by this body. The DA's Bureau of Agricultural Statistics is now responsible for consolidating annual records for all fishery and agricultural products. However, these do not contain figures on shell and shellcraft production. Information on exports of raw and processed seashells for the period 1990 to 1992 was obtained from the National Statistics Office, a separate government agency. However, there does not seem to be consistency in the entries and classifications are very general. The only species being consistently monitored during the period covered by the survey and recorded by BFAR was the Crocus Clam. Exports of this species (live with shell and frozen meat) have almost doubled since 1991 when *FAO 168* was amended to allow exports[1] (Table 3). Complete data from major sources of Crocus Clam such as Quezon and Palawan were not available.

Data gathered from the local regional offices in Cebu City and Zamboanga City, the two major trade markets, also provide some idea of the extent of shell exploitation in the Philippines. Data gathering is on their initiative as they are not required by the national office to submit trade figures and hence any guidelines on the correct procedure to follow are not adhered to. Cebu province has served as the major market for shells in central Philippines during 1990 to 1992 (Table 4). Zamboanga City shows a significantly declining production of raw seashells for this period, from 602 589 kg in 1990 to 319 123 kg in 1992 (Table 5). The specific collecting sites or the sources of these volumes are not indicated in the export figures. It is assumed, however, that collection is not confined to the region, as most Mindanao gatherers (Badjaos) cover great distances during their expeditions. Also, exporters may receive goods from suppliers and traders outside the region.

CITES annual report data indicate that, despite the giant clam export ban in 1990, shell exports continued and in some species even increased, until 1992, when trade levels are shown to have dropped (Table 6). This decline is likely to reflect a clamp-down on trade following the release of a CITES Notification urging all Parties to refuse permits from the Philippines issued for Tridacnidae specimens, except those for Crocus Clam[1] (Anon., 1995).

It should be noted that the actual number of giant clam shells in international trade may be far higher, as many of the shells reported in trade are likely to have been whole

[1]*Permission to export Crocus Clams* Tridacna crocea *was suspended in April 1996.*

(i.e. two valves) (Anon., 1995). On the other hand, some double-counting of specimens is likely to occur in these statistics owing to the fact that some Parties report trade by number and some by weight.

Transport and trade routes

Generally, raw shells are bought from the gatherers by the middleman or a warehouse owner, both of whom may be involved in storing and/or in the manufacture of shellcraft. The shells are then sold to the local market or to an exporter. As well as being the major markets for shells, Cebu City and Zamboanga City serve as the main exit points in the country for shell exports. Shipments are often by sea; only items for speedy despatch and/or first class shell products are sent by air. In recent years, South Korea has replaced the USA, Italy and Japan as the biggest importer of raw shells from Zamboanga (Table 5). In Cebu City, shells are usually exported in processed form, and destined mainly for North America, Europe and Japan. No export data for this region were available.

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Southern Giant Clam *Tridacna derasa*.

The capital, Manila, mainly serves the local domestic market, where all types of shells (raw, specimen, ornamental, by-products) can be purchased in department stores, souvenir shops and pet shops (often as accessories for aquaria).

Species exploited		PRICES PhP	
		Gatherer	Middlemen
Helmet Shell	*Cassis cornutus*	40-50/pc	-
Nylon Shell (with meat)	*Paphia undulata*	3-5/kg	10/kg
(meat only)		60/kg	-
Black-lip Pearl Oyster	*Pinctada margaritifera*	80/pc (below 18 cm)	130-160/kg
		100/pc (18cm and above)	200-230/kg
Brown-lip Pearl Oyster	*Pinctada martensii*	20-25/pc	-
Crocus Clam	*Tridacna crocea*	25/kg	50/kg
China Clam	*Hippopus porcellanus*	2-3/pr (below 20 cm)	-
Donkey's Ear Abalone (meat & shell)	*Haliotis asinina*	14/kg	25/kg
(meat only)		200/kg	-
Tiger Cowrie	*Cypraea tigris*	1.50/pc	3-4/pc

Table 7. Range of prices for certain shell species paid to gatherers and middlemen in Cebu.
(PhP54.64-US$1). pc(s) = piece(s); pr = pair
Based on surveys of the authors

Species exploited		PRICES PhP		
		Tawi-tawi	Bantayan	Quezon
Black-lip Pearl Oyster	*Pinctada margaritifera*	90-230/kg	130-160/kg	20-80/kg
			80-100/pc	-
Brown-lip Pearl Oyster	*Pinctada martensii*	10-25/kg	40-50/pc	-
Crocus Clam	*Tridacna crocea*	not buying	not buying	25/kg
Smooth Top Shell	*Trochus niloticus*	120/kg	-	35-110/kg
Ring Top	*Cypraea annularis*	7.5/kg	-	-
Tiger Cowrie	*Cypraea tigris*	1-1.80/pc	1.50/pc	-

Table 8. Range of prices paid to fishers for commercial shell species in three localities.
(PhP54.64-US$1). pc = piece; not buying = middlemen not buying from the fishers; - = no data available
Based on surveys of the authors

Export declarations often exclude species-specific information. In Zamboanga, shells and coral are sometimes exported together in one container and declared in the export documents as "assorted shells and corals". It should be noted that the Philippines prohibits the export of coral (*TRAFFIC Bulletin*, 13(3):98). Export documents are not monitored regularly, which may encourage the entry of incorrect or incomplete data: ornamental and specimen shells may be classified as "seashells", and others as "assorted shells", for example.

Pricing

Prices and the mark-up of a particular shell are always determined by the buyers (middleman, warehouse owner and exporter) as they are the ones who have access to market information. Except for guidance provided by buying trends and prices fetched in the past, gatherers do not usually have knowledge of the value of a particular shell to traders and manufacturers in the major markets in Cebu City and Zamboanga City; this is particularly true of gatherers based on the islands or areas monopolized by a buyer.

Fisher families are said to live below the poverty line, many with incomes below PhP1000 (US$40) a month (Anon., 1992a). It is common practice, therefore, for the gatherers to receive cash advances from the operators, middlemen or exporters in order to feed their families, especially when the typhoon season starts or while they are away on long fishing trips. The fishers' dependence on loans from buyers ensures that the buyers dictate the prices. Fishers who survive on daily subsistence incur debts during periods when they are unable to fish (owing to poor health or inclement weather). This situation may encourage them to stay at sea for long periods and result in a shift to the use of more efficient fishing apparatus such as 'hookah' compressors and the consequent indiscriminate gathering of shells, regardless of their value or size.

Mother-of-pearl shells are the most sought-after shells in the Philippines and consequently the most expensive shells on the market. Table 8 compares the prices of mother-of-pearl shells in three regions with other shell species that are in demand. The inaccessibility of Polillo, in Quezon, may explain the low buying prices there compared to the other areas; it may also indicate the scarcity of this resource.

Based on interviews with free divers, only 3% to 10% of the average net earnings of PhP1000-PhP1500 a month is derived from shells. However, compressor divers can earn as much as PhP500 daily, of which only 10% comes from the sale of the shells. They claim that until as recently as the late 1980s, shells used to be their target species and formed a significant part of their incomes.

