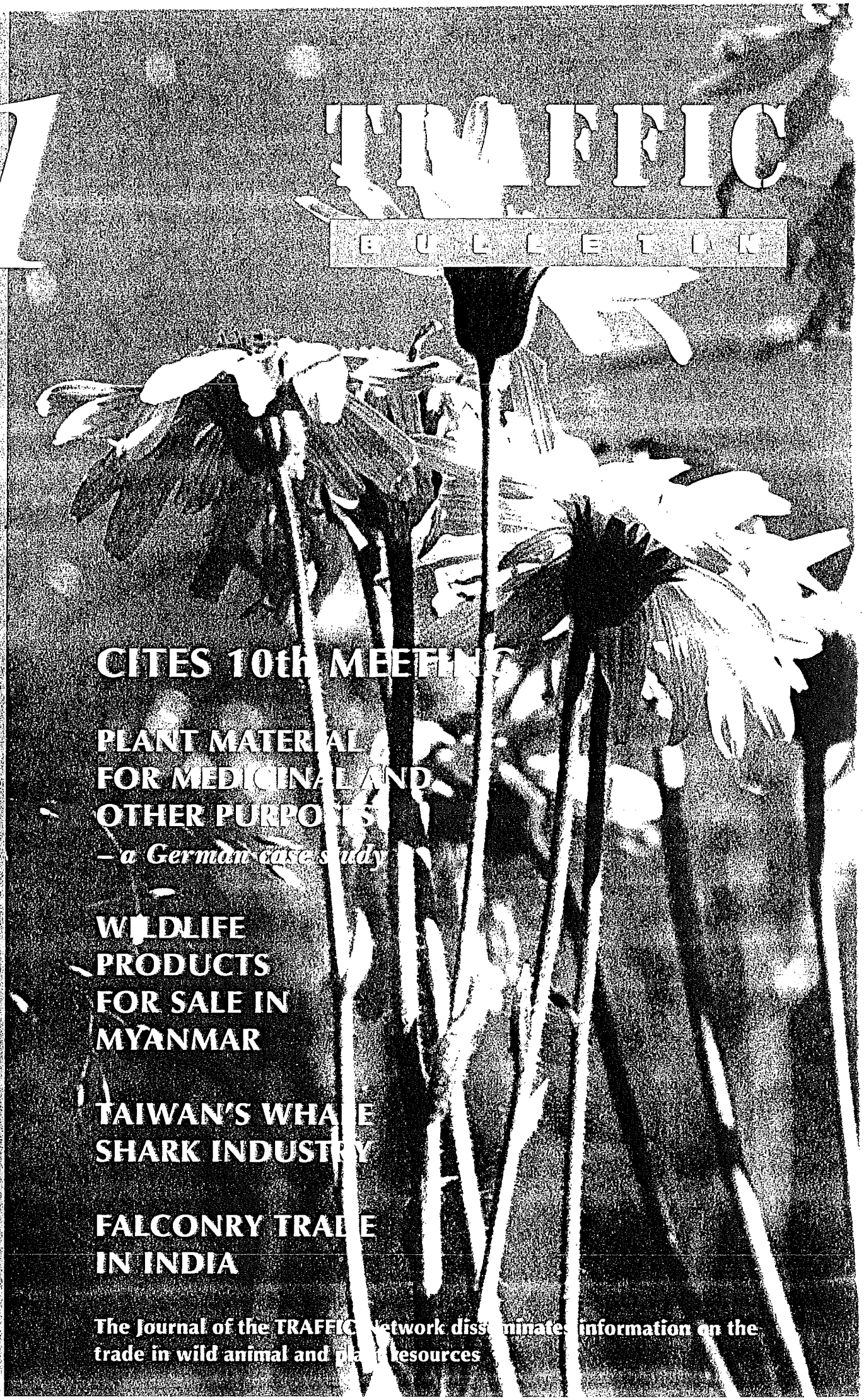
VOL. 17 NO. 1

TRAFFIC BULLETIN



CITES 10th MEETING

PLANT MATERIAL FOR MEDICINAL AND OTHER PURPOSES
– a German case study

WILDLIFE PRODUCTS FOR SALE IN MYANMAR

TAIWAN'S WHALE SHARK INDUSTRY

FALCONRY TRADE IN INDIA

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

SEPTEMBER 1997

Funding for the printing and distribution of the *TRAFFIC Bulletin* is generously provided by The Rufford Foundation.

The *TRAFFIC Bulletin* is a publication of the TRAFFIC Network, a joint programme of WWF-World Wide Fund for Nature and IUCN-The World Conservation Union. TRAFFIC's purpose is to help ensure that wildlife trade is at sustainable levels and in accordance with domestic and international laws and agreements. This is achieved through the investigation, monitoring and reporting of such trade, particularly that which is detrimental to the survival of flora and fauna and that which is illegal.

The *TRAFFIC Bulletin* publishes recent information and original papers on the subject of trade in wild animals and plants, and strives to be a source of accurate and objective information. Any opinions expressed are those of the writers and do not necessarily reflect those of TRAFFIC, WWF or IUCN.

The *TRAFFIC Bulletin* is available free of charge. Quotation of information appearing in the news sections is welcomed without permission, but citation must be given. Reproduction of all other material appearing in the *TRAFFIC Bulletin* requires written permission from the publisher.

Editor and Compiler:
Kim Lochen

Assistant Editor:
Julie Gray

The designations of geographical entities in this publication, and the presentation of the material, do not imply the expression of any opinion whatsoever on the part of TRAFFIC or its supporting organizations concerning the legal status of any country, territory, or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Published by TRAFFIC International
219c Huntingdon Road, Cambridge
CB3 0DL, UK.

ISSN 0267-4297

TRAFFIC - Trade Records Analysis of Flora and Fauna in Commerce

Cover: Arnica *Arnica montana*
Photo by WWF/Klein-Hubert/BIOS

Printed on recycled paper by Foister & Jagg,
2 Station Road, Foxton, Cambs., UK.

TRAFFIC
BULLETIN

VOL. 17. NO. 1

September 1997

Parties to CITES

The number of Parties to CITES has risen to 142, with accessions/ratifications entering into force for the following countries:

Swaziland (27 May); Jamaica (22 June); Yemen (3 August); Myanmar (11 September); Cambodia (2 October); Antigua and Barbuda (6 October); Uzbekistan (8 October 1997).

CITES Secretariat

Yemen in CITES Signals Hope for Rhinos

Yemen has received considerable attention since the 1970s for its role in the trade in rhinoceros horn, which is carved into handles for traditional daggers called *jambiyas*. The CITES Secretariat, WWF and TRAFFIC have sent delegations to meet with Yemeni Government officials on many occasions to discuss the problems of the trade, encourage remedial action and promote accession to CITES. The Government of Yemen is therefore to be applauded for reaching final agreement on the signing of CITES, which came into effect on 3 August 1997, and for preparing collaborative efforts for the effective implementation of CITES, in particular in combating the illegal trade in rhinoceros horn. Yemen was represented at the tenth meeting of the Conference of the Parties to CITES in Harare in June 1997.

A joint project is being developed by TRAFFIC in co-operation with the Government of Yemen on the implementation of CITES, combined with numerous activities to counter the rhinoceros horn trade. The first stage will be to hold an enforcement training seminar to identify problem areas and to educate enforcers on the smuggling methods employed, trade routes, legislation and the conservation issues. Training officers to identify rhinoceros horn upon import, in the markets, or *souks*, where the daggers are manufactured, and upon export as chips and shavings, will also be an important component of the project. Another stage will be to undertake consumer awareness campaigns to dissuade use of rhinoceros horn and to promote alternative materials for dagger handles. The identification of suitable alternatives and the training of craftsmen in carving these materials, will also be considered.

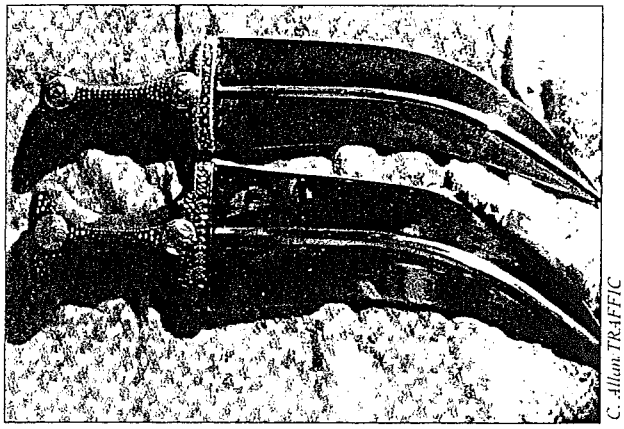
It would appear that implementation of CITES and enforcement of legislation to control the rhinoceros horn trade are beginning to take shape in Yemen. Whether consumers will change centuries of traditional use of rhinoceros horn is another, much more difficult issue to overcome.

Crawford Allan, Enforcement Assistance Officer
TRAFFIC International

Côte d'Ivoire Ivory Trade Ban

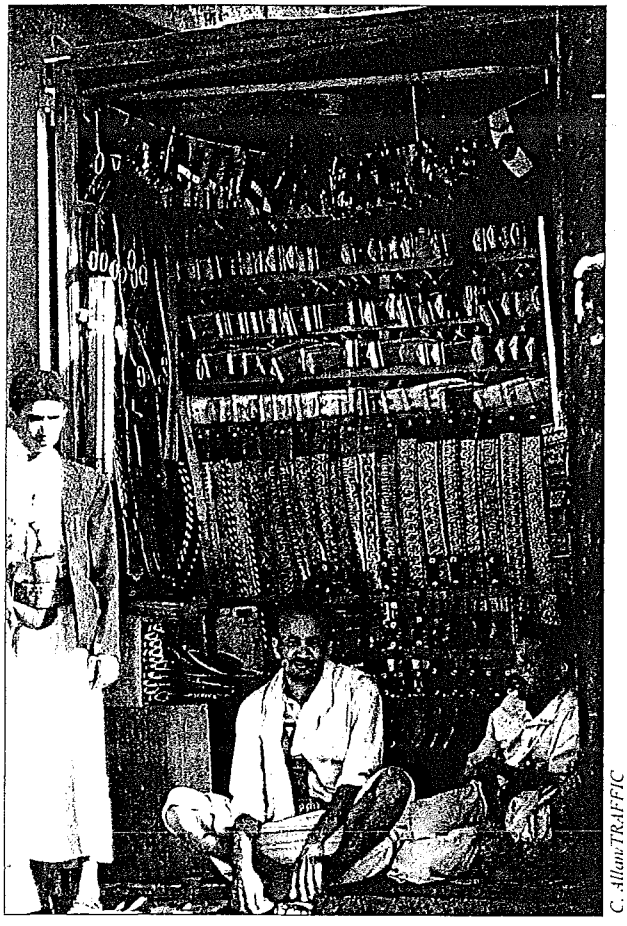
Côte d'Ivoire has banned all domestic trade in ivory tusks and ordered a nationwide census of all tusks in efforts to protect the African Elephant *Loxodonta africana*. A Government statement said that President Henri Konan Bedie had ordered the crackdown, plus the implementation of strict controls on the smuggling of tusks into and out of the country, in a decree signed at a cabinet meeting on 7 March 1997.

TRAFFIC East/Southern Africa



C. Allan/TRAFFIC

^ **Daggers, or *jambiyas*, bearing handles made from rhino horn (top) and camel nail, Sana'a, Yemen, 1996.**



C. Allan/TRAFFIC

***Jambiya* stall, Hodeidah, Yemen, 1996. >**

USA Supports Galápagos Marine Protection

The US Government has announced a prohibition on the importation or transit through the USA of sea cucumbers and shark fins harvested illegally in the Galápagos Islands, Ecuador. This decision follows a request to the USA by the Ecuadorian Government to assist with efforts to protect marine resources on the islands. The ban was enacted following evidence that large quantities of these commodities are transiting the USA to Asian markets.

The ban will be enforced through the US *Lacey Act*, which makes it illegal to import into or ship through the USA, fish or wildlife that is caught or harvested in violation of other countries' legislation. The harvesting of sea cucumbers and sharks is prohibited in the area around the Galápagos Islands, and action in this way by the USA will serve to complement the strong efforts being taken by Ecuador to enforce this legislation.

Charles Darwin Foundation Press Release, 9 July 1997

WWF/Pablo Corral

Sea cucumber fishing, Isabela Island, Galápagos, Ecuador.

USA Announces Rhino/Tiger Grants

The US Fish and Wildlife Service has released nearly US$251 000 to fund international projects concerned with Tiger and rhinoceros conservation. The money is to be appropriated from a fund set up in 1994 under the *Rhinoceros and Tiger Conservation Act*, and which is specifically designed to attract money to finance projects that will enhance sustainable development programmes to ensure effective long-term conservation efforts for Tigers and rhinoceroses. The funds will go towards providing equipment and training for local law enforcement officers involved in 14 projects underway in Kenya, South Africa, Zaire, India, Indonesia and Nepal.

US Fish and Wildlife Service, 13 March 1997

Ivory, Fur and Snakeskin Bans Upheld in India

Two landmark judgements were delivered by the Delhi High Court, India, on 20 March 1997, dismissing submissions by traders to overturn a ban on the trade in protected species and articles derived thereof, including ivory.

This action arises from many years of dispute by traders over two amendments to the *Wildlife Protection (Act), 1972 (WPA)*. The first, introduced in 1986, outlawed all trade in protected species - including the Asian Elephant *Elephas maximus* - and their products. Traders in animal skins and furs sought a suspension of this ruling which was subsequently granted and remained in force until a petition submitted by WWF-India seeking restoration of the ban was accepted on 9 February 1993.

Meantime, during the period following the 1986 ban, some ivory traders were found to be trading Asian Elephant ivory disguised as legally acquired African Elephant ivory, trade in which was permitted under licence. This finding prompted adoption of a second amendment to the *WPA* in 1991, banning trade in imported ivory. On this occasion, ivory traders filed a petition in the Delhi High Court challenging the ban and, in March 1992, obtained an interim 'stay' of its implementation. The traders claimed that the ban violated the Indian Constitution, which effectively allows that all citizens have the right to practise any profession or trade, should not be denied the rights of equality nor be deprived of property save by authority of law (Articles 19(1)(g); 14 and 300A of the Constitution of India). This 'stay' was overturned in May of that year, however, following a counter-petition by WWF-India. The High Court banned with immediate effect, the sale, display and carving of imported ivory, including mammoth ivory, in all commercial establishments.

On 20 March 1997, in a final judgement delivered on the petitions at Delhi High Court, three Honorable judges spoke at length on the specific issues raised by the counsel for the traders, the Government counsel and the counsel for WWF-India. The Court ruled that the provisions of the *WPA* were legally acceptable and that the petitions of the traders should therefore be dismissed.

Following an appeal to the Supreme Court by traders, the High Court judgement on the fur and snakeskin ban was upheld on 9 July 1997. A decision on the ivory ruling is pending.

Rashmi Bajaj, TRAFFIC India

WWF/Michel Gunther

Representatives of the Turkish Society for the Protection of Nature (DHKD) and a local harvester with snowdrop bulbs, Turkey.

Turkey Sows Seeds for the Future?

Turkey is one of the main suppliers of wild plant bulbs to international markets, mainly of snowdrops *Galanthus*, Winter Aconite *Eranthis hyemalis*, anemone *Anemone* and three species of Cyclamen *Cyclamen*. By the 1980s, levels of collection were such that scientists were urging Turkey to introduce harvest controls. To prevent over-exploitation, the Turkish Government acted by banning the export of certain species and introduced annual export quotas for others.

Most of these bulbs are harvested by rural people for whom such collection forms a vital part of their livelihood. In order for such communities to become self-sufficient in propagation material without resorting to further depletion of wild bulb populations, the Turkish Society for the Protection of Nature (DHKD) developed a project in the early 1990s which aimed to involve collectors in the cultivation of bulbs in Turkey. Funded by WWF and with technical assistance from Fauna and Flora International (FFI), the study selected the village of Dumlugoze, set deep in the Taurus Mountains in southern Turkey, as a suitable testing ground owing both to the area's favourable climate and soil, and the fact that the villagers were already involved in wild bulb collection. Seven villagers were involved when the project commenced in 1993. By 1996, 44 were participating and, as the first bulbs were harvested, the Ministry of Agriculture engaged a further 30 growers in Dumlugoze and the nearby village of Kocasli. The main plants cultivated are snowdrops and Winter Aconites. Some of the planting has been from wild-collected seed and some has involved wild-collected bulbs that would have been rejected by exporters as too small. It takes between three and four years under local conditions for snowdrop bulbs to reach saleable size and to produce additional bulbs for replanting; last year's yield of 300 kg of snowdrops and a smaller quantity of Winter Aconites of top quality bulbs was therefore a most encouraging sign. The entire stock was bought by a leading Turkish exporter at more than twice the normal price, and shipped to British firms keen to promote sustainable sources of supply. Although the quality of this year's harvest of snowdrops was also good, production reached only 189 kg (and 5.5 kg of Winter Aconites) probably because the bulbs used for planting were too small and had been planted too deep. The farmers are keen to persevere with the project and are already passing on their developing expertise to other villages. WWF believes that the scheme demonstrates a potentially highly profitable form of sustainable agriculture and one that may spread to other countries, and be applied to other species.

WWF Features, August 1997; A. Hamilton, pers. comm., *September 1997; TRAFFIC International*

The *CITES 1997* Series

TRAFFIC produced a series of seven reports which helped inform debate on some of the most pressing and complex issues which were discussed at the tenth meeting of the Conference of the Parties to CITES, held in Zimbabwe in June 1997. Limited copies are available from TRAFFIC International for £8/US$12 (Europe) and £10/US$15 (rest of the world), to cover postage and handling.

Still in Business: The Ivory Trade in Asia, Seven Years after the CITES Ban
Edited by Stephen V. Nash
April 1997. 82pp.

Tiger Progress? The Response to CITES Resolution Conf. 9.13
Susan A. Mainka
May 1997. 82pp.

Whale Meat Trade in East Asia: A Review of the Markets in 1997
Judy Mills, Akiko Ishihara, Isao Sakaguchi, Sue Kang, Rob Parry-Jones and Marcus Phipps
May 1997. 26pp.

On A Knife's Edge: The Rhinoceros Horn Trade in Yemen
Esmond Bradley Martin, Lucy Vigne and Crawford Allan
May 1997. 48pp.

CITES Appendix III and the Trade in Big-Leafed Mahogany
Ximena Buitrón and Teresa Mulliken
June 1997. 24pp.

Rhino Progress? The Response to CITES Resolution Conf. 9.14
Susan A. Mainka
May 1997. 27pp.

Making CITES Work: Examples of Effective Implementation and Enforcement
Compiled by Crawford Allan
June 1997. 16pp.

Medicinal Leech Study

The Medicinal Leech *Hirudo medicinalis* was used intensively in the 19th century for blood-letting therapy, and an enormous trade developed[1]. Although this practice is still widespread (though uncommon) in certain parts of Europe and the USA (Kasparek, *in litt.*, September 1997), interest in the species is now primarily based on the compounds that it yields - in particular, the powerful anticoagulant, hirudin, which is secreted from the animal's salivary glands[1]. Turkey is the main supplier of wild-harvested Medicinal Leeches, exporting some 7000 kg every year[2]; over 90% of these are used in the pharmaceutical industry. Knowledge of the species' distribution and population size in Turkey is largely absent, however, and the impact of collection is therefore unknown. Turkey has an upper limit to the annual export quota, which has fluctuated at between 8000 kg and 10 000 kg in recent years.

A study, begun in March 1997 and funded by Sanofi SA/AG, a pharmaceutical company and the main consumer of Turkey's leeches for the extraction of hirudin, aims to determine the sustainability of current collection levels and to provide a scientific basis for the management of leech collection in Turkey. The two-year project will include investigation of the distribution and population of the Medicinal Leech in Turkey and of the main collecting areas. Other leech populations that may be large enough to harvest will also be investigated should existing collection sites be found to be over-exploited. The biology of the invertebrate, in particular with regard to hibernation, reproduction, and other aspects of its seasonal cycle will be studied so that populations can be effectively managed and collection during breeding can be avoided. Further, the study hopes to determine whether a single collector may affect the total population of a water body, rather than just creating an impact locally. Comparison of leeches from different areas, of different ages and seasons, will provide information on how to optimize the harvest of leeches and thereby allow for a reduction in the number of animals collected. Recommendations based on the results of the study will discuss the quota system, seasonal restriction and a rotation of collecting areas.

The project is being implemented by a team of Turkish biologists under the guidance of Professor Ali Demirsoy, of Hacettepe University, Ankara. Initial findings of the study will be available by late October 1997, and the report scheduled for completion by October 1998. It will be specifically aimed at the CITES Authorities in Turkey and at importing countries, as well as trading and processing companies.

Further information on the study may be obtained from the project co-ordinator and supervisor:

Dr Max Kasparek
Bleichstr. 1, 69120 Heidelberg, Germany.
Fax: (+49) 6221/471858; E-mail: Kasparek@t-online.de

Harald Martens, Head, CITES Scientific Authority (Zoology), Germany.

[1] *Wells, S.M., Pyle, R.M., and Collins, N.M. (1983).* The IUCN Invertebrate Red Data Book, *IUCN Conservation Monitoring Centre, IUCN Gland, Switzerland, and Cambridge, UK.*

[2] *Kasparek, M. (1994).* Zum Handel und Populationsstatus des Medizinischen Blutegels *(Hirudo medicinalis)* in der Türkei. *Bundesamt für Naturschutz/German CITES Authority.*

Fisheries Treaty Adrift

Only four of the world's top 20 fishing nations - Iceland, Norway, the Russian Federation and the USA - have signed and ratified the UN Fish Stocks Agreement, adopted two years ago to set new standards for managing fish stocks in a sustainable manner. The landmark treaty requires more than 30 countries to accede to it before it can enter into force. Of those 20 nations, which are considered to be responsible for more than 80% of the global fish catch, Bangladesh, Canada, China, Denmark, Indonesia, Japan, the Philippines, South Korea, and Spain, have signed but not ratified, while Chile, India, Mexico, North Korea, Peru, Thailand, and Vietnam, have yet to sign.

WWF-International Press Release, 4 September 1997

Seahorse Controls in Australia

Exports of all species of seahorses, seadragons and pipefishes (syngnathids) found in Australian waters will be stringently controlled with effect from 1 January 1998. This precautionary measure is being taken following worldwide concern over the decline in populations of these taxa in many parts of the world owing to uncontrolled and excessive trade for traditional Asian medicines and for the aquarium industry. Half of the world's 220 known species of syngnathids occur in Australian waters.

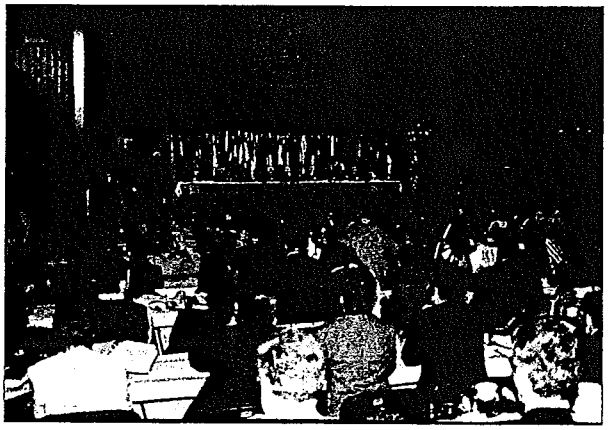
An estimated 1500 kg, or more than 150 000 specimens of syngnathids were exported from Australia between July 1995 and January 1997, according to the Australian Quarantine and Inspection Service. From next year, exports must be accompanied by a permit issued by Environment Australia and these will only be given for captive-bred specimens or specimens which have been taken from the wild under an approved management regime.

Environment Australia Media Release, 5 September 1997

Report of the Tenth Meeting of the Conference of the Parties to CITES

Compiled and edited by J. Gray

The tenth meeting of the Conference of the Parties to CITES took place in Harare, Zimbabwe, from 9 to 20 June 1997. A colourful introductory ceremony included Zimbabwean dancers and singers, and a parade of flags representing the Parties to CITES. Afterwards, the Chairman of the Working Party of Officials for the tenth meeting of the Conference of the Parties, Mr J.G. Moyo, introduced the Secretary General of CITES. The Secretary General welcomed the participants and reported that 96.3% of all Parties were present, the highest proportion in the history of the Convention. The Deputy Executive Director of UNEP, Mr J. Illueca, spoke in turn, on behalf of the Executive Director. He stressed the importance of developing linkages between CITES, the Convention on Biological Diversity, the Convention on Migratory Species and other relevant instruments. The Chairman of the Standing Committee of CITES, Ambassador Akao, then extended a welcome to those Parties that had joined since the ninth meeting of the Conference of the Parties. He stressed that decisions at Conferences of the Parties should be made on the basis of scientific data and mutual respect for differing cultures and traditions.



C. Allan/TRAFFIC

The tenth meeting of the Conference of the Parties to CITES was attended by over 120 Parties and more than 200 NGOs, making it the largest-ever CITES Conference.

The Hon. Minister of Environment and Tourism for Zimbabwe, Mr C. Chimutengwende, introduced the President of Zimbabwe, R.G. Mugabe, who welcomed all those present to Harare. He stressed Zimbabwe's commitment to the principles of sustainability and intergenerational equity in the use of its natural resources, and declared the meeting open.

In a plenary session of the meeting, discussion of **Doc. 10.7** on **Regional Representation** resulted in the formation of a working group to consider issues related to representation on the Standing, Animals and Plants Committees, including the timing of replacement of members and alternate members. In connection with this agenda item, the delegation of the USA withdrew a draft resolution (**Doc. 10.27**), which had proposed that Resolution Conf. 9.1 be amended such that membership on the Animals and Plants Committees be designated to Parties rather than persons, commenting that it was clear that there was no consensus on this issue.

Substantial amendments to Doc. 10.7 recommended by the working group were adopted by the Parties. In addition to refining the system for selection of members of these Committees, the amended version of the text of Doc. 10.7 also establishes duties for regional Standing Committee members, including the requirement to convene at least two regional inter-sessional meetings, to discuss regional issues, including CITES amendment proposals. It was further agreed to accept the amendment to Resolution Conf. 9.1 (on the establishment of committees) proposed by the working group, such that Animals and Plants Committee representatives will have two-year terms of office, with the potential for re-election. Through adoption of Doc. 10.7, the number of members representing the European Region at Standing Committee meetings was increased from two to three to reflect an increase in the number of Parties in the European region. **Doc. 10.7.1,** amending Resolution Conf. 9.1, was adopted following a decision similarly to increase the number of members representing the European Region at Animals and Plants Committee meetings, from one to two.

Reflecting increases in the number of Parties, in staffing costs and in the Parties' requests for support, as well as the need to provide more comprehensive translation services, the Secretariat's proposed average annual **Budget for 1998-2000 (Doc. 10.13)** was approximately 26% higher than had been approved for the previous biennium. With the majority in the Budget Committee opposed to an increase in the Secretariat's budget, its members directed the Secretariat to prepare an operating budget that was sufficient to allow existing services to be maintained, but not expanded. The duly revised budget was then commended to Committee II by the Chairman of the Budget Committee, who presented that Committee's report. At an annual average of CHF6 526 220, the new budget represented an 8.66% increase over the previous biennium, and was accepted by Committee II. Committee II also decided that the increase would be provided for by a five per cent

increase in the Parties' regular contributions to the CITES Trust Fund, with the remaining 3.66% to be drawn from the Trust Fund reserves at a rate of CHF238 860 per year.

Other recommendations from the Budget Committee were also accepted. Among these were recommendations that all future draft resolutions and decisions submitted for the Parties' consideration should include a budget and an indication of the funding source; that the Secretariat should not undertake new work without funding provision; and that certain budget items presented to this meeting without funding should be ranked in order of priority by the Parties. A new Resolution (Conf. 10.1) regarding **Financing and Budgeting of the Secretariat and of Meetings of the Conference of the Parties** was subsequently adopted in a plenary session, to take account of these decisions. The Resolution authorizes the Secretariat to finance certain priority budgetary items, which would otherwise be unfunded, by drawing additional funds from the Trust Fund. The priority items agreed by the Parties include: translation and interpretation services; capacity-building; legislation for CITES implementation; and, significant trade studies. The Secretariat, in association with the Standing Committee, was directed to incorporate such priority tasks into the operating budget, as far as funds allowed.