Perceptions of the Status of the Resource

The gatherers who were interviewed consistently stated that the populations of shell-bearing marine molluscs have diminished and that shell sizes have become smaller over the years. Compressor divers from Bantayan Island must now descend to depths of 18 m to 23 m to gather specimens - averaging one kilogramme of assorted shells - where 10 years ago they could expect to catch 25 kg a day each, at depths of only 1.5 m. A fisher from Katakian Island in Quezon province who once harvested clams measuring 60 cm in length, stated that most specimens now average 15 cm in length.

This reduction in quantity and size has been attributed to increased consumption by a growing human population, a greater number of gatherers and use of modern diving equipment by collectors, and reef damage as a result of illegal fishing methods such as the use of dynamite. Even the middlemen have noted that their supply per diver has decreased, although for some the total volume has not been significantly reduced since the number of suppliers has increased.

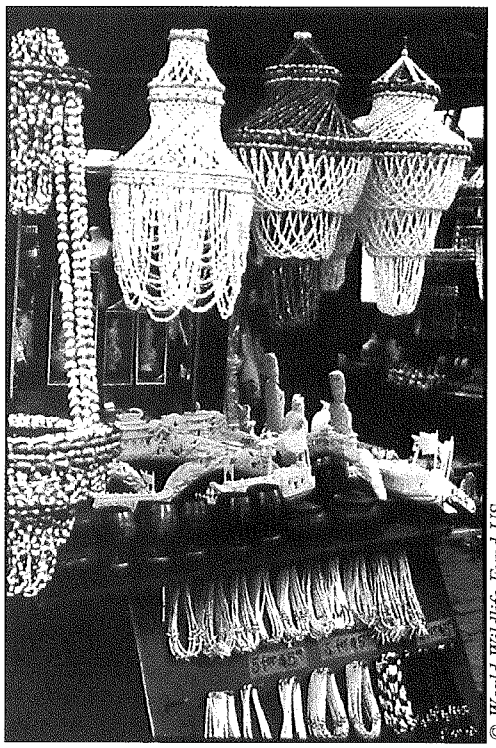
Exporters observed that their shell businesses are not as lucrative as they once were owing to trade restrictions, low demand and an estimated 27% drop in market prices. They reported that from 1962 to 1990 business had been good but had begun to deteriorate thereafter. Exporters also face stiff competition from Indonesia where lately, they report, many of their consignees have been obtaining their raw material.

Enforcement

Enforcement of current legislation banning giant clam exports has been problematic because it has been variously interpreted. Export permits for protected species were issued after institution of the 1990 ban, with CITES annual report data confirming that exports of species other than Crocus Clam (limited exports of which were permitted in 1991) continued during 1991 to 1993 (Table 6) (Anon., 1995; T. Mulliken, *in litt.*, 1996). Some Government personnel apparently understood the ban to exclude 'pre-ban stock' and so continued to issue export permits until 1992. According to the Department of Agriculture, over one million pairs of giant clam shells (other than Crocus Clam) inventoried in 1986 were held by traders as of 31 January 1992. At the beginning of that year, the CITES Secretariat issued a Notification (Anon., 1992d), urging Parties to refuse any permits from the Philippines issued for Tridacnidae specimens (excepting *Tridacna crocea*); the decline in exports in that year is likely responsible for the simultaneous drop in giant clam trade from the Philippines (Anon., 1995).

Despite the ban, some Badjaos were encouraged by the buyers to collect and store giant clam shells in the hope that the ban will be lifted: the middlemen reportedly advance money and provisions to fishers on the condition that the shells are sold to them; giant clams are consequently targetted by the Badjaos who consume the meat and stockpile the shells. Stockpiles of shells were observed during the course of this survey in Tawi-tawi and the Polillo Islands, with dealers explaining that they were waiting for further changes in the legislation. Exporters also have mechanisms for avoiding permitting regulations; for example, the authors have been informed that some smuggle clams to Hong Kong where they are repackaged for shipment elsewhere. Large quantities of Scaly Clams and Bear Paw Clams packed for export were observed at one dealer's premises near Cebu in December 1993 (S. Wells, pers. comm.).

The *FAO 168* requirement of collectors to submit to the BFAR a monthly record of species and number of molluscs caught, and to carry a permit at all times for inspection, is not adhered to. According to collectors interviewed, fishery officials do not require them to submit monthly statements, nor do they carry their permits, claiming not to be aware of this requirement.



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Discussion and Recommendations

Marine resources in the Philippines are heavily exploited by fishers who depend on them for their livelihood. Presently, many people are dependent, directly or indirectly, on the shell trade but for many fishers it would appear that shells do not comprise their main source of cash income. It is clear that the exploitation of marine resources is poorly monitored and the status of many species is unknown. Harvest and trade controls for giant clams have proven difficult to enforce, with large numbers of shells being exported during 1991 and 1992 despite export bans (Anon., 1995). Without effective measures in place to protect the remaining populations of giant clams and other exploited species, these resources will be exhausted. In order to earn more, the fishers are forced to collect more. To address this problem, the trade structure may need to be altered. One mechanism might be to empower fishers economically in order to enable them to market their own products at sustainable levels through co-operatives; they should also be encouraged to explore alternative livelihoods to augment their incomes.

Wells (1982) noted that between the late 1970s and early 1980s shells were collected by fishers almost to the point where fishing for food had been abandoned. The same was true of many traditional fishers who switched to harvesting coral as the demand for this resource grew (Wells and Alcala, cited in Salvat, 1987). The recent shift by shell gatherers to fishing for sea cucumbers, live fishes, lobsters, octopuses and seaweeds may be an indication of overexploitation of shell resources that have not been regulated, and/or a consequence of bans imposed on the exploitation of particular shell species.

Banning the exploitation of certain marine molluscs may not necessarily have helped to ease the pressure on those species, but may instead only have served to alienate the fishers from Government regulatory bodies. Harvest and trade regulations and the reason for their need should be made known to the collectors and should be considered by them as a means to secure their future rather than be viewed as a threat to their survival.

The creation of autonomy in the local government units and the devolution of the function of certain Government agencies has contributed to the weakening of monitoring procedures. Export data and permits are no longer submitted to the head office of the Department of Agriculture. As a consequence, there are no standard and systematic procedures to allow for monitoring the issuance of permits. Except for species covered by CITES, exports that are regulated by Philippine law are not always declared. The identification of species in trade is also lacking. Given these inadequacies, efforts should be made to improve and promote policy-making at the local level.

The future prospect for the shell trade in the Philippines was described by several traders/exporters as bleak because of resource depletion and the ban on the collection and export of certain species. These factors have contributed to an increase in demand for substitute species. Today, many fishers target species that were not formerly exploited, which may, in turn, place those species in jeopardy. These worrying trends call for urgent and concrete measures to be taken to allow the fisheries to be managed on an ecologically sound and sustainable basis, while ensuring that vulnerable marine molluscs in the Philippines are safeguarded.

Acknowledgements

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The CITES annual report trade data were provided by the World Conservation Monitoring Centre (WCMC). The map was prepared by Alastair Grenfell of WCMC Biodiversity Map Library.

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The sources of information from which the cases reported below are summarized, are cited at the end of each country section.

EUROPE

FRANCE

On 20 January 1996, Customs officials at Roissy airport seized 16 Radiated Tortoises *Geochelone radiata* (App. I), 9 Spider Tortoises *Pyxis arachnoides* (App. II) and 11 adult and several juvenile Madagascar Tree Boas *Sanzinia madagascariensis* (App. I), in transit from Madagascar to the Czech Republic. The seizure was made possible following a tip-off from German Customs officials. Two German nationals were arrested.