The report by Environmental Resources Management (ERM) on **How to Improve the Effectiveness of the Convention**, that had been undertaken in response to a Decision of the ninth meeting of the Conference of the Parties, was discussed (**Docs 10.20** and **10.21**). Some Parties recommended that the report be accepted and its recommendations implemented; others commented that the objectives of such a review of the Convention's effectiveness had not been met. A working group was formed to consider the report further, as well as the issue of co-operation between CITES and other conservation conventions and the relationship between CITES and UNEP (**Docs 10.22** and **10.23**). The draft decision it produced to adopt an action plan based on recommendations of the ERM report, was adopted. The action plan will serve "as the basis for the Standing Committee, the Animals and Plants Committees, the Secretariat and all other organs of the Convention to carry out relevant tasks in the period between the tenth and eleventh meetings of the Conference of the Parties." Also adopted was resolution text produced by the working group, calling for more effective co-ordination of effort on the part of national authorities in the implementation of CITES and the Convention on Biological Diversity (Resolution Conf. 10.4).

The Parties repealed Resolution Conf. 2.13 on the problem of **Hybrids**, adopting instead a Resolution clarifying the treatment of animal hybrids (Conf. 10.17) and amending Resolution Conf. 9.18 to clarify the treatment of hybrids for plants (**Doc. 10.70.1**).

After discussion of recommendations of the Nomenclature Committee (**Doc. 10.19**), the Parties adopted a Resolution (Conf. 10.22) on **Standard Nomenclature**, repealing Resolution Conf. 9.26 on the same subject. The new Resolution lists adopted standard taxonomic references; establishes procedures in cases where a standard reference for a given taxonomic group has not been selected by the Parties; and establishes procedures in cases where a taxonomic revision requires a change to the Appendices.

In discussion of the **Report on National Reports Required under Article VIII, Paragraph 7(a), of the Convention (Doc. 10.26)**, the Secretariat drew attention to two major problems: continued late submission of annual reports, and poor quality of information in some reports. The former had been recognized in Resolution Conf. 8.7 as a major problem in implementation of the Convention, but the Secretariat was against the principle of imposing punitive measures against those experiencing difficulty submitting their reports on time, favouring, rather, the offer of greater assistance; this view was endorsed by several of the Parties who spoke on this issue. Regarding the quality of information in reports, the Secretariat observed that there was broad inconsistency in the way permit numbers were reported. Amendments to Resolution Conf. 9.3 were agreed, based on recommendations ensuing from the report and on a document (**Doc. 10.35**) addressing the revision of that Resolution, submitted by the USA. The amendments included a revised system of coding permits and the advice to Parties that they should refuse to accept a permit which does not indicate the name of the species or subspecies concerned, except in certain specified circumstances.

The **Review of Alleged Infractions and Other Problems of Implementation of the Convention (Doc. 10.28)** provided descriptions of various types of infraction or non-compliance with the Convention, and also included reference to the conclusion of Memoranda of Understanding between the Secretariat and the World Customs Organisation and ICPO-Interpol. These were to form the basis for co-operation between these two organisations and the Secretariat in the areas of information exchange and training of police and Customs officers.

Discussion of the draft decisions, proposed by the Secretariat as a result of the Review, revealed that some delegations felt the need to distinguish within the infractions report between infractions of the Convention and non-compliance with Resolutions. Following re-working of these decisions by a drafting group, they were adopted by the Parties. The first Decision requires the Secretariat to prepare, before the next meeting of the Conference of the Parties, a list of Resolutions in effect, so that Parties may assess their level of compliance with each, and any reasons for difficulty in implementing these. The second Decision provides for the clear distinction, in future infractions reports, between violations

of the Convention itself and non-compliance with Resolutions, by the presentation of material relating to each in separate parts of the report.

A key enforcement issue was a proposal by the USA to develop a **Working Group on Illegal Trade in CITES Specimens (Doc. 10.29)**. This was similar to a proposal tabled at the last meeting of the Conference of the Parties, rejected because no agreement could be reached to address issues touching sovereignty and the sharing of confidential information. Discussions on Doc. 10.29 focused on two main issues, that of the superfluity of such a working group, and that of availability of resources for attendance at, and undertakings of, the group. Many countries felt that only the wealthier Parties would be able to afford to attend the meetings of the group, were it established. The Parties voted on the creation of an Illegal Trade Working Group and rejected the proposal, with 45 Parties against and 35 in favour.

In reviewing the Secretariat's report on implementation of Resolution Conf. 8.4, which relates to **National Laws for Implementation of the Convention (Doc. 10.31)**, the Parties considered the results of Phase II of the analysis of such laws, undertaken on behalf of the Secretariat by TRAFFIC USA and the IUCN Environmental Law Centre. Of the 44 countries for which national legislation was reviewed in Phase II, nine were found to have legislation believed generally to meet all the requirements for CITES implementation, 15 to have legislation that generally did not meet all requirements for CITES implementation, and 20 to have legislation believed generally not to meet the requirements for CITES implementation. Approximately 20 Parties that had been identified as having inadequate CITES-implementing legislation during Phase I of the project were noted in the Secretariat's report as having taken steps to adopt improved legislation. As a result of their review of the report, the Parties adopted Decisions, which include measures to be taken with regard to Egypt, Guyana, Indonesia, Malaysia-Sabah, Nicaragua, Senegal and Zaire, found during Phase I of the review to have been lacking sufficient CITES-implementing legislation, yet engaging in significant trade in CITES species. These Parties are directed to report to the CITES Secretariat on enactment of national legislation meeting the criteria established by Resolution Conf. 8.4, by 1 February 1998. Based on information received, the Standing Committee is to decide whether to recommend that all Parties refuse to trade in CITES-listed species with any of the Parties named above, effective from 9 June 1998. The Secretariat is requested to implement Phase III of the review, which will cover the national legislation of the remainder of Parties in time for consideration by the eleventh meeting of the Conference of the Parties.

The Parties adopted the Secretariat's extensive report **(Doc. 10.32)** on **Training** in CITES implementation, which gave a review of its undertakings in this field since 1989 and included information on types of training conducted, participants, partners, materials, and new initiatives. The report stated that requests from Parties for training far exceeded the current staff capacity of the Secretariat, but noted that "training for trainers" had been instituted to encourage more independent instruction at the national level. The development of training initiatives for the future was discussed, and two points were noteworthy: the intention to develop more specialized training seminars on specific themes, such as plants and CITES; and the initiation, in April 1997, of a thorough review of the Secretariat's current training and public awareness programmes, under the auspices of the newly-established Capacity Building Unit. The results of this review will help determine activities for the next biennium.

As part of the **Review of the Resolutions of the Conference of the Parties**, the **Consolidation of Valid Resolutions Relating to Cetaceans (Doc. 10.24)** was discussed. The document analysed the five existing Resolutions dealing specifically with cetaceans and provided text of a draft resolution proposed to replace them. The delegation of Japan suggested more consideration be given to the text of the draft resolution, and that additional comments be sought from the Parties for review at the next meeting of the Conference of the Parties. This view was supported by the delegations of the USA and Norway, and subsequently agreement on consolidation of Resolutions relating to cetaceans was deferred until that time. The existing five Resolutions remain in force.

A draft consolidated resolution on **Ranching and Trade in Ranched Specimens (Doc. 10.24** Annex 2), prepared by the Secretariat, was accepted with minor editorial amendments proposed by the delegation of Australia. A proposal **(Doc. 10.63)** to amend the consolidated Resolution (Conf. 5.16 (Rev.)) further, stemming from consideration at the thirteenth meeting of the Animals Committee of the problems of implementing marking requirements, was withdrawn. It was referred back to the Animals Committee, which, in co-operation with the Secretariat and the IUCN/SSC Crocodile Specialist Group, was also requested to review Resolutions Conf. 6.17 and 9.22, related to the Universal Tagging System for the Identification of Crocodilian Skins.

The Parties confirmed the importance of promoting CITES accession and implementation by **Small Island Developing States (SIDS)**. A Decision on the subject was developed by a drafting group working from recommendations contained in **Doc. 10.33**, which summarized the Secretariat's activities with regard to SIDS and the results of the Pacific Island States Regional Meetings on CITES, hosted by Australia in April/May 1997. Specific actions to be taken by the Secretariat in implementing the Decision include: designation of a SIDS co-ordinator of CITES activities; preparation of information packets for non-Party SIDS; provision of technical assistance to Parties and non-Parties; and conveyance of specific recommendations to non-Party SIDS encouraging actions to promote compliance with CITES require-

ments. Other bodies were encouraged to lend support to these activities, including UNEP, UNDP, World Bank, SPREP and TRAFFIC.

A draft resolution contained in **Doc. 10.34 (Rev.)** was submitted by Japan with the aim of re-defining CITES's **Relationship with the International Whaling Commission** (IWC). The resolution sought to repeal Resolution Conf. 2.9, which recommends Parties not to issue permits for harvest or trade, for primarily commercial purposes, of any species or stock protected from commercial whaling by the IWC. The delegation of Japan stated that a previous agreement of the Parties to list certain whale species in Appendix I had been taken in response to the IWC's moratorium on commercial whaling, but that this moratorium had been established without adequate scientific grounds. The delegation therefore suggested that CITES use its own listing criteria, as provided in Resolution Conf. 9.24, and asked for support in repealing Resolution Conf. 2.9. Lengthy debate on this point followed, including clarification from the Secretariat that, although consultation was essential between CITES and complementary conventions, such as the IWC, this did not mean that it was obligatory for there to be strict adherence in one convention to decisions made within another. In a vote by secret ballot, the draft resolution was rejected, with 27 votes in its favour and 51 against.

Revision of the Definition of "Primarily Commercial Purposes", as contained within Resolution Conf. 5.10, was the topic of considerable debate in Committee II. **Doc. 10.38**, containing text for the proposed amendment to the Resolution, and explanatory notes on the subject, was submitted by Namibia. It was argued that the existing definition of "primarily commercial purposes" placed excessive restrictions on the trade in Appendix-I specimens, and did not allow sufficient consideration of the possible benefits of trade to conservation programmes within range states. Namibia was therefore seeking a mechanism to allow trade in Appendix-I specimens that produced revenue for conservation in range states without negatively affecting the conservation status of the species in question. Specifically, Namibia sought agreement that "the term 'commercial purposes' should be defined by the country of import, in the case of any transaction that is not wholly 'non-commercial', in the light of its benefit to conservation." Such benefit was to be determined after consultation with the exporting country. The importing country would have to certify that specimens would be used "in a traditional manner, for cultural purposes".

A significant number of other Parties from the African region voiced support for Namibia's proposal, as did several Parties from other regions. It was noted by delegations opposed to the proposal that imports of Appendix-I specimens for "cultural purposes" undertaken in a "traditional manner" could nevertheless be commercial, a point also noted by the Secretariat. They argued that the proposed amendment, if adopted, would violate the Convention, which specifically states that importation of Appendix-I specimens may not be for primarily commercial purposes. Recognizing the widely diverging opinions on this issue, the Chairman of Committee II recommended that the delegation of Namibia meet with the Secretariat and other interested Parties to revise the draft amendment to Resolution Conf. 5.10. Discussion of the revised draft in a subsequent session raised further concerns that it would not be possible to reconcile the provisions of the proposed amended Resolution with the intent of the Convention. After noting their disappointment that the needs and interests of some countries had not been recognized, the delegation of Namibia withdrew the document.

Illegal Trade in Whale Meat was brought to the attention of the Parties via **Docs. 10.40** and **10.40.1**. The former document contained information demonstrating enforcement activities that are currently being undertaken towards achieving implementation of Resolution Conf. 9.12 (concerning illegal trade in whale meat), while the latter provided supplementary information, including recent relevant activities by various governments and NGOs, and a number of suggestions to increase international co-operation. Based on these, a draft decision prepared by a working group of Committee II concerning co-operation in monitoring illegal trade in whale meat was adopted. The Decision encourages Parties to inventory frozen whale products possessed in commercial quantities, and to collect samples for DNA identification from all inventoried stock, as well as from baleen whales taken in directed harvests and, where practicable, from aboriginal or incidental trade. It further invites all concerned countries to co-operate in determining sources of whale meat in cases of smuggling, or unknown identity, and to make relevant information available to the Secretariat for dissemination to interested Parties.

The **Illegal Trade in Bear Specimens** was addressed in the form of a draft resolution (**Doc. 10.41.1**) on the subject sponsored by Japan, the Republic of Korea, the Russian Federation, the USA, and the People's Republic of China. After some amendment, the resolution text was adopted by consensus. The Resolution (Conf. 10.8) notes the Parties' concern over illegal trade in bear parts and derivatives and asks Parties "demonstrably" to reduce illegal trade in bear parts and derivatives by the eleventh meeting of the Conference of the Parties, through strengthening laws, increasing penalties, improving wildlife law enforcement training, and educating the public about CITES regulations relating to bears. In addition, Parties are asked to quantify their domestic demand for bear parts and derivatives, to work with traditional medicine interests to reduce consumer demand, and to promote use of substitutes that do not endanger wild species. The Resolution requests the Secretariat to seek funds to convene an international workshop on law enforcement and forensic techniques that can be used to stop illegal trade in bear parts and derivatives.

Regarding **Trade in Tiger Specimens (Doc. 10.43.2)**, the Secretariat expressed its pleasure at the initiatives taken by the Parties to address this very serious issue. A revision to Resolution Conf. 9.13 on the conservation of and trade in Tigers, proposed by India, Nepal and the Russian Federation, was adopted. In order to encourage stronger measures to stop poaching of Tigers and illegal trade in Tiger parts and derivatives, the revised Resolution asks the Standing Committee to review Tiger trade issues during the inter-sessional period, identifying countries which need additional legislative and law enforcement measures to minimize illegal trade in Tigers and their parts and derivatives. Further, the Standing Committee is directed to send technical and political missions, where necessary, to assist governments with improving Tiger trade controls. Meanwhile, the situation is to be reviewed on an annual basis by the Standing Committee, which is instructed to report to the next meeting of the Conference of the Parties on specific recommendations for further reducing illegal trade in the species.