The Radiated Tortoises are being housed at Mulhouse Zoo, and the Spider Tortoises and the boas are at London Zoo and other collections. Over 30 Madagascar Tree Boas have subsequently hatched from pregnant female boas included in the shipment.

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The skull of a Philippine Eagle *Pithecophaga jefferyi* (App. I) (fewer than 200 of which are believed to survive in the wild) was among the haul of endangered wildlife recently seized in Wales, UK.

In mid-June 1996, Customs officers at Roissy airport seized two Indigo (Lear's) Macaws *Anodorhynchus leari* (App. I) that had arrived on a flight from Chile, bound for Singapore. A CITES permit accompanied the shipment correctly identifying the birds but falsely claiming them to be captive-bred and listed in Appendix II. The birds had been shipped from Chile, via Brazil (their country of origin). The specimens will be returned to Brazil. The case is being investigated.

Direction General des Douanes det Droits Indirects/ WWF Press Release, 13 March 1996; TRAFFIC Europe; London Zoo, pers. comm., 31 July 1996

GERMANY

On 25 April 1996, Customs officers at Frankfurt airport confiscated 137 live juvenile reptiles and primates including 12 Matamata Turtles *Chelus fimbriatus* and specimens of the following Appendix II-listed species: 15 Boa Constrictors *Boa constrictor*, 25 Green Iguanas *Iguana iguana*, 25 Spectacled Caimans *Caiman crocodilus*, 20 Dwarf Caimans *Paleosuchus palpebrosus*, 6 Rainbow Boas *Epicrates cenchria*, 17 Yellow-footed Tortoises *Geochelone denticulata*, 2 Pygmy Marmosets *Callithrix pygmaea*, 14 Saddle-back Tamarins *Saguinus fuscicollis* and 1 Moustached Tamarin *Saguinus mystax*. On inspection, it was clear that the animals had been collected from the wild.

Two Czech citizens had attempted to smuggle the animals in two suitcases from Peru, via Frankfurt, to the Czech Republic. Many of the specimens were in poor condition and at the time of writing half the number of tamarins have died. The surviving animals were placed in bona fide collections in Germany. The CITES Management Authority in the Czech Republic was informed of the incident and the case is being investigated by authorities in both countries.

German CITES Management Authority

ITALY

In February 1996, Customs officers and members of the Forest Corps seized 19 parrots from a Russian ship docked at Genoa port during a routine search for drugs; the vessel was in transit from South America, bound for Russia. The birds included 1 Great Green Macaw *Ara ambigua* and 2 Scarlet Macaws *A. macao* (both App. I), 6 Blue-and-yellow Macaws *Ara ararauna* and 10 Red-and-green Macaws *A. chloropterus* (both App. II); they are being housed at a private zoo.

In early June 1996, at the criminal court in Salerno (Campania), Willem Plomp, a Dutch national, was convicted of illegal trade in specimens of species in the following genera: *Poicephalus*, *Ara*, *Neophema*, *Cacatua* and *Trichoglossus*. Most of the species had come from Southeast Asia and Africa. He was found to have collaborated with an Italian dealer, who was also arrested. Plomp was sentenced to 20 months' imprisonment under Italian law no. 150/92.

TRAFFIC Europe

NETHERLANDS

On 25 May 1996, members of the police, General Inspection Service of the Ministry of Agriculture, and Customs, seized 445 CITES-listed orchids from the car of an inhabitant of Tilburg. The plants had been recently wild-collected. A subsequent search of the suspect's house uncovered order forms offering for sale a list of protected species; these lists had been disseminated at reptile exhibitions in Germany from where completed forms were faxed to the accused.

The botanical gardens *Hortus Botanicus* in Leiden identified the plants as belonging to the following orchid genera: *Aceras*, *Cephalanthera*, *Cypripedium*, *Dactylorhiza*, *Gymnadenia*, *Ophrys*, *and Orchis*. The suspect is in custody while the case is being investigated. The information which led to the seizure was provided by TRAFFIC/WWF.

TRAFFIC Europe

RUSSIA

On 29 March 1996, at the City Court of Petropavlovsk-Kamchatsky, the captain of a South Korean fishing vessel was fined US$100 000 and had 64 385 kg of crabs confiscated from his vessel after it was found on 11 March in the Sea of Okhotsk, in a region closed to fishing.

TRAFFIC Europe

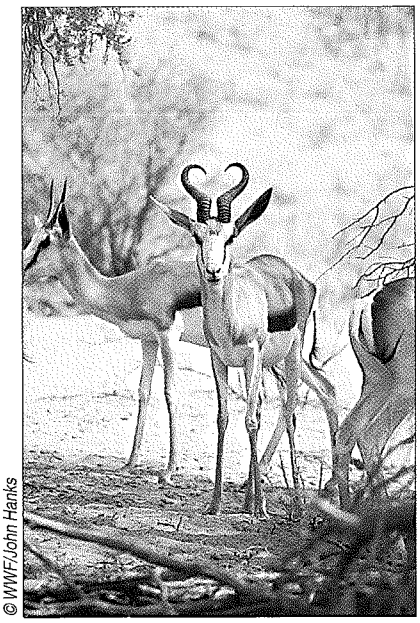
UK

On 9 May 1996, at Chester Crown Court, Nicolaas Peter Peters, a Dutch national residing in Wales, was gaoled for two years and ordered to pay £18 500 (US$27 775) costs. The sentence follows the discovery by police of hundreds of specimens of protected species at the home of Peters, a taxidermist, in August 1995. The raid resulted from an investigation by police and Customs officials, assisted by TRAFFIC and the RSPB.

Peters pleaded guilty to eight of 10 charges relating to illegal importation and exportation and evasion of duty. Among the 500 items recovered from Peters' premises were the skulls of: an Amur Tiger *Panthera tigris altaica*, a Babyrusa *Babyrousa babyrussa*, a Ring-tailed Lemur *Lemur catta*, a Philippine Eagle *Pithecophaga jefferyi* (all App. I); skulls of a Slow Loris *Nycticebus coucang*, 5 Common Squirrel Monkeys *Saimiri sciureus*, 5 Rhesus Macaques *Macaca mulatta*, 1 Lesser Galago *Galago senegalensis*, 5 Common Marmosets *Callithrix jacchus* (all App. II); plus the following specimens: 1 Allen's Swamp

© WWF/Martin Harvey

Young Ring-tailed Lemur *Lemur catta* (App. I) on mother's back, Madagascar.



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Springbok *Antidorcas marsupialis*.

Monkey *Allenopithecus nigroviridis*, 1 Stump-tailed Macaque *Macaca arctoides*, 2 Crab-eating Macaques *M. fascicularis*, and skins of 15 species of Philippine birds, at least 42 specimens of which are listed in CITES App. II. Peters pleaded not guilty to the export of the skull of a Gorilla *Gorilla gorilla* (App. I) and 3 chameleons *Chamaeleo* (App. II).

In his summing up the judge said that it was clear that Peters was aware of the relevant regulations and had been at pains to avoid detection. In view of the gravity of the offences, only a custodial sentence would be appropriate.