Concerning implementation of Resolution Conf. 9.15 on the **Conservation of Edible-nest Swiftlets of the Genus *Collocalia***, the Secretariat reported having convened a workshop on this issue in Surabaya, Indonesia, in November 1996 (**Doc. 10.50**). This workshop produced a series of recommendations, including that a steering committee for the conservation of edible nest swiftlets be established within the Working Group on Forestry of the Association of South East Asian Nations (ASEAN); such a Committee was established in May 1997. The Chairman of Committee I recommended that the Secretariat and the Animals Committee be kept informed of the work of this steering committee.

Resolution Conf. 9.17 on the status of international trade in shark species, adopted at the previous meeting of the Conference of the Parties, requested the Parties to provide information to the Secretariat on the **Biological and Trade Status of Sharks**. This information was reviewed by the Animals Committee and, together with other information, formed the basis of a report, including recommendations (**Doc. 10.51**), which was generally supported by the Parties. A Decision on this subject subsequently adopted by the Parties encourages them to improve efforts to identify, record, and report shark landings. These records should be to species level. The Decision further recommends that the Secretariat, in collaboration with the FAO, consult with the World Customs Organization to establish more specific, and standardized, tariff headings for recording shark trade, which would discriminate between meat, fins, leather, etc. Additionally, Parties are recommended to reduce mortality among sharks caught incidentally, and to initiate management of shark fisheries at the national level. The Decision also suggests that the FAO urgently change the manner in which it requests members to record and report data on shark landings; update its Shark World Species Catalogue and Shark Utilization and Marketing Monograph; support a consultancy to undertake an enquiry on the availability of biological and trade data on sharks and transmit the results to the CITES Secretariat; encourage its shark-fishing member states to implement certain relevant FAO codes of conduct for fishing and fish utilization; and requests the Chairman of the Animals Committee to serve as liaison with the FAO and with intergovernmental fisheries management and/or research organisations in relation to all activities concerning the implementation of Resolution Conf. 9.17.

The Chairman of the Plants Committee presented a report (**Doc. 10.52**), prepared by the Secretariat, at the request of the Standing Committee, on the basis of the report of the Timber Working Group (TWG). The report outlined the work of the TWG since the ninth meeting of the Conference of the Parties, at which the group had been established to address problems associated with **Implementation of the Convention for Timber Species**. The report described the terms of reference for the TWG, its membership, and the two meetings it had held. Issues it had examined included a review of trade in timber species listed in Appendix II and associated implementation; the definition of artificially propagated, as it relates to timber; identification of species in trade; definitions of terms relating to timber trade; reporting on parts and derivatives in trade; and the need to consult international organisations in the preparation and review of listing proposals for timber species. Following consideration of the document in Committee II and some amendment of the text of its annexes, it was decided to:

- amend Resolution Conf. 9.3 (Permits and Certificates) in order to accommodate certain timber trading practices. This will allow for the change of destination on export permits accompanying timber shipments, as import destinations are not always known at the time of export. Changes were also adopted to allow for an extension of the time validity of permits for timber held in bond and for inclusion of the names and addresses of importers and exporters on certificates of origin.

- amend Resolution Conf. 9.25, regarding inclusion of species in Appendix III, by adding two paragraphs relating to the listing of timber in that Appendix.

- amend Resolution Conf. 9.4, regarding annual reports and monitoring of trade, by adding a paragraph urging Management Authorities to review, and improve where necessary, their reporting of trade in timber species included in the Appendices.

- adopt a Resolution (Conf. 10.13) recommending a system of consultation be undertaken by any Party presenting an Appendix amendment proposal for timber. The Resolution calls for consultation with at least four international organisations - two with

expertise in trade, and two with expertise in biological characteristics - and a list of acceptable institutions is included in the Resolution. The Resolution clarifies that, in accordance with the definition contained in Resolution Conf. 9.18, timber shall only be considered artificially propagated if it originates from monospecific plantations. It also recommends increasing public understanding of the role of the Convention in the conservation of timber species.

- adopt Decisions which:

  - direct Parties concerned to agree on, and communicate to relevant bodies, vernacular and scientific names, and identification materials for timber species.

  - direct the Standing Committee to maintain the TWG, with its current balance of membership and interests, until the eleventh meeting of the Conference of the Parties. New terms of reference are to be devised for the Group, including the fact that it should review terms and units used for timber parts and derivatives by the Parties in their annual reports. The issue of whether the TWG should consider the listing criteria (Resolution Conf. 9.24) as they apply to timber species, prompted extended debate in Committee II, but was eventually voted against.

  - direct the Plants Committee to review all timber species included in the Appendices before the next meeting of the Conference of the Parties.

  - direct the Secretariat to examine the issue of the definition of "artificially propagated" as it relates to timber species in more detail. The Secretariat will be further directed to review existing timber identification materials; to seek to improve annual reporting by the Parties of timber trade; to cultivate good working relationships on timber issues with ITTO, FAO, IUCN, TRAFFIC and WCMC; and to report at the next meeting of the Conference of the Parties on the special procedures introduced regarding time validity and change of destination for permits issued for timber species.

A document relating to the **Disposal of Confiscated Live Plants of Species Included in the Appendices (Doc 10.54)** had been prepared by the Secretariat at the request of the Plants Committee. The issue of disposal of confiscated live plants had arisen during discussion of the draft resolution on disposal of confiscated live animals at the ninth meeting of the Conference of the Parties, at which it was decided that the Plants Committee would prepare a similar document relating to plants. A working group subsequently prepared draft text for consideration by the Plants Committee. Based on this, a set of draft guidelines, including a "decision tree analysis", for the disposal of confiscated live plants was drawn up and presented to the tenth meeting of the Conference of the Parties in an annex of Doc. 10.54. These guidelines were adopted for incorporation into an annex of an amended version of Resolution Conf. 9.11, which dealt with the disposal of confiscated animals, but which has accordingly been renamed, to replace the word "animals" in its title with "specimens". Once the amendments to Resolution Conf. 9.11 had been adopted, changes to Resolution Conf. 9.10, dealing with the disposal of illegally traded, confiscated and accumulated specimens, were subsequently approved, to avoid duplication of subject matter in the two Resolutions.

The Parties considered a document (**Doc. 10.56**) outlining the proposed process and projects for the review of **Significant Trade in Appendix-II Species** of plants. The document explained that poor-quality trade data and lack of status information for most plant species required a proactive and innovative approach to the significant trade review, and noted that for some CITES-listed plant species, trade data are non-existent. The document divided significant trade projects into four categories, based on the level of trade and status information available. Parties expressed approval of the proposed projects and the review process, although concern was voiced about the notable increase in the size of the budget required. The Parties agreed to adopt the document, with a direction to the Plants Committee to set priorities, depending on the budget.

A new Resolution concerning the **Sale of Tourist Items of Appendix-I Species at International Airports, Seaports and Border Crossings (Doc. 10.57)** was adopted by the Parties. The Resolution (Conf. 10.6, to be consolidated with Resolution Conf. 4.12 (Rev.)) urges Parties to take all necessary steps to prohibit the sale of such items, and to place information pertaining to the illegality of international trade in such species at points of international arrival and departure.

Draft resolutions on the subject of **captive breeding**, put forward by the Secretariat **(Doc. 10.67)** and the USA **(Docs. 10.68.1** and **10.68.2)**, eventually led to agreement on a new definition of "bred in captivity". Because the proposed resolutions were both very different and complex, a working group was created to address the content of the documents in detail and produce amended text for agreement by the Parties. The resulting Resolution (Conf. 10.16) replaces Resolution Conf. 2.12. Key changes to the Parties' definition of "bred in captivity" include a specific requirement that breeding stock be established or augmented in accordance with CITES and relevant national laws. Previously, it had only been stipulated that such stock be established without detriment to the survival of the species in the wild. For specimens to qualify as captive-bred, breeding stock will in future either need to have produced specimens to the second generation (F2), or the species concerned will need to be included on a list of animal species reliably bred in captivity to the second

or subsequent generation. This list is to be established by the Standing Committee, based on proposals to be submitted by the Animals Committee. Until such time as the list is established, offspring can be considered captive-bred if breeding stock is managed in a manner demonstrated to be capable of producing F2 specimens, a situation similar to that provided for under Resolution Conf. 2.12.

Revision of the requirements for registering a captive breeding facility, as expressed in Resolutions Conf. 8.15 and 8.22, was referred ultimately to the Animals Committee for review, according to a Decision of the Parties. The Committee is called on to "examine the effectiveness of and need for the existing registration system for facilities breeding specimens of Appendix-I species in captivity for commercial purposes and provide advice at the 11th meeting of the Conference of the Parties on the need for any changes". At issue is whether the registration system is a cost-effective means of controlling the commercial trade in captive-bred Appendix-I specimens. At present, very few commercial breeding facilities are registered with the Secretariat. The Animals Committee is also asked to "consider the proposed definition of 'bred in captivity for commercial purposes' in document Doc. 10.67".

The proposal to create a **Working Group on Marine Fish Species (Doc. 10.60)**, to prepare an analysis of implementation concerns associated with the inclusion in Appendix II of marine fish species, subject to large-scale harvesting and international trade, and to develop recommendations accordingly for consideration at the eleventh meeting of the Conference of the Parties, although hotly debated, was defeated by 59 votes against to 49 in favour.

The Parties significantly revised the process to collect and evaluate information on injury and damage to health during **Transport of Live Animals (Doc. 10.75)**, replacing Resolution Conf. 9.23 on this subject. The new Resolution (Conf. 10.21) provides a mechanism for making species- and country-specific recommendations intended to minimize mortality by providing positive solutions to identified problems.

The agenda item **Information on the Population Status of and Threats to *Ovis vignei* (Doc. 10.78)** addressed the question of the scope of the Appendix-I listing of the species, specifically whether the intent of the Parties at the time of the original proposal (1975) had been to list the entire species in Appendix I, or the nominate subspecies (*O.v. vignei*) only. The relevant document introduced by Germany, explained that originally it had been intended to resolve the issue by an amendment to the Appendices, but the Nomenclature Committee subsequently advised that the listing served to cover the entire species, according to CITES adopted nomenclature. This recommendation had been supported by the Animals Committee and the Secretariat.

In Committee, the delegation of Germany sought a binding decision from the Parties accepting the recommendation that the species was included in Appendix I in its entirety, but subsequent debate confirmed continuing uncertainty regarding the scope of this listing. A solution was found when the Chairman of the Nomenclature Committee announced that newly available information clarified that only *O.v. vignei* had originally been intended for inclusion in Appendix I. The Parties accepted his recommendation, in the light of this information, to adopt a Decision that clarifies this interpretation and encourages range states and importing Parties to treat the other subspecies as if they were included in Appendix II. The delegation of Germany responded by announcing their intention to work with prominent range states to develop an Appendix-II listing proposal for all remaining *O. vignei* subspecies.

For the first time in the history of CITES, traditional medicine experts were included on the delegations of the People's Republic of China and the Republic of Korea, in anticipation of a discussion on **Traditional Medicines and CITES**. Submitted by the UK, Japan and the Republic of Korea, **Docs. 10.79** and **10.79.1** led to CITES's first Resolution on traditional medicine as an issue in its own right and not attached to a species issue (Resolution Conf. 10.19). The Resolution recommends that Parties work with traditional medicine advocates to eliminate illegal use of endangered species as medicine and asks Parties to ensure their national laws control all parts and derivatives of CITES-listed species used in medicine. While acknowledging the importance of traditional medicines, the Resolution encourages promotion of substitutes for threatened medicinal wildlife and development of forensic techniques to help law enforcement officials identify CITES specimens in medicines. Consideration of artificial propagation and captive breeding of medicinal species to relieve pressure on wild populations is mentioned in the text of the Resolution, although some Parties let it be known in discussion that they worried about the conservation and welfare aspects of farming wild animal species.

An **Information Management Strategy** for the Convention (**Doc. 10.82**) was adopted by the Parties. Its goals are to build capacity in national CITES authorities to collect, manage, interpret and use relevant information and to ensure the co-ordinated provision of information services supporting the implementation of CITES. A pilot study for the strategy will be conducted in Africa, but any Party which feels it could contribute to the pilot study is invited to do so. The Secretariat suggested that the Capacity Building Unit within the Secretariat co-ordinate the CITES Information Management Strategy and noted that this approach could make additional funds available for its implementation.

In accepting **Doc. 10.84, Proposals Concerning Export Quotas for Specimens of Appendix-I Species**, the Parties approved the export from Pakistan of six Markhor *Capra falconeri* trophies (Resolution Conf. 10.15 relates). This Appendix-I goat species is declining owing to hunting by local people and habitat loss. The proposed trophy hunting scheme is intended to demonstrate the potential economic value of Markhor to local communities, thereby providing an incentive to conserve the species.

Proposals for Amendment of Appendices I and II:

Crocodiles

Argentina's proposal to transfer its population of Broad-nosed Caiman *Caiman latirostris* from Appendix I to Appendix II, in order to allow the export of products derived from ranching operations in Santa Fe Province, and ranching proposals from Madagascar and Uganda to maintain their populations of Nile Crocodile *Crocodylus niloticus* in Appendix II, were all accepted.

Tanzania's proposal to establish an annual export quota of 1000 skins and 100 hunting trophies from wild Nile Crocodiles, for the years 1998-2000, was accepted, following an affirmation from the delegation of Tanzania that they would comply fully with the terms of Resolution Conf. 9.24.

Whales

The tenth meeting of the Conference of the Parties considered five proposals to transfer whale stocks from Appendix I to II. During the lengthy discussions of Japan's proposal to transfer the Grey Whale *Eschrichtius robustus*, Eastern Pacific stock, the debate focused for some time on the relationship between CITES and IWC. Many Parties stated their opposition to changing the Appendix listings for whales before the IWC's revised management scheme had been completed, while others stressed the need for CITES to act independently and to use its own criteria when listing species in the Appendices. The proposal was rejected following a secret ballot with 47 votes in favour and 61 against. Debate on Japan's proposals to transfer the Okhotsk Sea West Pacific stock and the Southern Hemisphere stock of Minke Whales *Balaenoptera acutorostrata*, and Norway's to transfer the North-east Atlantic and North Atlantic Central stock of the same species centred around similar points to those raised in discussion of the Grey Whale proposal. Parties opposing the proposals again expressed concern about acting counter to CITES's own precautionary measures, or against IWC decisions, while those supporting the proposals argued that there was no scientific basis for maintaining the populations in Appendix I. Both Japan's Minke Whale proposals were rejected outright, following secret ballots, despite an eventual amendment to that for the Southern Hemisphere stock to read "the catch quota set in accordance with the provisions of the International Convention for the Regulation of Whaling". The Norwegian proposal achieved a simple majority in favour (57 for; 51 against), again in secret ballot, but not the necessary two-thirds' majority to secure an amendment to the Appendices. Observing the pattern of voting on the previous whale proposals, Japan withdrew its proposal to transfer the North Pacific Western stock of Bryde's Whale *Balaenoptera edeni* from Appendix I to Appendix II.

African Elephant *Loxodonta africana*

Botswana, Namibia and Zimbabwe have long argued that their populations of elephants did not meet the criteria for inclusion in Appendix II, and all three countries have held reservations against the 1989 decision to place the species in Appendix I. For the tenth meeting of the Conference of the Parties, the three proponent states submitted individual proposals to transfer their elephant populations to Appendix II. All three proposed to trade in registered stocks of ivory under export quotas established for 1998 and 1999. Any further trade in ivory under quota was to be subject to a decision by a future Conference of the Parties. In addition, all three countries proposed to trade in sport-hunted trophies and live animals, while Zimbabwe also proposed to trade elephant leather articles and ivory carvings for non-commercial purposes, and elephant hides. Each of the proposals featured a range of common restrictions and precautionary measures, including: limiting exports of ivory to registered raw tusks of certifiable national origin; marking all tusks in accordance with Resolution Conf. 9.16; restricting the sale of ivory to a single importing country, Japan; selling ivory through a single, government-controlled centre in each country; restricting export to a single shipment in each of the years for which a quota has been accepted and transporting the shipment through the most direct route to the country of import; allowing independent monitoring of the sale, packing and shipping process to ensure compliance with all conditions; requiring the importing country to impose legal controls against any future re-exportation of the imported ivory; directing all net revenues from the sale of ivory back into elephant conservation for use in monitoring, research, law enforcement, other management expenses or community-based conservation programmes within elephant range states; withdrawing their reservations concerning the inclusion of the African Elephant in Appendix I; and developing a special mechanism with the Depositary Government (Switzerland) to submit, upon request from the Standing Committee, a proposal to re-transfer their elephant populations to Appendix I in the event of abuse of, or failure to comply with, the conditions of the proposals.

All three proposals were reviewed by a Panel of Experts established in accordance with Resolution Conf. 7.9. The Panel's report, issued on 7 February 1996, concluded that the population status and management of elephant populations, including anti-poaching efforts, in all three countries were adequate. Although there were concerns over domestic ivory trade controls, to varying degrees, in the proponent countries and in Japan, all took certain measures to address the shortcomings noted in the Panel's report prior to the tenth meeting of the Conference of the Parties and, in the case of Namibia, all outstanding issues were satisfactorily rectified.

An Africa-wide consensus position on the southern African elephant proposals had been sought at two African Elephant Range States Dialogue meetings (in Dakar, Senegal, 11-16 November 1996, and in Darwendale, Zimbabwe, 5-6 June 1997), convened as a direct result of a Decision taken at the ninth meeting of the Conference of the Parties. Although the range states acknowledged that the proposals were "well-researched, well-prepared and well-presented... to put forth a compelling argument for the transfer of their African Elephant populations to Appendix II", concerns remained about the impact of downlisting on other elephant populations, trade controls, and the management of ivory stocks throughout Africa. The issue of a single trading partner was also viewed as problematic in the long-term by some range states. The meeting's concluding statement was presented to the Conference of the Parties. Dialogue to reach a consensus position among African Elephant range states continued throughout the Conference, in various fora.

C. Allan/TRAFFIC

Delegates casting their votes in a secret ballot on the African Elephant proposals.

Debate on **Trade in African Elephant Specimens** began with introductions of **Doc. 10.45** (concerning **Revision of Resolution Conf. 7.9** on terms of reference for the Panel of Experts); **Doc. 10.44** (which contained a draft resolution for **Revision of Resolution Conf. 9.16** on conditions for trade in African Elephant ivory); **Doc. 10.44.2**, (which contained draft amendments to **Doc. 10.44**); and **Doc. 10.44.1** (containing a draft resolution concerning conditions for the resumption of trade in ivory and disposal of ivory stocks from African Elephant range states). Once introduced, however, discussion of these documents was deferred until debate of the elephant amendment proposals.

The delegations of Botswana, Namibia and Zimbabwe introduced their amendment proposals, swiftly followed by the delegation of South Africa, which introduced a composite amendment to attach a restrictive annotation to all three proposals. This sought to forbid resumption of trade in ivory for at least 18 months, and to add further conditions for any eventual trade (including those set out in Doc. 10.44.1). Although, with the aim of keeping meetings to schedule, the Chairman had deliberately limited debate on other amendment proposals, the discussion on elephants was lengthy, involving interventions from over 50 Parties, but in the interest of time, no NGOs were allowed to speak. Upon the conclusion of debate of the composite proposal, as amended by South Africa, a vote was conducted by secret ballot, in which the proposal failed by three votes (75 in favour, 41 against, and seven abstentions) to receive a two-thirds' majority (of those voting).

Under the Rules of Procedure, a vote on the original amendment proposals still remained to be taken and, following advice from the Bureau and informal consultation with interested Parties, the Chairman of Committee I proposed that a drafting group be established to consider these, along with other outstanding documents relevant to the debate on trade in African Elephants. Accordingly, a group chaired by Norway and composed of the three proponent countries; Japan; Cameroon and Congo for Central Africa; Côte d'Ivoire and Ghana for West Africa; Uganda and Kenya for East Africa; Malawi and South Africa for Southern Africa; Egypt and Tunisia for Northern Africa; Canada; Mexico; Nepal; Peru; and a delegation of the EU, was convened. It returned the results of its meetings to Committee I, in the form of three documents.

The first to be considered was a draft decision imposing a set of extra conditions (in addition to the conditions already set out in the original amendment proposals (see above)), which would need to be met before ivory trade could resume in the future. In a secret ballot, a majority of 76 voted in favour of the additional conditions, 21 against, and 20 abstained: they were therefore adopted in the form of a Decision of the Parties. The new conditions include: addressing remaining deficiencies in the proponent countries and Japan, as identified by the Panel of Experts; supporting and committing to international co-operation in law enforcement through such mechanisms as the Lusaka Agreement; and establishing international reporting and monitoring systems to track illegal trade in ivory, worldwide, and illegal killing of elephants in range states. TRAFFIC is requested to play a leading role towards fulfilment of the last-mentioned condition. Further, the Standing Committee is given the role of ensuring that all of the

agreed conditions are satisfied and, if ivory trade recommences, that of assessing any negative impacts of its resumption on other range states.

The second document from the drafting group to be considered consisted of proposed annotations to each of the three proposals to transfer elephant populations to Appendix II. In each case, the annotation was to allow exports of sport-hunted trophies for non-commercial purposes and exports of live elephants to appropriate and acceptable destinations. In addition, the annotation to Zimbabwe's proposal provided for exports of hides, and exports of leather goods and ivory carvings for non-commercial purposes. With respect to trade in raw ivory, the annotations assigned a single "experimental quota" to each country for eventual export to Japan, but this was not to take place until 18 months after the transfer to Appendix II comes into effect (i.e. not until 18 March 1999), and then only if the Standing Committee was satisfied that all the conditions established in Com. 10.34 had been met. The experimental quota for Botswana was set at 25.3 t of raw ivory, for Namibia at 13.8 t, and for Zimbabwe at 20 t, with any subsequent trade levels to be confirmed by a future Conference of the Parties. Voting then took place on each of the three amendment proposals, as annotated. All three were adopted, following separate secret ballots, with between 74 and 77 votes in favour, and between 21 and 23 votes against.

The third document produced by the drafting group was a draft decision establishing conditions for the disposal of ivory stocks and the generation of resources for conservation in African Elephant range states. The delegation of Zimbabwe called for a vote on the decision by secret ballot, following which it was accepted by 90 votes in favour and 18 against. The new Decision allows for "a once-off purchase for non-commercial purposes of government stocks declared...to the CITES Secretariat within the 90 day period before the transfer of certain populations of the African Elephant takes effect" (i.e. 18 September 1997). All such ivory will need to be marked, according to the system outlined in Resolution Conf. 9.16, and the source and location of the ivory also need to be identified. TRAFFIC is requested to conduct an independent audit of any declared stocks. With respect to any revenues which are generated pursuant to this Decision, range states are obliged to establish conservation trust funds "which would direct the proceeds into enhanced conservation, monitoring, capacity building and local community-based programmes". Range states that dispose of their ivory stocks pursuant to this Decision are also obliged to participate in the international reporting and monitoring systems to track illegal trade in ivory and illegal killing of elephants.

To complete the deliberations on elephant issues, the Conference of the Parties also adopted by consensus a revision of Resolution Conf. 9.16 on trade in African Elephant ivory. A new Resolution (Conf. 10.10) entirely replaces Resolution Conf. 9.16, and calls for the establishment of "a comprehensive, international monitoring system...with the objective of measuring and recording current levels and trends of poaching (= illegal hunting) and illegal trade in ivory in African and Asian range states, and in trade entrepots"; assessment as to "whether, and to what extent, observed trends are a result of changes in the listing of elephant populations in the CITES Appendices and/or the resumption of legal international trade in ivory"; and establishment of "an information base in support of mechanisms to take appropriate remedial action in the event of any problems with compliance or potential detriment to the species". TRAFFIC's Bad Ivory Database System is "designated as the appropriate instrument for measuring the pattern and scale of illegal trade in ivory and other elephant products". The Resolution, while recognizing that there is no system in place to measure accurately "the pattern and scale of illegal killing...the effort and resources being applied to detection and/or prevention ... as well as other factors that might effect these parameters, such as civil strife, the flow of illegal arms and ammunition, loss of habitat and drought", outlines a process for developing such a monitoring system, involving the CITES Secretariat, Standing Committee, IUCN/SSC, the African and Asian Elephant Specialist Groups, and TRAFFIC.

In recognition of the positive role that the Panel of Experts process and the special downlisting criteria had played in evaluating proposals to transfer African Elephant populations to Appendix II, the Parties approved by consensus the revision of Resolution Conf. 7.9 in Doc. 10.45. The resultant new Resolution (Conf. 10.9) formally expands the scope of the original Resolution, to include "trade in parts and derivatives from the African Elephant other than ivory and the controls on such trade in the proponent State; and the controls on ivory trade in specified importing countries".

Southern White Rhinoceros *Ceratotherium simum simum*

At the ninth meeting of the Conference of the Parties, South Africa's population of Southern White Rhinoceroses was transferred to Appendix II with an annotation which restricted trade to "international trade in live animals to appropriate and acceptable destinations and hunting trophies". At the tenth meeting, the delegation of South Africa introduced their proposal to expand the annotation to allow trade in parts and derivatives, but with a zero quota for such trade for the present. In Committee I, they indicated that, if the proposal were adopted, the wording of the annotation in the Interpretation of Appendices I and II should read "°503 Commercial trade in horns is subject to an export quota. For the years 1997 to 1999 the quota is zero." South Africa additionally sought support for open and transparent discussions with practitioners of traditional Chinese medicine concerning the possibility of a limited, tightly controlled trade in rhinoceros horn in the future, arguing that such a development would generate

funds for conservation and reduce incentives for illegal trade. In their view, the proposed amendment to the annotation would help to facilitate such discussions. A variety of opinions were expressed during debate of the proposal. One Party noted that there had been no problems experienced following the transfer of South Africa's Southern White Rhinoceros population from Appendix I to II, and drew attention to the fact that the proposed annotation would allow trade in rhinoceros meat and skins, but not horns. Those opposing the proposal emphasized that adequate trade controls were not in place and that the proposed annotation might undermine efforts to reduce rhinoceros horn consumption in consumer countries. The delegation of the USA offered support for dialogue among all rhinoceros range states on the non-commercial disposal of rhinoceros horn stocks. In a vote by show of hands, the proposal failed to receive a two-thirds' majority, with 60 votes in favour and 32 against. In a subsequent plenary session, the delegation of South Africa succeeded in re-opening debate and called for a vote on the same proposal by secret ballot, which resulted in a second rejection, this time by 50 votes in favour and 48 against.

Vicuña *Vicugna vicugna*

Four separate proposals involving this species were all adopted by consensus. One, submitted by Peru, related to amendment of annotation °504, such that Vicuña cloth is required to be marked to specify country of origin and to include the term "Vicuña" (rather than "Vicuñandes", as previously). A second Vicuña proposal from Peru concerned additional amendment to annotation °504, in order to specify that the member countries of the Convention on Conservation and Management of the Vicuña could trade in luxury handicrafts and knitted articles made of wool shorn from live Vicuñas from Appendix-II populations and from stocks of wool held in Peru at the time of the ninth Conference of the Parties. One wild and several semi-captive Vicuña populations in Argentina were transferred from Appendix I to II and, finally, Bolivia's proposal to transfer Vicuña populations from three "Conservation Units" from Appendix I to II was with a zero quota.

Regarding **Exports of Vicuña Cloth,** a Decision was adopted to issue a further Notification to the Parties seeking information on stocks of Vicuña cloth and fibre held. Referring to the Secretariat's report on efforts to monitor the trade in Vicuña products (**Doc. 10.49**), as called for in Resolution Conf. 8.11, the delegation of Bolivia, speaking on behalf of the Convention on Conservation and Management of the Vicuña, commented on the continued difficulty of monitoring the trade. They drew particular attention to the problems posed by unregistered pre-Convention stocks of Vicuña fibres and illegal trade, adding that they fully supported the continued assistance of NGOs such as TRAFFIC in monitoring such trade.

Hawksbill Turtle *Eretmochelys imbricata*

There was considerable discussion of Cuba's proposal to transfer its population of Hawksbill Turtle *Eretmochelys imbricata* from Appendix I to Appendix II. Cuba sought approval to export a single shipment of less than six tonnes of registered stocks of shell to Japan and, further, to export to Japan annual single shipments of up to 500 shells taken in the traditional fishery, plus a limited number of shells (50 in the first year, 100 in the second, and 300 in the third) from an experimental ranching programme.