On 28 February 1996, 208 orchids (App. II) from Japan were seized upon importation into the UK at Heathrow airport, as the shipment was not covered by a CITES import certificate. The importer is a commercial nursery business in London which specializes in orchids. The plants have been identified by the Royal Botanic Gardens, Kew, as being rhizomes of 200 *Calanthe tricarinata*, 2 *C. bicolor* and 6 *Cypripedium japonicum*; the plants remain at Kew.

TRAFFIC International; H.M. Customs & Excise CITES Enforcement Team, Heathrow airport

© Royal Botanic Gardens, Kew

Consignment of orchid rhizomes from Japan, seized at Heathrow airport.

AFRICA

SOUTH AFRICA

On 7 March 1996, authorities seized 3 Radiated Tortoises *Geochelone radiata* and 1 Ring-tailed Lemur *Lemur catta* (both App. I) from a yacht that had sailed from Madagascar where the animals originated and from where they were purchased from locals. Four South Africans and one Malagasy were involved in the illegal import. The animals had been intended for sale in South Africa. The case is under investigation.

On 21 May 1996, KwaZulu-Natal Nature Conservation officials led police to a building in Durban that was reportedly being used to process animal skins. Inside they found the skins of Leopard *Panthera pardus* (App. I), Zebra *Equus*, Nyala *Tragelaphus angasi*, Springbok *Antidorcas marsupialis*, Reedbuck *Redunca*, Impala *Aepyceros melampus*, Duiker *Sylvicapra grimmia*, jackal *Canis* and python *Python*, as well as 25 Leopard paws with claws, 34 loose Leopard claws, 7 jackal heads and tails, 9 skins and 12 tails of Bushbaby *Galago*, 59 Genet *Genetta* heads and the wings and feathers of 11 Purple-crested Turacos *Musophaga porphyreolopha*. Most of the skins had already been cut into small pieces and are believed to have been destined both for traditional medicinal trade, or 'muti', markets in Durban, and for the manufacture of traditional clothing items. Three men were arrested. Up to 30 Leopard skins were seized during a raid on the same building last year.

TRAFFIC East/Southern Africa

ASIA

HONG KONG

On 15 March 1996, officers at Kai Tak airport seized 500 skin "plates" which contained skin samples of an estimated 3145 Leopard Cats *Prionailurus bengalensis* (App. II). The shipment, destined for Japan, had arrived from Beijing, China, with a valid export permit and the plates were individually tagged. However, as specimens of CITES-listed species also require import permits to enter the territory in accordance with Hong Kong's *Animals and Plants Protection Ordinance*, the shipment was returned to China. No charges were laid in Hong Kong as there was no evidence to suggest that the local consignee was involved in the shipping arrangement.

In early April 1996, two herbalists were each fined HK$150 000 and HK$250 000 (US$18 500 and US$31 000), respectively, for possession of medicinals purporting to contain Tiger *Panthera tigris* (App. I) and rhino (App. I) ingredients. The products were seized in October 1995 during raids of traditional medicine shops by Agriculture and Fisheries Department (AFD) officials: 27 packets of medicines were found in a dispensary in Aberdeen, and 76 packets of similar items were seized from a shop in Sham Shui Po.

On 27 May 1996, at the Eastern Magistracy, herbalist Ki Chor-on, was fined HK$425 000 (US$52 640) for possession of medicines claiming to contain ingredients of rhinos, Tigers and other species that are protected. AFD officials raided two branches of a medicine shop in Wan Chai last September. They found 1.17 kg pangolin *Manis* scales, some musk *Moschus* grain, bear gall-bladder powder and sea turtle shell. Some 85 packets of medicines said to contain Tiger bone and rhino horn were also seized.

Ki, who opened his first medicine shop in 1964, claimed he had bought some of the stock in question more than 10 years earlier at a time when the sale of these medicinals was not illegal. He admitted that he did not apply for a licence when legislation outlawing possession of such substances was introduced, in view of the small quantities that he kept. The court heard that it was unlikely that Ki would have been granted a licence. Ki pleaded guilty after being issued with eight summonses by the AFD. He was fined HK$25 000 on each of the five summonses which accused him of possessing endangered animal parts. He also was ordered to pay a total of HK$300 000 on three other summonses concerning the controlled medicines.

Relative to other felids, the Leopard Cat *Prionailurus bengalensis* is common across much of its range and is listed by Nowell and Jackson (1996) in Category 5b in Global Vulnerability Rankings (Categories 5a, b, and c denote cat species afforded the lowest conservation priority on a global scale). It was the most heavily traded cat species over the late 1980s, with the vast majority of skins originating in southern China.

The Leopard Cat population in China has been estimated at 1.5 to 2 million, of which 500 000 to 600 000 are *Prionailurus b. bengalensis*, preferred by the fur trade because of its superior pattern to the other subspecies *P. p. chinensis*. The biological impact of the harvest is unknown but believed to be significant. The Chinese Government wishes to implement a more effective management system. A report of a study of the ecology and management of the Leopard Cat in China for sustainable utilization is in preparation and the results will be used to design a management system which ensures that future Leopard Cat harvests are sustainable.

P. Jackson in litt. to J.A. Mills, 1996.
Nowell, K. and Jackson, P. (1996). Wild Cats: Status Survey and Conservation Action Plan. *IUCN, Gland, Switzerland.*

On 5 June 1996, a large number of orchid plants, which included Appendix I-listed species, and a shipment of live Asian Bonytongues *Scleropages formosus* (App. I) were seized by the AFD and Customs and Excise Department officials in two separate operations.

The orchids, which numbered some 3000 as yet unidentified specimens, were seized at a flower shop in Mong Kok by AFD who were acting on information. In the second incident, Customs officials intercepted a shipment of 183 Asian Bonytongues that had been imported from Thailand without a licence. The keeping of Asian Bonytongues is believed to bring good luck and prosperity to the owner. The fish have been handed over to AFD and both cases are under investigation.

On 11 June 1996, at Western Magistracy, a traditional Chinese medicine shop operator was charged under the *Animals and Plants (Protection of Endangered Species) Ordinance* with illegal possession of musk *Moschus* (App. I/II) grain and pods. The items were discovered during a raid on a shop in Sai Ying Pun, in November 1995, following a tip-off. The 115 kg of musk grain and pods that were seized represents the largest single seizure of musk the department has made (*TRAFFIC Bulletin*, 16(1):30). The defendant pleaded guilty to the charges and was fined HK$150 000 (US$18 500).

On 14 June 1996, at North Kowloon Magistracy, a man was sentenced to 15 months' imprisonment for the illegal sale of wildlife. The sentence follows a raid on a shop in Mong Kok, Kowloon, in December 1995, where authorities seized 2 Asiatic Black Bear *Ursus thibetanus* (App. I) paws, 3 live giant salamanders *Andrias* (App. I) and carcasses of 2 pangolins *Manis* (*TRAFFIC Bulletin*, 16(1):30).

This case is the first in which a defendant has been gaoled immediately following conviction for violation of the *Animals and Plants (Protection of Endangered Species) Ordinance*.

Agriculture and Fisheries Department Press Releases, 26 April; 29 May; 6/11/14 June 1996; TRAFFIC East Asia; South China Morning Post (Hong Kong), 28 May 1996

INDIA

A large number of skins of Tigers *Panthera tigris* and Leopards *Panthera pardus* (both App. I), as well as other species and related products, have been seized in India since the beginning of the year. These are summarized below.

9 January: 1 Leopard skin in Golbojhi village, near Dudhwa National Park (Uttar Pradesh). Three arrests.
15-20 January: 2 Leopards found with paws chopped off, 1 in Powai and the other near Thane (Maharashtra).
17 January: 3 Leopard skins (2 with bullet marks) near Rao Tularam Marg (New Delhi). Two arrests.
21 January: Skins of 1Tiger/6 Leopards in Chandrapur, near Nagpur, (Maharashtra). Eight arrests.
22 January: 3 m long Leopard skin with bullet marks in Ramnagar, Nainital (Uttar Pradesh). Two arrests.
28 January: 1 Leopard skin in Noida (Uttar Pradesh). Three arrests.
29 January: Skins of 1 Tiger/20 Leopards at New Japaiguri railway station (West Bengal). Believed to have originated in Assam, destined for Calcutta.
14 February: Skins of 3 Leopards, 1 Leopard Cat *Prionailurus bengalensis* (App. II) and 1 Masked Palm Civet *Paguma larvata* (App. III) near Manali (Himachal Pradesh). Believed to be the first case related to illegal wildlife trade in the State.
29 February: Skins of 1 Tiger, 1 Leopard, 2.5 kg of ivory and 6 antlers in Lakhimpur-Kheri (Uttar Pradesh). Six arrests.
1 March: 4 Leopard skins in Kotwali, Haldwani (Uttar Pradesh). Three arrests.
15 March: 1 large Tiger skin and 12.5 kg ivory near Pilibhit (Uttar Pradesh). Four arrests.
30 March: Skins of 3 Tigers/3 Leopards at Bahraich (Uttar Pradesh). Four arrests.
5 April: 1 Leopard skin in Muzaffarnagar (Uttar Pradesh). One arrest.
8 April: 12+ fake Tiger skins in Muzaffarnagar and Meerut. There have been reports of large numbers of fake Tiger skins entering the market in Uttar Pradesh.
16 April: 6 Tiger skins in Usmanpur, Delhi. One arrest.
29 April: Skins of 1 Tiger/20 Leopards near Bhubaneswar (Orissa). Three arrests.

Wildlife Protection Society of India

On 16 February 1996, following information provided by TRAFFIC, 700 birds were seized from five retail outlets in Crawford Market, in Mumbai, Bombay. The birds included Northern Pintail *Anas acuta*, Common Teal *Anas crecca*, Alexandrine Parakeet *Psittacula eupatria* (App. II), Black-headed Munia *Lonchura malacca*, Red Avadavat *Amandava amandava*, Baya Weaver *Ploceus philippinus* and Hill Myna *Gracula religiosa* (all App. II/III and protected in India under the *Wildlife Protection Act, 1972*, and their collection and export banned). The birds were sent to Jija Mata Udhyan Zoo. Fines of up to Rs.2000 (US$65) were imposed on the vendors.

On 17 April 1996, the Union Ministry of Environment and Forests, acting on information from TRAFFIC, seized some 230 Alexandrine Parakeet *Psittacula eupatria* chicks during a raid on a house in Ludhiana, Punjab. The owner, reported to be a major dealer in Alexandrine Parakeets, was arrested. Collection and export of Alexandrine Parakeets is banned in India. Chhatbir Zoo is providing a temporary home for the birds.

TRAFFIC India

JAPAN

On 27 September 1995, Gou Kawai and Tadashi Ishiwata were charged with the illegal sale of Asian Bonytongues *Scleropages formosus* (App. I). Kawai had sold 12 specimens to Ishiwata without the requisite permit after having smuggled the fish from Singapore in June 1995. Ishiwata bought the Asian Bonytongues in the knowledge that they had been smuggled. They were each sentenced to eight months' and six months', respectively, and ordered to pay ¥400 000 (US$4000).

On 27 January 1996, at Narita airport, Customs officers and Chiba prefecture police arrested a man as he attempted to smuggle 39 rare tortoises into the country from Bangkok, Thailand. The animals were concealed in a large bag and included 20 Indian Star Tortoises *Geochelone elegans* and 19 Aldabra Giant Tortoises *G. gigantea* (both App. II). The suspect reportedly intended to sell the reptiles to pet shops. Police are investigating whether this person was involved in similar smuggling activities following the discovery of 26 previous journeys between Thailand and Japan by him over the past two years.

In February 1996, a policeman in Osaka arrested a person on suspicion of having illegally imported 5.5 t of Bryde's Whale *Balaenoptera edeni* (App. I) meat from South Korea in December 1995. The meat was discovered being loaded onto a truck in Osaka port.

On 8 February 1996, Kanagawa prefecture police arrested a pet shop dealer on suspicion of importing Indian Roofed Turtles *Kachuga tecta tecta* (App. I). He had attempted to import some 400 turtles from Bangladesh in December 1995: 319 Indian Flapshell Turtles *Lissemys punctata* (App. II) which had been voluntarily abandoned, 80 Indian Roofed Turtles, the latter declared as *Kachuga tentoria* (not listed in CITES) and several Burmese Eyed Turtles *Morenia ocellata* (App. I), declared as Peter's Peacock Turtles *Morenia petersi* (non-CITES). Because the Customs officer was unable to identify which species was which, the dealer was only charged with the illegal importation of Indian Roofed Turtles.

On 1 April 1996, Customs officers at Narita airport seized 54 Pancake Tortoises *Malacochersus tornieri* (App. II) from a man arriving from Bangkok, Thailand. He claimed to be carrying them for an acquaintance who, on 7 June, was also arrested by Chiba prefecture police. This man had allegedly purchased them in Karachi, Pakistan. The case is under investigation.

On 13 April 1996, at Narita airport, Customs officers and police seized 115 kg of tortoiseshell from the luggage of a person arriving from Singapore. During the summer of 1995, Customs officers at Osaka port seized 3000 kg of shell of Hawksbill Turtle *Eretmochelys imbricata* (App. I), contained in a shipment of coconut shells from Indonesia. The latter case is to be considered an administrative rather than a criminal offence. Both cases are under investigation. In 1994, Japan withdrew its reservation on the CITES Appendix I-listing of Hawksbill Turtle.

On 28 May 1996, at Yokohama port, police officers from Kanagawa prefecture arrested a dealer who had concealed 320 skins of Leopard Cat *Prionailurus bengalensis bengalensis* (App. II) in a consignment of Chinese rabbit skins. The man is reported to have bought the Leopard Cat skins in China and was intending to sell them in Japan.

TRAFFIC East Asia; Nikkei (Japan), 3 February 1996

TAIWAN

On 25 April 1996, after a lengthy surveillance operation, police seized over 1107 kg of ivory products from a warehouse in Chungho, Taipei. Two men were arrested. The ivory consisted of 51 whole elephant tusks (270 kg) and processed ivory in the form of round chops (20 kg), square chops (43 kg), semi-finished products (773 kg) and Buddhist statues (4 pieces). The case is under investigation.