Significant support was expressed for the proposal and for Cuba's efforts in managing this species during discussion in Committee I. Concerns were expressed, however, with regard to the fact that the population in question was not solely restricted to Cuban waters, and that acceptance of the proposal might have serious repercussions for conservation and trade of the species within the region and globally. Further regional co-ordination on this issue was recommended by some delegates. The proposal received 53 votes in favour, 39 against, with 18 abstaining, in a secret ballot requested by the delegation of Cuba, and therefore failed to achieve the necessary two-thirds' majority for acceptance.

The delegation of Cuba received support to re-open debate on their proposal in a subsequent plenary session and sought to amend it so that the export quota for shells obtained from traditional harvest and ranching operations would be set at zero, pending review of the situation at the eleventh meeting of the Conference of the Parties. In addition, the delegation of Cuba announced that the number of eggs to be taken for experimental ranching would be reduced by 50%, and that a percentage of revenues from the sale of the shell stockpile would be used for Hawksbill Turtle studies, to be undertaken with other countries in the region. The Bureau ruled that introducing such an amendment was allowed, despite some question as to whether it was acceptable without additional time for consideration by the Parties. Interventions regarding the amended proposal raised points similar to those previously made in Committee I and the revised proposal was rejected, following a secret ballot in which 55 votes were cast in its favour and 49 against, with seven abstentions.

Sturgeons, Acipenseriformes spp.

Germany and the USA submitted a proposal to include 23 species of sturgeon, Acipenseriformes spp., in Appendix II, to join those already covered by the Convention. Harvest from the wild for international trade in caviar, and to a lesser extent meat, has become increasingly unregulated, and is having a detrimental impact on the remaining stocks, which are mainly in the Caspian Sea basin. Most sturgeon species are considered globally threatened owing to fishing pressures and

habitat degradation. The proposal was adopted by consensus, thereby including all sturgeon species under CITES. However, this inclusion will not enter into force until 1 April 1998 to allow Parties time to put in place all necessary controls and management plans, prior to its implementation.

The listing of sturgeons was accompanied by the adoption of a Resolution (Conf. 10.12), **Conservation of Sturgeons (Acipenseriformes)**, that should assist range states and consumer countries in implementing the provisions of the Convention for these valuable fish. The Resolution urges range states and Parties to encourage scientific research on sturgeon fisheries in the Eurasian region, to curtail illegal fishing and exports and to promote regional agreements between range states to bring about proper management and sustainable utilization of sturgeons. Range states are encouraged to provide names of legal exporters of sturgeon products, and requested to consider the feasibility of developing annual quotas for sturgeon products. The Resolution asks Parties to consider setting a maximum allowance of 250 g of caviar per person as a personal effects exemption under CITES Article VII. Furthermore, the CITES Animals Committee and the CITES Secretariat are asked to explore marking systems for sturgeon products, and the Animals Committee immediately to consider sturgeons under the Significant Trade Review process pursuant to Resolution Conf. 8.9.

Plants

A total of 13 plant proposals were considered by the Parties in Harare. Four proposals resulting from the periodic review process were accepted, with only one, the amendment of annotation #3 for American Ginseng *Panax quinquefolius*, prompting discussion. Wording was agreed to make specific reference to those products that should be excluded from the Appendix-II listing for American Ginseng, such as manufactured products.

Of the nine other plant proposals, the deletion from Appendix II of Tweedy's Bitter-root *Lewisia tweedyi*, and the transfer from Appendix I to Appendix II of two South African species - the Marsh Rose *Orothamnus zeyheri* and Protea *Protea odorata* - were accepted, without dissent. Three medicinal plant species were included in Appendix II, following some debate and amendment: Goldenseal *Hydrastis canadensis*, Jatamansi *Nardostachys grandiflora*, and Kutki *Picrorhiza kurrooa*. The proposal to amend annotation #4 (which excludes seeds from the listing of Appendix-II plant species), such that the "seeds from Mexican cacti originating in Mexico" would be included in Appendix II, was regarded as being difficult to implement, owing to problems in seed identification. However, it was accepted after the proponent, Mexico, outlined additional efforts that would be undertaken to facilitate the listing. A proposal to include an annotation to exclude the artificially propagated hybrids and/or cultivars of several species widely known as "supermarket plants", for example, *Cyclamen persicum,* was submitted by Denmark. After concern was raised about the possibility of wild specimens of some of the proposed species appearing in trade outside CITES trade controls as a result of the proposed annotation, the proposal was suitably amended, then accepted, thereby allowing countries producing millions of the plants in question to exempt them from CITES controls.

The plant proposal which triggered the most discussion during the meeting was that for Big-leafed Mahogany *Swietenia macrophylla*, co-proposed by Bolivia and the USA to be listed in Appendix II. Opponents argued that the species did not meet the biological criteria for inclusion in Appendix II, while supporters pointed out evidence of declining populations, illegal trade, and inadequate monitoring. It was also noted that an Appendix-II listing would be complementary to existing national legislation in the main mahogany-exporting countries (Bolivia, Brazil and Peru). At the same time, misunderstanding about the proposal and the issue of timber species in the Appendices in general abounded. After the proposal was defeated following a secret ballot (67 in favour, 45 against, nine abstentions), the delegation of Brazil, which had earlier spoken against the proposal, made a statement explaining that they were concerned about the sustainability of harvest of their mahogany, but felt it was important to address the issue on a regional basis through regional initiatives. They disclosed that they had abstained from voting. In the plenary session on the final day of the meeting, the delegation of the USA were allowed to reopen debate on this proposal, and announced an agreement reached among range states, and in particular with Brazil, to form a working group to examine the status, management, and trade in *Swietenia macrophylla* throughout its range. This initiative was welcomed by range states, and was complemented by both Brazil and Mexico stating that they would place their populations of this species in Appendix III.

The Parties selected Indonesia as the **Venue of the Next Regular Meeting of the Conference of the Parties**, which is scheduled to take place during the second half of 1999.

Reports from the meeting were contributed by C. Allan, A. Bodasing, T. De Meulenaer, C. Hoover, N. Marshall, T. Milliken, T. Mulliken, J.A. Mills, M. Phipps and G. Sant. Technical advice to the Editor was provided by T. Mulliken.

Amendments to the CITES Appendices

The following pages summarize the proposals that were adopted, rejected and withdrawn at the tenth meeting of the Conference of the Parties to CITES, held in Harare, Zimbabwe, from 9 to 20 June 1997. The amendments entered into force on 18 September 1997.

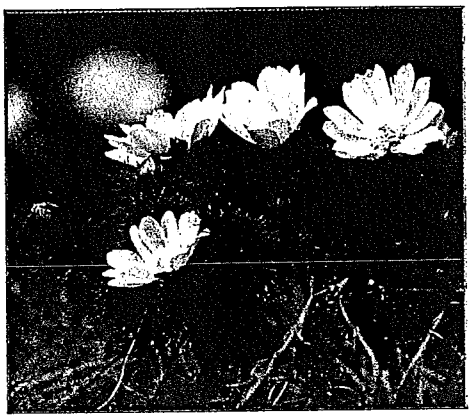
Species	Proposal/Proponent	Result
MAMMALS		
Minke Whale *Balaenoptera acutorostrata*	App. I > App. II (Okhotsk Sea, W. Pacific and S. hemisphere stocks) JP	Rejected
Minke Whale *Balaenoptera acutorostrata*	App. I > App. II (NE Atlantic and N. Atlantic Central stocks) NO	Rejected
Bryde's Whale *Balaenoptera edeni*	App. I > App. II (N. Pacific Western stock) JP	Withdrawn
Grey Whale *Eschrichtius robustus*	App. I > App. II (E. Pacific stock) JP	Rejected
American Bison *Bison bison athabascae*	App. I > App. II CA	Accepted
Banteng *Bos javanicus*	Incl. App. I TH	Withdrawn
Asian Wild Buffalo *Bubalus arnee*	Incl. App. I TH	Withdrawn
Mountain Pygmy-possum *Burramys parvus*	Delete App. II AU	Accepted
Southern White Rhinoceros *Ceratotherium simum simum*	Amendment to annotation (to allow trade in parts and derivatives but with zero export quota) ZA	Rejected
Furry Armadillo *Chaetophractus nationi*	Incl. App. I BO	Amended: App. II zero quota
Bennett's Tree-kangaroo *Dendrolagus bennettianus*	Delete App. II AU	Accepted
Lumholtz' Tree-kangaroo *Dendrolagus lumholtzi*	Delete App. II AU	Accepted
Père David's Deer *Elaphurus davidianus*	Incl. App. II AR/CN	Withdrawn
African Elephant *Loxodonta africana*	App. I > App. II (subject to conditions) (see page 14) BW/NA/ZW	Accepted
Kara Tau Argali *Ovis ammon nigrimontana*	App. II > App. I DE	Accepted
Jaguar *Panthera onca*	Export quotas (for specified number of hunting trophies) VE	Withdrawn
Collared Peccary *Pecari tajacu*	Delete App. II (MX popln only) MX	Accepted
Brown Bear *Ursus arctos*	App. II > App. I (all Asian and European pòplns) BG/FI/JO	Rejected
Vicuña *Vicugna vicugna*	App. I > App. II (popln of the Province of Jujuy and the semi-captive poplns of the Provinces of Jujuy, Salta, Catamarca, La Rioja and San Juan, Argentina, with annotation to allow only the international trade in wool sheared from live vicuñas and in cloth and manufactured items made thereof under the mark "VICUÑA-ARGENTINA) AR	Accepted
Vicuña *Vicugna vicugna*	App. I > App. II (poplns of the Conservation Units of Mauri-Desaguadero, Ulla Ulla and Lipez-Chichas, Bolivia, with an annotation to allow only the international trade in cloth made of wool sheared from live vicuñas, under the mark "VICUÑA-BOLIVIA" but with a zero export quota) BO	Accepted
Vicuña *Vicugna vicugna*	Amendment (replace the words "VICUÑANDES-CHILE" and "VICUÑANDES-PERU" by the words "VICUÑA-COUNTRY OF ORIGIN") PE	Accepted

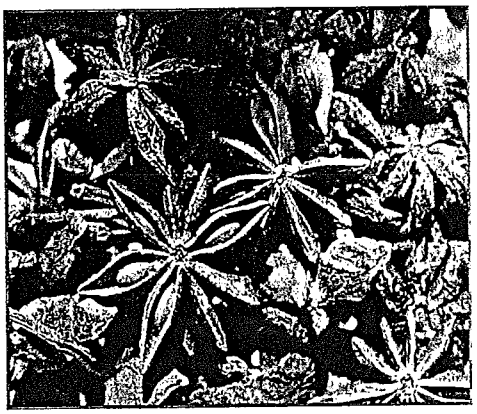
Species	Proposal/Proponent	Result
Vicuña *Vicugna vicugna*	Amendment (to allow the members of the Vicuña Convention to trade in luxury handicrafts and knitted articles made of wool sheared from live vicuñas from Appendix-II poplns) PE	Accepted
BIRDS		
Writhed-billed Hornbill *Aceros waldeni*	App. II > App. I DE	Withdrawn
Green Avadavat *Amandava formosa*	Incl. App. II NL	Accepted
Black-billed Parrot *Amazona agilis*	App. II > App. I DE	Withdrawn
Red-crowned Parrot *Amazona viridigenalis*	App. II > App. I DE/MX/US	Accepted
Yellow-crested Cockatoo *Cacatua sulphurea*	App. II > App. I DE	Withdrawn
Uvea Parakeet *Eunymphicus cornutus uvaeensis*	App. II > App. I DE	Withdrawn
Weka *Gallirallus australis hectori*	Delete App. II NZ	Accepted
Hill Myna *Gracula religiosa*	Incl. App. II NL	Accepted
Silver-eared Mesia *Leiothrix argentauris*	Incl. App. II NL	Accepted
Red-billed Leiothrix *Leiothrix lutea*	Incl. App. II NL	Accepted
Omei Shan Liocichla *Liocichla omeiensis*	Incl. App. II NL	Accepted
Java Sparrow *Padda oryzivora*	Incl. App. II NL	Accepted
Helmeted Curassow *Pauxi pauxi*	Incl. App. II NL	Withdrawn
Horned Curassow *Pauxi unicornis*	Incl. App. II NL	Withdrawn
Plains-wanderer *Pedionomus torquatus*	Delete App. II AU	Accepted
Straw-headed Bulbul *Pycnonotus zeylanicus*	Incl. App. II NL/US	Accepted
Seven-colored Tanager *Tangara fastuosa*	Incl. App. II DE	Accepted
Black-breasted Buttonquail *Turnix melanogaster*	Delete App. II AU	Accepted
Kuhl's Lorikeet *Vini kuhlii*	App. II > App. I DE	Rejected
Tahitian Lorikeet *Vini peruviana*	App. II > App. I DE	Rejected
Ultramarine Lorikeet *Vini ultramarina*	App. II > App. I DE	Accepted
REPTILES		
Broad-nosed Caiman *Caiman latirostris*	App. I > App. II (AR popln) AR	Accepted
Painted Terrapin *Callagur borneoensis*	Incl. App. II DE	Accepted
Nile Crocodile *Crocodylus niloticus*	Maintain App. II (MG popln) (ranching) MG	Accepted
Nile Crocodile *Crocodylus niloticus*	Maintain App. II (UG popln) (ranching) UG	Accepted
Nile Crocodile *Crocodylus niloticus*	Export quota (1000 skins and 100 hunting trophies from wild animals for the years 1998-2000 (TZ popln) TZ	Accepted
Timber Rattlesnake *Crotalus horridus*	Incl. App. II US	Withdrawn
Hawksbill Turtle *Eretmochelys imbricata*	App. I > App. II (CU popln, subject to conditions) CU	Rejected
Map turtles (12 spp.) *Graptemys* spp.	Incl. App. II US	Rejected
Alligator Snapping Turtle *Macroclemys temminckii*	Incl. App. II US	Withdrawn
Indian Monitor *Varanus bengalensis*	App. I > App. II (BD popln, subject to quotas) BD	Rejected
Yellow Monitor *Varanus flavescens*	App. I > App. II (BD popln, subject to quotas) BD	Rejected