TRAFFIC East Asia; National Police Administration Press Release, 26 April 1996

OCEANIA

AUSTRALIA

On 31 January 1996, at Fremantle Magistrates' Court, Peter Stoldt, a German biology student, pleaded guilty to possession and attempting to export native fauna without permits, in breach of the *Wildlife Protection (Regulation of Exports & Imports) Act 1982*. Stoldt had been apprehended on 23 January at Perth domestic airport as he boarded a flight to Alice Springs. In his luggage were live lizards and snakes: 1 Spiny-tailed Gecko *Diplodactylus ciliaris aberrans*, 2 Fat-tailed Diplodactylus *D. conspicillatus*, 1 *D. jeanae*, 3 *D. pulcher*, 1 *D. squarrosus*, 1 *D. stenodactylus*, 4 *D. strophurus*, 1 *D. wellingtonae*, 5 *D. wombeyi*, 7 *Nephurus levis occidentalis*, *N. wheeleri cinctus*, 1 Beaked Gecko *Rhynchoedura ornata*, 1 Bynoe's Gecko *Heteronotia binoei*, 1 Pilbara Dtella *Gehyra pilbara*; a death adder *Acanthophis*, a Stimson's Python *Liasis stimsoni stimsoni* and two Pygmy Pythons *Morelia perthensis* (App. II). Some of the species are extremely rare and only occur in Western Australia.

Stoldt reportedly told Customs officers that he was collecting the reptiles for research purposes. He was fined AU$10 000 (US$7600) and a further AU$5500 for breach of the *Wildlife Conservation Act 1950* (possession of the reptiles without appropriate permits). The seizures followed a major investigation by Customs in Pilbara (Port Hedland), Dampier and Fremantle, along with staff from the Department of Conservation and Land Management, and Western Australia police.

On 28 March 1996, at Brisbane Magistrates' Court, Ivo Skliba, of the Czech Republic, was charged with attempting to export Australian native wildlife without a permit, contrary to the *Wildlife Protection (Regulation of Exports and Imports) Act 1982*. Specimens confiscated from Skliba's luggage as he was leaving Australia from Brisbane airport, for the Czech Republic, included 4 Naked Tree Frogs *Lithuna*, 1 Spotted Grass Frog *Limnodynastes tasmaniensis*, 2 Green Tree Frogs *Litoria caerulea*, 8 Southern Spotted Velvet Geckos *Oedura tryoni*, 4 Shingle-Back Lizards *Trachydosaurus rugosus*, 2 Gilbert Dragons *Lophognathus gilberti*, 1 blue-tongued lizard *Tiliqua*, 1 Carpet Python *Morelia spilota* and 10 orchids *Dendrobium*.

Skliba was fined AU$1000 (US$760), and ordered to serve 200 hours community service.

TRAFFIC Oceania; Australian Customs Service Media Alert, 23 January

AMERICAS

CANADA

On 26 January 1996, Alman Adel, of Calgary, was charged with illegally importing African Elephant *Loxodonta africana* (App. I) ivory into Canada. On returning to the country on a flight from Amsterdam, Netherlands, in March 1995, Adel had failed to declare two ivory carvings that he had received as a wedding gift from a relative in the Lebanon.

Adel, the second person ever to be convicted for smuggling ivory into Canada, pleaded guilty to violating a section of the *Export and Import Permits Act*. He was fined C$4000 (US$2956), to be paid within one year, or faces six months in gaol.

TRAFFIC USA Newsletter 15(2), April 1996

ECUADOR

Fishers demanding the release of eight fishers, gaoled for illegally collecting sea cucumbers, took over Galápagos National Park offices on the island of Isabela in January 1996; this is the second revolt relating to the issue of sea cucumber fishing in four months, and one year on from a similar invasion in January 1995 (*TRAFFIC Bulletin* 15(2):58). In this latest incident, Galápagos Congressman Eduardo Veliz reportedly was responsible for rallying the support of fishers who, armed with machetes, threatened to destroy the building unless their gaoled colleagues were released; when they learned that the majority of their colleagues had escaped, the siege was brought to an end after 12 hours. National Parks staff were not harmed.

The incident was sparked by the seizure and subsequent incineration of 80 000 sea cucumbers by officials. Eight of a group of some 30 fishermen were arrested; the rest fled.

On 12 June 1996, over 30 000 sea cucumbers, and 32 shark fins, were seized in various islands of the archipelago during an operation jointly undertaken by the navy and the Galápagos National Park Service; six people were detained and four boats and diving equipment seized. The sea cucumbers were incinerated.

Galápagos National Parks Press Release, February 1996; Charles Darwin Foundation, Inc., in litt., *7 February 1996; El Universo (Ecuador), 22 June 1996; Hoy (Ecuador), 20 June 1996*

USA

On 31 January 1996, Dutch citizen Hendrikus Lommerse was arrested at Baltimore-Washington International airport following attempts to smuggle over 7000 Venus Flytrap *Dionaea muscipula* seedlings (App. II) to the Netherlands. All are believed to have been wild-collected. False documents accompanied the shipment, which was not declared. The suspect had reportedly bought the plants in North Carolina.

The Venus Flytrap is endemic to a 320-km strip of coastal plain in southeastern North Carolina and northeastern South Carolina. State law requires that permission must be received from landowners before wild Venus Flytraps may be dug up. In addition, in order to distribute, sell or offer for sale Venus Flytraps in North Carolina, either a Nursery Dealer's Certificate, a Plant Inspection Certificate, or a Nursery Registration Certificate must be held.

The defendant was twice notified by the US Customs Service at Baltimore International airport that plants or wildlife being exported may require a shipper's export declaration, export licence, permit, or registration, and that a US Customs Service official was available to advise passengers at the check-in counter prior to departure.

All the seized plants, which are in excellent condition, have been placed with a co-operating government agency for care and maintenance before their proposed replanting in the wild.

On 1 February, the Dutchman was released on US$50 000 bond.

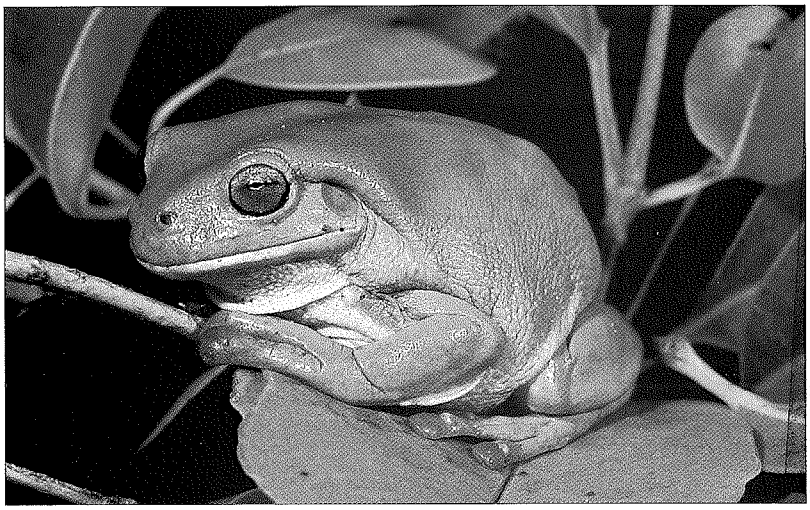
On 9 February 1996, Winfred Patrick and Gregory Harmon, both from Florida, were charged with violating the *Endangered Species Act*. The men had been arrested after a Palm Beach police officer had stopped their vehicle following a traffic offence and noticed a large bag containing eggs in the car. It transpired that the pair had removed 372 Loggerhead Turtle *Caretta caretta* (App. I) eggs from nests on a private beach; their plan had been to sell them to local taverns as a delicacy.

Patrick was sentenced to two years' imprisonment and Harmon to 15 months'. A third defendant awaits sentencing.

On 1 April 1996, in Los Angeles, California, Theodora Swanson, of Memphis, Tennessee, was found guilty of involvement in the smuggling of over 400 cockatoo eggs from Australia over an eight-year period (*TRAFFIC Bulletin*, 15(1):40;15(3):119). The verdict concludes a nationwide investigation and prosecution by the US Justice Department that resulted in convictions and sentences for 15 individuals.

Swanson was sentenced to 37 months' imprisonment but remains free pending an appeal hearing. In December 1995, William Wegner and Brian Bradley were sentenced to 5 years' and 41 months' imprisonment, respectively, for masterminding the smuggling ring (*TRAFFIC Bulletin*, 16(1):32). The case was investigated by the USFWS.

USFWS, Office of Management Authority, 20 March 1996;TRAFFIC USA; Washington Post (USA), 2 February 1996; US Department of Justice Press Release, 2 April 1996



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Green Tree Frogs *Litoria caerulea* were among a consignment of reptiles recently seized in Australia.

Recent Trade in Steller's Sea-Eagles from Russia

Tom De Meulenaer and Alexey Vaisman

Introduction

The Steller's Sea-Eagle *Haliaeetus pelagicus* breeds only in far eastern Siberia, where it nests in tall trees and on rocky cliffs on coastlines, along lakes and in forested river valleys bordering the Sea of Okhotsk - from Koryakland and Kamchatka, south to Magadan, Khabarovsk and Sakhalin. The total population is estimated at 7500, with about 2200 breeding pairs (del Hoyo *et. al.,* 1994; Lobokov and Neufeldt, 1986). Populations appear stable in all parts of the species' range, and are not under significant direct threat (Lobokov and Neufeldt, 1986; Litvinenko, 1988; Lobokov, 1991; Masterov, pers. comm. 1996). Owing to its restricted breeding and wintering range, however, the species is vulnerable to habitat alteration and pollution. There appears to be great international interest in large-scale coastal and forest development for the petrol and timber industries in the near future in eastern Siberia, and this, along with development for hydro-electricity and fisheries, could have a serious negative impact on the conservation status of the species; the bird is also vulnerable to the natural collapse of its eyrie. Steller's Sea-Eagles may also be subject to occasional shooting by professional trappers and hunters, who sometimes regard the birds as pests because of their occasional predation of their catch (Litvinenko, 1988; del Hoyo *et. al.,* 1994). In recent years, wild Steller's Sea-Eagles have also been subject to collection for captive-breeding programmes and for apparently commercial reasons, which has sparked some concern (Goldsmith, 1995). Disturbance to the nest brought about by collection of chicks is believed to have a negative impact on the breeding success of the parent birds and on the chances of survival of the remaining chick (Masterov, pers. comm. 1996).

The summary below suggests that much of the trade in Steller's Sea Eagles is in wild specimens to the European Union. There are indications that the number of birds in trade for captive-breeding purposes exceeds the number required to establish a viable captive population of this species.

Conservation and Legal Status

Steller's Sea-Eagles winter mainly in Russia and in northern Japan, and occasionally in China, North and South Korea, Hawaii, the Hawaiian Islands and the Aleutian Islands, USA (Brazil, 1991; Ladygin *et. al.,* 1991; Sibley and Monroe, 1990). Some 1200 pairs nest on the northern seashores of the Magadan Province (or Oblast), 500 pairs in the Khabarovsk Territory (or Krai), 100 pairs along the lower Amur river (Amur Oblast), 80 pairs on the northern part of Sakhalin Island (Sakhalin Oblast), over 120 pairs on the peninsula of Kamchatka (Kamchatka Oblast), 100 pairs on the Shantar Islands, and a few on the Kuril Islands. The birds produce an average of 0.5 to 1.1 young annually per pair, the most successful breeding pairs raising an average 1.54 young (Babenko *et. al.,* 1988; Masterov, 1995).

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Captive Steller's Sea-Eagle *Haliaeetus pelagicus.*

On 1 January 1992, the Russian Federation succeeded the USSR as a CITES Party. All eight species of sea-eagles in the genus *Haliaeetus* are listed in the CITES Appendices: White-tailed Eagle *H. albicilla* and Bald Eagle *H. leucocephalus* in Appendix I and the remaining six species - some, like *H. pelagicus*, much rarer than the former two - are listed in Appendix II. International trade in wild specimens of Appendix I-listed species is authorized only in exceptional circumstances, whereas international commercial trade in specimens of species listed in Appendix II may take place pending the issuance of permits by the exporting or re-exporting country. All birds of prey are listed in Annex C1 of European Council (EC) Regulation No. 3626/82 on the implementation of CITES in the European Union. Specimens of Annex C1 species are treated as if in Appendix I of CITES. In addition, display to the public for commercial purposes and the sale, keeping for sale, offering for sale or transporting for sale of specimens listed in Annex C1 (and Appendix I) is prohibited unless covered by an exemption which can be granted on the grounds that the birds are either: pre-Convention; captive-bred; intended for research, teaching, breeding purposes; legally taken from the wild in the EU; or, legally imported for non-commercial purposes.

In Russia's Red Data Book (RDB) (Anon., 1983), the Steller's Sea-Eagle is classified under Category 3: "not directly endangered species with limited distribution". The capture, trade and keeping of specimens of RDB-listed species is allowed only in exceptional cases. The decision to allow harvesting is the prerogative of the federal authorities, in particular of the Ministry of Protection of the Environment and Natural Resources (MENR) which is also the CITES Management Authority of Russia. Before granting permission to harvest specimens of RDB species, MENR requires of the applicant a series of permits from local, regional and federal authorities; these detail the source of the specimens and the nature of the transaction; scientific institutions, mainly the Russian Institute of Nature Protection (INP), the acting CITES Scientific Authority, may also be consulted in the decision-making.

Under new IUCN criteria for ranking threatened species, the Steller's Sea-Eagle is classified as Vulnerable, a category for species that are believed to face a high risk of extinction in the wild in the medium-term future (the relevant criteria being a population of fewer than 10 000 mature individuals; a perceived continued decline; and the restriction of all breeding individuals in a single sub-population) (Collar *et. al.,* 1994).

COLLECTION AND TRADE

Background

Very small numbers of Steller's Sea-Eagles were reported in international trade during the last 15 years. Most, if not all, transactions have involved the supply of birds to zoos. CITES annual reports recorded a total of 20 specimens in trade from 1980 to 1990: eight live specimens exported by China, 10 by the former Soviet Union, one by Austria, and one body from an unknown origin. Since 1990, Russia has reported the export of three Steller's Sea-Eagles from Moscow Zoo to Tierpark Berlin in 1993 (two of wild origin and one captive-bred individual); two to Tallinn Zoo, Estonia, in 1994 (of wild origin, in breeding loan); one to Austria in 1991 (wild origin); and one was imported from Germany in 1993 (captive-bred). In addition, one live bird of wild origin was recorded as being imported from Russia into the Czech Republic in 1992. Czech authorities report that four additional specimens were acquired by a Czech trader between 1991 and 1992, just prior to the accession of the Czech Republic (then Czechoslovakia) to CITES on 28 May 1992. The birds are believed to have been smuggled from Russia (Anon., 1994a).