Species	Proposal/Proponent	Result
AMPHIBIANS		
Mantella frogs *Mantella bernhardi* *Mantella cowani* *Mantella haraldmeiri* *Mantella viridis*	Incl. App. II NL	Withdrawn
FISH		
Sturgeons Acipenseriformes spp.	Incl. App. II DE/US	Accepted (entry into force: 1 April 1998)
Sawfish Pristiformes	Incl. App. I US	Rejected
INVERTEBRATES		
Mussels *Fusconaia subrotunda* *Lampsilis brevicula* *Lexingtonia dolabelloides*	Delete App. II US	Accepted
Land Snails *Paryphanta* spp.	Delete App. II NZ	Accepted
PLANTS	Amendment of annotations (App. II) (exemption of "cut flowers of art. prop. plants") CH	Accepted
	Amendment of annotation (App. II) ("designates logs sawn wood and veneer sheets")[2] CH	Accepted
Cactaceae spp.	Amendment of annotation (to include in App. II seeds of Mexican cacti originating in Mexico) MX	Accepted
Cacti *Hatiora* x *graeseri* *Schlumbergera* spp. *Gymnocalycium mihanovichii* *Opuntia microdasys*	Annotation (to exclude from App. II art. prop. cultivars) DK	Accepted
Euphorbia *Euphorbia trigona*	Annotation (to exclude from App. II art. prop. specimens of cultivars) DK	Accepted
Cyclamen *Cyclamen persicum*	Annotation (to exclude from App. II art. prop. specimens of cultivars except when traded as dormant tubers) DK	Accepted
Golden Camellia *Camellia chrysantha*	Delete App. II CN	Accepted
Goldenseal *Hydrastis canadensis*	Incl. App. II ("whole and sliced roots and parts of roots, excluding manufactured parts or derivatives such as powders, pills, extracts, tonics, teas and confectionery") US	Accepted
Tweedy's Bitter-root *Lewisia tweedyi*	Delete App. II US	Accepted
Jatamansi *Nardostachys grandiflora*	Incl. App. II ("whole and sliced roots and parts of roots, excluding manufactured parts or derivatives such as powders, pills, extracts, tonics, teas and confectionery") IN	Accepted
Marsh Rose *Orothamnus zeyheri*	App. I > App. II ZA	Accepted
American Ginseng *Panax quinquefolius*	Annotation (to App. II) ("whole and sliced roots and parts of roots, excluding manufactured parts or derivatives such as powders, pills, extracts, tonics, teas and confectionery") CH	Accepted
Kutki *Picrorhiza kurrooa*	Incl. App. II ("whole and sliced roots and parts of roots, excluding manufactured parts or derivatives such as powders, pills, extracts, tonics, teas and confectionery") IN	Accepted
Protea *Protea odorata*	App. I > App. II ZA	Accepted
Big-leafed Mahogany *Swietenia macrophylla*	Incl. App. II (neo-tropical popln) US/BO	Rejected BR, MX to incl. in App. III

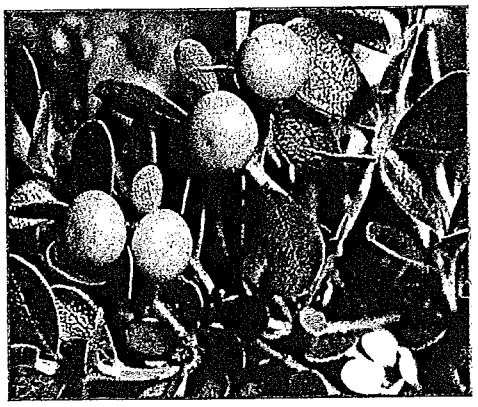
Country Codes

AR	Argentina	DE	Germany	NO	Norway
AU	Australia	DK	Denmark	NZ	New Zealand
BD	Bangladesh	FI	Finland	PE	Peru
BG	Bulgaria	IN	India	TH	Thailand
BO	Bolivia	JO	Jordan	TZ	Tanzania
BR	Brazil	JP	Japan	UG	Uganda
BW	Botswana	MG	Madagascar	US	USA
CA	Canada	MX	Mexico	VE	Venezuela
CH	Switzerland	NA	Namibia	ZA	South Africa
CN	China	NL	Netherlands	ZW	Zimbabwe
CU	Cuba				





Germany dominates the European import trade in plant material, or botanicals - the source of about 50% of medicine used in that country today[1] and the basis of a wide variety of goods ranging from perfumes, colouring agents, detergents, liqueurs, herbal preparations and traditional Chinese medicines. It ranks third after Hong Kong and Japan as a world consumer of botanicals and the volume of Germany's exports of these commodities is second only to that of China.



METHODS

The information presented in this paper is based on (1) evaluation of specialist or technical literature; (2) the views of authorities, traders, pharmaceutical companies and pharmacies; (3) consultation of traders' catalogues, and those offering phytopharmaceuticals and homeopathic remedies; (4) examination of customs statistics of most of the world's countries, including Germany's, published by the German Federal Agency for Statistics, Wiesbaden (Anon., 1991-94); and (5) evaluation of international trade data from the UNCTAD COMTRADE database, compiled by and stored at the International Trade Centre in Geneva, Switzerland (Anon., 1994-95); these data are likely to underestimate the volume of trade as not all countries' figures are included.

A large number of plant species may be processed into a variety of forms - spices, preserved plant material, etc. - before being used in one of several possible applications: Chamomile *Matricaria recutita*, for example, is used in medicines, cosmetics, household products and as a herbal tea; Arnica *Arnica montana* is utilized by the pharmaceutical and cosmetic industries, and Liquorice *Glycyrrhiza glabra* is an ingredient in liqueurs and sweets, but also valued in the pharmaceutical industry. Plant materials used in the pharmaceutical industry as well as in the manufacture of cosmetics, household products, herbal teas, and traditional Chinese medicines, are referred to in this report as "botanicals". Investigation into the importation of resins, balms, gums and extracts, as well as drugs of animal origin, did not form part of this study.

LEGISLATION

Trade in a number of plant species to Germany is governed by legislation at national, European and international levels (Table 2). Those protected nationally are listed in the Federal *Ordinance on the Conservation of Species* (*Bundesartenschutzverordnung* (BArtSchV)). Those listed in CITES are governed by *Council Regulations (EEC) No. 338/92* of December 1996 and 938/97 of 26 May 1997, effective 1 June 1997, which implement the Convention within the European Union.

Eighty-eight species used to supply botanicals for medicinal and other purposes described above are included in Germany's national legislation (BArtSchV): Annex 1 lists species of conservation concern not subject to any additional international protection. Importation and export of these species requires a permit which, in most cases, will only be granted for cultivated plants, trade in botanicals derived from these species of wild origin for commercial purposes being effectively prohibited. The former Annex 2 which listed species that are also protected under CITES was annulled when the new EC regulation came into force. BArtSchV especially affects commerce with the eastern and south-eastern European countries: more than half of the species utilized for medicinal and other purposes outlined above and protected under BArtSchV occur in this region.

Only one species that falls within the scope of this study - Costus (Kuth) *Saussurea costus* - is listed in CITES Appendix I (which prohibits commercial trade in wild-collected specimens); at least 45 species are listed in CITES Appendix II, including all orchid species used to make "salep" (a nutritious starchy substance derived from the plant's tuber and used in drinks, ice-cream and some medicines), and one - Joint Fir *Gnetum montanum* - is listed in CITES Appendix III (Table 2). CITES Appendix I-listed species are normally listed in EC Annex A, those in CITES Appendix II in Annex B, and those in Appendix III in Annex C. In addition, there is a further list of those species in need of monitoring - Annex D - which includes seven plant species which are utilized for medicinal and other purposes covered by this study. Examples are Iceland Moss *Cetraria islandica* and Yellow Gentian *Gentiana lutea*.

CITES Management Authorities, Customs authorities and traders find it very difficult to identify botanicals that may originate from protected species. This is probably due to two reasons: (1) the scientific names of the plants often differ significantly from their respective trade names or pharmaceutical names (for example, 'salep' or "Tubera Salep" (respectively, the trade and pharmaceutical name of tubers of various orchid species), or "Uva ursi" or "Folia Uvae ursi", derived from Bearberry *Arctostaphylos uva-ursi*. Identifying which species are included in the different legislation is not always straightforward because whole genera, families or orders may be listed and neither the pharmaceutical nor the trade names of CITES species are listed in CITES or in BArtSchV; (2) only the part of a plant that is used is traded (the root, bark, flowers or seeds, for example), and its botanical origin is therefore often unrecognizable.

D. Lange

RESULTS OF STUDY

Trade Structure in Germany

Germany's domestic and international trade in botanicals can be divided into three categories:

1) mainstream trade: used by industries that process, for example, foods, pharmaceuticals (medicinal infusions and finished medicinal preparations such as tablets, capsules, suppositories, ointments, etc.), cosmetics and liqueurs;

2) trade in "green" commodities which are sold through "green" outlets - small retail establishments that offer products that are derived mainly from plants grown organically (without the use of man-made chemicals);

3) traditional Chinese medicines (TCM).

In contrast to the mainstream trade, "green" commodities and TCM use fewer species, in comparatively low volumes, and are therefore of only minor trade importance.

During the flowering period - July to August - the aerial parts of the Purple Coneflower *Echinacea purpurea* are cut and the fresh material processed and used as a treatment for upper respiratory-tract infections and to stimulate the immune system. Owing to high demand, the plant is cultivated in several countries, including Germany, although it is still harvested from the wild in North America.

Mainstream trade in botanicals: The trade is dominated primarily by 20 wholesalers (with some transactions undertaken via seven large brokers). For historical reasons, these firms' headquarters are concentrated mainly in north Germany, in particular in and around Hamburg, and in the Lower Franconia region. They deal in a range of products, and attract a variety of customers with different requirements: in the food industry, for example, material derived from only a small number of plant species is used, but in very large volumes, whereas pharmaceutical companies and those involved in the manufacture of cosmetics, liqueurs and colouring agents, use a far greater variety of botanicals, though often in comparatively small volumes. Overall volumes imported by individual traders range from approximately 1000 t to 30 000 t annually.

Between 80 and 2000 botanicals are used in mainstream trade by each trader, with an average per trader of 400 to 500. Examples include the following, together with their pharmaceutical names; some of their uses are given in Table 7:

"Flores Arnica"	the flowers of Arnica *Arnica montana* or *Arnica chamissonis foliosa.*
"Lycopodium"	the spores of Stag's-horn Clubmoss *Lycopodium clavatum.*
"Semen Psylli"	the seeds of Psyllium or Fleaseed *Plantago afra*, Branched Plantain *Plantago arenaria* or Ispaghul *Plantago ovata.*
"Radix Gentiana"	the roots of Yellow Gentian *Gentiana lutea.*
"Bulbus Scillae"	the bulbs of either Sea Onion *Urginea maritima* or Indian Squill *U. indica.*

The structure of the mainstream trade in botanicals in Germany is complex. The importing companies, i.e. mainly the 20 wholesalers mentioned above, are also usually responsible for processing the plant material before sale, either directly or by contracting the work out. This process involves cleaning, cutting or grinding the plant to a powder, for example and delivering the material either to other wholesalers, drug traders, tea-packing companies and manufacturers of pharmaceuticals, plant extracts, cosmetics, liqueurs, dyes, etc., as well as to second-level retail suppliers for pharmaceutical products, spices or food. Very often the extract producers or pharmaceutical companies manufacture intermediary products which are then sold to the cosmetic, pharmaceutical or food industries which make the end product. The product is then sold mainly through wholesalers who distribute the products to pharmacies, pet or confectionery outlets, or food retailers. As some traders now undertake some processing themselves, such as the production of extracts, herbal teas, or herbal mixtures, the sales routes mentioned may become shorter.

The percentage of raw material, or pre-processed, botanicals, exported or re-exported from Germany is between 10% and 40%, but can be as much as 80%. The materials are delivered to other trading firms, pharmaceutical and herbal medicine companies, particularly in Europe. German traders are also involved in trade between other countries.

Plant species	BArtSchV	CITES	EC
Aconitum lycoctonum vulparia	I		
Aconitum napellus	I		
Adonis vernalis	I		D
Aloe arborescens		II	B
Aloe ferox		II	B
Aloe perryi		II	B
Althaea officinalis	I		
Amanita caesarea	I		
Anacamptis pyramidalis		II	B
Antennaria dioica	I		
Aquilaria malaccensis		II	B
Aquilegia vulgaris	I		
Arctostaphylos uva-ursi	I		D
Arnica montana	I		D
Artemisia genipi	I		
Artemisia umbelliformis	I		
Asplenium scolopendrium	I		
Aster amellus	I		
Bletilla striata		II	B
Buxus sempervirens	I		
Carlina acaulis	I		
Centaurium erythraea	I		
Cetraria ericetorum	I		
Cetraria islandica	I		D
Chimaphila umbellata	I		
Cibotium barometz		II	B
Cladonia rangiferina	I		
Cochlearia officinalis	I		
Crocus sativus	I		
Cyclamen hederifolium		II	B
Cyclamen purpurascens		II	B
Cypripedium parviflorum		II	B
Cyrtopodium punctatum		II	B
Daphne mezereum	I		
Dendrobium candidum		II	B
Dendrobium chrysanthum		II	B
Dendrobium fimbriatum		II	B
Dendrobium loddigesii		II	B
Dendrobium nobile		II	B
Dianthus chinensis	I		
Dianthus superbus	I		
Dictamnus albus	I		
Digitalis lutea	I		
Dioscorea deltoidea		II	B
Drosera anglica	I		
Drosera intermedia	I		
Drosera rotundifolia	I		
Euphorbia resinifera		II	B
Fritillaria cirrhosa	I		
Fritillaria delavayi	I		
Fritillaria przewalskii	I		
Fritillaria unibracteata	I		
Fritillaria verticillata	I		
Galanthus nivalis		II	B
Gastrodia elata		II	B
Gentiana acaulis	I		
Gentiana cruciata	I		
Gentiana lutea	I		D
Gentiana pannonica	I		
Gentiana purpurea	I		
Globularia alypum	I		
Gnetum montanum		III[1]	C
Gratiola officinalis	I		
Guaiacum officinale		II	B
Guaiacum sanctum		II	B
Gymnadenia orchidis		II	B
Harrisia pomanesis		II	B
Helichrysum arenarium	I		
Helleborus foetidus	I		
Helleborus niger	I		
Helleborus viridis	I		
Hepatica nobilis	I		
Hydrastis canadensis		II	B
Ilex aquifolium	I		
Iris germanica	I		
Iris pallida	I		
Iris pseudacorus	I		
Iris tenax	I		
Iris versicolor	I		
Ledum palustre	I		
Leontopodium alpinum	I		
Leucojum aestivum	I		
Leuzea rhapontica	I		
Lilium brownii	I		
Lilium candidum	I		
Lilium lancifolium	I		
Lilium martagon	I		
Lilium pumilum	I		
Lobaria pulmonaria	I		
Lophophora williamsii		II	B
Lycopodium annotinum	I		
Lycopodium clavatum	I		D
Matteuccia struthiopteris	I		
Menyanthes trifoliata	I		D
Morchella esculenta	I		
Myrtillocactus geometrizans		II	B
Narcissus poeticus	I		
Nardostachys grandiflora		II	B
Nepenthes distillatoria		II	B
Nuphar lutea	I		
Nymphaea alba	I		
Opuntia ficus-indica		II	B
Opuntia humifusa		II	B
Opuntia monacantha		II	B
Orchis mascula		II	B
Orchis morio		II	B
Panax quinquefolius		II	B
Parmelia spp.	I		
Parnassia palustris	I		
Picrorhiza kurrooa		II	B
Pinguicula vulgaris	I		
Platanthera bifolia		II	B
Podophyllum hexandrum		II	B
Polytrichum commune	I		
Primula farinosa	I		
Prunus africana		II	B
Pterocarpus santalinus		II	B
Pulsatilla chinensis	I		
Pulsatilla pratensis	I		
Pulsatilla vulgaris	I		
Rauvolfia serpentina		II	B
Rheum rhaponticum	I		
Rhododendron ferrugineum	I		
Rhododendron hirsutum	I		
Sarracenia purpurea		II	B
Saussurea costus		I	A
Saxifraga granulata	I		
Saxifraga stolonifera	I		
Selenicereus grandiflorus		II	B
Sempervivum tectorum	I		
Taxus baccata	I		
Taxus wallichiana		II	B
Trapa natans	I		
Usnea barbata	I		
Vanilla planifolia		II	B