In 1995, following the capture of nestlings in Siberia during the 1994 breeding season, a more significant number of birds appeared in trade.

Collection

The former state-owned and now privately-run animal trading company, Zoolex, established a plan in 1993 to initiate the collection of 30 eggs and 30 juvenile Steller's Sea-Eagles from three distinct breeding populations. In the course of 1994, permission was granted for the company to take a total of 30 eggs or birds in non-protected areas only: 10 in the Magadan Oblast, 10 around Lake Udyl in the Khabarovsky Kray, and 10 from eastern Kamchatka Oblast. The collection of the birds was conducted in full compliance with the applicable legal provisions in Russia, and following extensive consultations with INP (the Russian CITES Scientific Authority) and federal and local authorities.

Magadan Oblast: The offtakes in Magadan Oblast took place following a written agreement on joint scientific co-operation signed by Zoolex, the Magadan State Nature Reserve and INP, which aimed at elaborating methods to use sustainably Steller's Sea-Eagles living in non-protected areas of the Magadan Oblast. The agreement highlights the alleged high nest mortality for the younger chick (caused by a condition known as the "Cain-and-Abel" syndrome whereby the older of two young may kill the other), and the assumed benefits for the survival of the remaining chick if the younger competitor is removed. Zoolex was to fund the entire project, INP was to act as the scientific supervisor and the Magadan State Nature Reserve would supply staff and logistical support. According to the terms of the written mutual agreement, the chicks would be used "for zoos, breeding stations and other purposes". Capturing started in June 1994 when the chicks were about 14 days old and two live birds (and no eggs) were collected.

Lake Udyl: The most successful capturing took place around Lake Udyl, where a population of about 120 breeding pairs had been closely studied for over 10 years. Here, only fairly large chicks of about two months old were collected from pairs with two young; 10 specimens were collected in August 1994. Reportedly, the parents continued to raise the remaining young in all cases and no birds were lost (Masterov, pers. comm. 1996).

Kamchatka Oblast: No birds were captured in eastern Kamchatka Oblast owing to disputes between Zoolex and the local company subcontracted to capture the birds.

Trade

Initially, the 12 Steller's Sea-Eagles acquired by Zoolex seemed more difficult to market than anticipated. In 1994, the company advertised the birds at US$4000 for a "one month old bird", but prices seem to have fluctuated between US$2000 to US$10 000 per bird. In October of that year, Russian authorities issued Zoolex with two export permits for Steller's Sea-Eagles (one for eight birds to the USA, and one for two birds to Spain); these permits expired and were cancelled. After being captured, the birds had been transported to preliminary facilities near Moscow where they were detained, two to

a cage measuring 8.5 x 4 x 2 m. Eleven six-month-old birds were still at this facility in January 1995. Around that time, they were inspected by MENR and INP staff. Officially it was reported that all were being kept in a satisfactory condition, but some inspectors were dissatisfied with the husbandry and health standards. At this stage, a home had been found for only one specimen - at Novosibirsk Zoo, Russia. All birds had been sexed.

Between March and late 1995, destinations were found for all remaining birds: two birds were exported to the UK, five to Estonia, two to France and two to a zoo in the Czech Republic. Reportedly, several other countries have in the meantime expressed interest in the species.

At the time of going to press, Zoolex has applied to collect further specimens of Steller's Sea Eagles from Russia for the establishment of an ex-situ captive population.

European Captive Breeding Programme

In November 1994, an international conference was convened at Moscow Zoo to discuss the future of Steller's Sea-Eagles in the wild and in captivity. Although the conservation status of the species was felt to be satisfactory, conference participants, including representatives of nine zoos and captive breeding facilities in Russia, Estonia, Austria, Kazakhstan, the Czech Republic and Belgium, concluded that there was a need to establish a viable population in captivity. A recommendation was also put forward that "The Ministry of Environment Protection ... remove in an emergency no more than five birds in the Kamchatka population, no more than three in the Magadan population and no more than five in the Priamursk-Sakhalin population. [i.e. the joint population of Sakhalin Islands and the Amur valley]" (Anon., 1994b). By the time this recommendation was adopted, Zoolex had already collected its 12 birds.

Moscow Zoo, which first raised Steller's Sea-Eagles successfully in 1987, agreed at the conference to co-ordinate the establishment of a European Captive Breeding Programme for this species. It was reported that the global captive population totalled 62 birds (26 males; 23 females and 13 sex unknown) in 19 zoos (four birds in two German zoos; two in an Austrian zoo; three in a Czech zoo; two in an Estonian zoo; 12 in three Russian zoos; seven in a zoo in Kazakhstan; and 33 in 10 Japanese zoos). By the end of 1995, Moscow Zoo was exhibiting seven birds - one pair caught in the Amur in 1980, two birds born at the zoo, one born in Alma Ata Zoo (Kazakhstan), and two wild-caught individuals. In 1993, two chicks were bred in Saporo Zoo, Japan, and another two the following year.

At the moment, only first generation (F1) captive-bred birds are available in zoos. In the summer of 1995, at Alma Ata Zoo, where the species seems to breed regularly, one captive-bred specimen "of second (F2) generation" was offered to a private collector in Austria. The transaction was eventually cancelled because it became clear that there are no F2 birds in Alma Ata Zoo. It is not impossible that the bird was labelled "F2" to evade the stricter EU import regulations for birds of prey whereby all raptor species are treated as if in CITES Appendix I.

The Moscow conference concluded that "in order to increase the viability of the population of the species during catastrophic changes in the natural population, it was agreed to create a viable captive population of Steller's Sea-Eagles ... according to EEP [European Endangered Species Programme[1]] systems", but that specific requirements and needs for setting up such an ex-situ captive population should be assessed. Current Russian zoo collections, for instance, need no more than a total of four new individuals between them to pair with solitary birds or to replace old animals. The collection by Zoolex in 1994 of 12 wild birds (and 30 had been scheduled for collection) seems unjustified from that perspective.

Conclusions

The question about the immediate and long-term conservation impacts on the species of these principally commercially-inspired catches remains unanswered. While recognizing that the current offtake probably does not have a significant impact on the wild population, some Russian field experts have expressed serious concern about the prospect of regular and prolonged collection of chicks or eggs from the Steller's Sea-Eagle breeding population. Disturbance to the nest is believed to adversely affect the breeding success of the pair and the chances of survival of the remaining chick (Masterov, pers. comm. 1996). Fisheries activities, habitat alteration for the development of hydro-electric power, and proposed large-scale coastal and forest development for the petrol and timber industries in eastern Siberia, may place further pressure on this species.

In summary, the conservation status of the Steller's Sea-Eagle is generally satisfactory, and under strictly controlled conditions, the capture and export of a few individuals for breeding purposes appears viable and probably justifiable from a conservation point of view. However, the situation requires careful monitoring to ensure the long-term survival of this species. As a minimum, the authors consider that an EEP studbook and breeding plan are required to assist in this process.

[1] a regional breeding programme of the European Association of Zoos and Aquaria (EAZA), covering some 100 species.

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Tom De Meulenaer, Director, TRAFFIC Europe.
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