Table 2. Legal status of plant species used in medicinals and for other purposes. I: species included in Annex 1 of BArtSchV (Federal Ordinance on the Conservation of Species (*Bundesartenschutzverordnung*); I/II/III: species included in the respective CITES Appendices. EC: Council Regulation (EEC) No. 338/97 of 9 December 1996 and 938/97 of 26 May 1997 on the implementation of CITES in the Community; A/B/C/D - species included in the respective Annexes of the EC legislation. [1]listed in CITES Appendix III by Nepal.

Besides the wholesalers, a few of the larger pharmaceutical and other processing industries, including for example some extract companies, also directly import a few plant derivatives that may be required in large quantities.

Trade in botanicals for "green" commodities: In contrast to the mainstream trade, botanicals in this category are very often obtained from organically cultivated plants (i.e. those that have not been treated with chemicals) - 100% in some companies - although a number of plants are still wild-collected. The products made from these botanicals - herbal teas, cosmetics, detergents, food, spices, and colouring agents - are sold mainly from "green" shops, and to a lesser extent, in health food shops, pharmacies and certain food shops.

The manufacture and use of these products has increased in recent years. Six importers of botanicals for "green" products were identified and all were found to be involved in processing the material as well. The companies also deliver their products to other trading companies, and even directly to private customers or homeopathic medicine companies. Unlike the mainstream trade, direct importation of even small quantities of botanicals used in "green" commodities seems to be profitable and it is therefore likely that more companies than were identified also import directly. Between six tonnes and 20 t of material is imported by each of the individual companies, but leading traders may import as much as 400 t annually.

A total of between 20 and 90 botanicals are used by each trader in this category. These consist mainly of spices, tea herbs and aromatic plants like Chamomile, Dill *Anethum graveolens*, Sage *Salvia officinalis*, and Yarrow *Achillea millefolium*. Most of these botanicals can also be found in mainstream trade. Although some have only been available from "green" shops, many are slowly entering other food outlets; examples include:

"Cortex Lapacho"	wild-collected bark of *Tecoma lapacho*, a South American species, and sold as Lapacho tea
"Herba Sideritis"	derived from a number of wild-collected *Sideritis* species, e.g., *Sideritis scardica*, and sold as Greek Mountain Tea.
"Folia Aspalathi"	obtained from leaves of mainly cultivated *Aspalathus linearis*, a South African species, and sold as Rooibos tea.

D. Lange

The aerial parts of various *Sideritis* species (*Sideritis scardica* above) are sold as Greek Mountain tea. The plants originate mainly in south-eastern Europe and the Near East.

Trade in botanicals for traditional Chinese medicine (TCM): Most botanicals used in TCM are not used in the aforementioned trades. The main consumers are hospitals, doctors and pharmacists, and the derivatives are imported on their behalf by pharmacists, or traders/trading companies.

Six importers of botanicals in this category were identified, some of whom also deal with material of animal origin, though it is likely that this figure is not complete; the commodities are obtained either directly from China or via Hong Kong. A further two firms exclusively import processed medicinal products from China. In contrast to the quantities used in mainstream trade, volumes imported by each TCM trader are small, ranging from 0.5 t to 20 t annually. Merchandise is usually delivered from the importers direct to the consumer. According to the traders, a maximum of only 5% of the imports are re-exported.

Some 190 to 260 botanicals, corresponding to up to 370 plant species, are used in TCM in Germany. Examples are:

"Herba Artemisiae"	the aerial part of Sweet Wormwood *Artemisia annua*.
"Lignum Aquilariae"	fungally-infested stem-wood of Agarwood *Aquilaria malaccensis* and *Aquilaria sinensis*.
"Semen Euryale"	the seeds of Chinese Foxnut *Euryale ferox*.

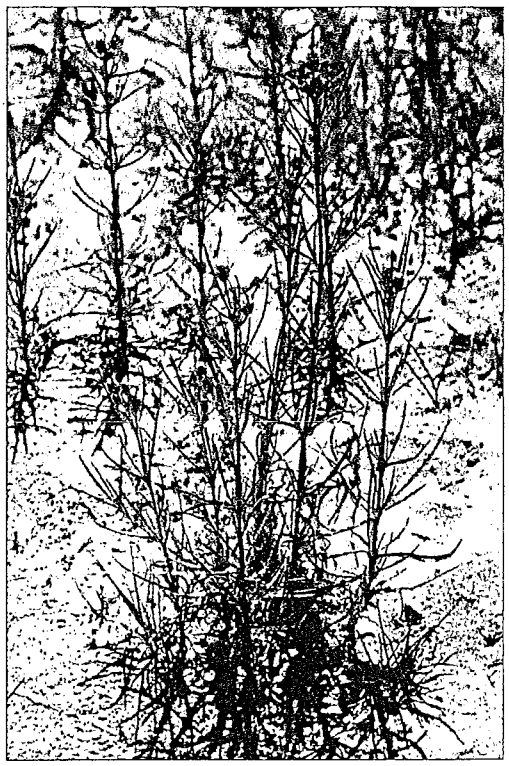
Plant species in trade in Germany and their distribution

Botanicals derived from about 1560 plant species are traded in Germany. Most, if not all, are imported and include six lichens, two mosses and liverworts, 25 ferns, clubmosses and horsetails, 11 species of algae and 32 species of conifers. The remaining 1470 or so species belong to the Angiosperms, with dicotyledons forming the largest group (about 1280 species). At the family level, no fewer than 134 species of the Asteraceae were identified, followed by 109 Leguminosae species, 61 Apiaceae species, 57 Rosaceae species and 50 Liliaceae species. At the generic level, *Prunus*, with 18 species utilized, is the largest, followed by *Artemisia* with 15, *Gentiana* and *Solanum* with 10 each and *Plantago* with eight species.

Wild populations of about 40% of the 1560 species are restricted to one continent or to a part of it: 16 species occur only in Europe, 63 are restricted to Africa, 90 to tropical Asia, eight to Australia and New Zealand, 124 to North America and 106 to South America. A very high number (248) originate in the temperate regions of Asia, in particular in the Russian Far East, China and Japan, reflecting the large number of species used in TCM. The remaining 60% of the 1560 species occur on more than one continent, but only 19 are distributed worldwide. Some 605 species used occur in Europe. Of these, 450 (75%) are partly distributed in eastern or southeastern Europe.

K. Lochen

The rhizomes of Valerian *Valeriana officinalis* are used in pharmaceutical preparations as a sedative and flavouring agent. In Britain, the plant was held in such esteem in medieval times as a remedy that it received the name of All Heal. It is found throughout Europe and northern Asia.



WWF/Hartmut Jungius

The dried seeds of Branched Plantain *Plantago arenaria* are taken as a decoction for intestinal complaints. The plant occurs from south to east Europe, and to western Siberia and Asia Minor.

Supply of Botanicals

Although some botanicals are derived from cultivated plants, a surprisingly high 70% to 90% of the 1560 plant species identified for use in all three trade categories are primarily harvested from the wild (Lange, 1996). Examples of wild-harvested plants include Stag's-horn Clubmoss *Lycopodium clavatum*, Centaury *Centaurium erythraea* and Iceland Moss. Some botanicals are obtained from both cultivated and wild stock, for example Yellow Gentian, Arnica, Purple Coneflower *Echinacea purpurea* and Chinese Ginseng *Panax ginseng*; only about 50 to 100 plant species used in Germany originate from cultivation.

Most of the cultivated botanicals processed in Germany for the mainstream trade are imported. Examples include Chamomile, Ispaghul *Plantago ovata* and often species that are obtained from cultivation only, such as Peppermint *Mentha* x *piperita*. The percentage of botanicals in this category that are purchased from farmers in Germany is low - between 5% and 20% of the annual turnover of each trader.

In contrast, traders of "green" commodities purchase a major proportion of their botanicals - up to 70% - from German farmers, who supply organic produce of reliable quality at a competitive price. The extra expense of organic production can be offset by the high prices obtained from the sale of such products.

In both trade categories, cultivation is mainly under contract. Within Germany, a total of about 50 species are cultivated today, but mainly on a small scale and for

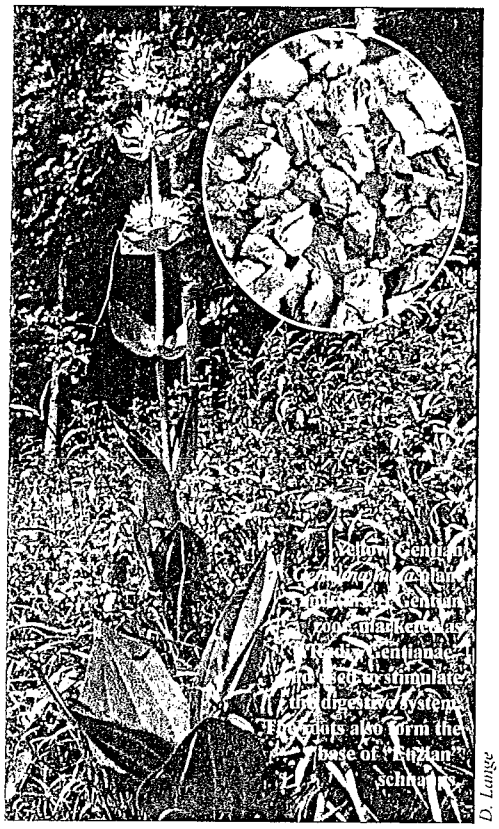
most species the area under cultivation is small. The main species grown (and the area under cultivation in 1992) are: Parsley *Petroselinum crispum* (600 ha), Marjoram *Origanum marjorana* (480 ha), Peppermint (300 ha), and Chamomile (260 ha). Purple Coneflowers, Valerian *Valeriana officinalis*, St John's Wort *Hypericum perforatum*, and Milk Thistle *Silybum marianum* are cultivated on a smaller scale.

Given the higher quality, the reliable and easier availability of cultivated botanicals compared with wild stock, it is surprising that more plants are not cultivated (Franke and Kirsch, 1994). However, cultivation has not proved to be profitable for the majority of taxa in trade because: (1) many plants are not easy to cultivate; (2) many botanicals are required in small quantities only, making cultivation economically unviable; (3) the comparatively low price of wild-harvested material; and (4) the assumed superior quality of some wild material. For these reasons, collection of herbs from the wild will very likely continue to predominate.

Major Supply Countries

In the last four years, Germany has imported botanicals from 109 countries (Lange, 1996). A breakdown of export countries shows a considerable intra-European trade, with Asia, USA and Africa each supplying approximately equal volumes (Table 3). However, in terms of value, imports from the USA are more significant than those from Asia and Africa. Nevertheless, when considering these figures, it must be kept in mind that no documentation is available to detail the proportion of apparent imports to Germany from European countries that actually originate in other countries.

The leading exporter of botanicals to Germany is India, with an annual export volume exceeding 4600 t, followed by Bulgaria with nearly 3000 t, Sudan with about 2500 t, and Poland, Chile and Hungary with about 2000 t each. Eastern and southeastern European countries are also major suppliers: no fewer than eight countries of this region each export 300 t or more of botanicals to Germany (Table 5).



D. Lange

Volumes and Values

About 95% of the German trade in plants and their parts consists of dried material; the remaining 5% comprises plants that have been preserved in alcohol, mostly for use in homeopathy, or which are fresh for processing into either homeopathic remedies or pharmaceutical products. Examples of the latter are fresh Purple Coneflowers, an extract of which is used as a treatment for upper respiratory-tract infections, or fresh specimens of Arnica, for the production of homeopathic "mother" tinctures (the concentrate derived from the first extraction process) and dilutions. Only the part of the plant that is used is traded: for example, fruits, flowers, roots, bark, stems, wood or the whole plant.

Origin	1991		1992		1993		1994	
	tonnes	DEM'000s	tonnes	DEM'000s	tonnes	DEM'000s	tonnes	DEM'000s
Africa	4 642.4	21 684	4 949.6	19 287	6 047.7	14 663	7 374.8	19 179
America	5 257.1	26 207	7 705.5	32 892	6 258.4	25 210	5 065.0	21 153
Asia	9 487.3	23 623	9 080.3	26 157	7 518.1	19 310	7 708.1	19 567
Australia, New Zealand	651.7	3 017	530.4	4 629	419.3	1 912	416.5	2 188
Europe (incl. regions of the former USSR)	14 799.2	62 117	16 578.6	75 475	11 932.4	49 091	14 062.9	49 893
Others	69.6	708	106.7	899	129.8	1 108	734.8	4 685
Total	**34 907.3**	**137 356**	**38 951.1**	**159 339**	**32 305.7**	**111 294**	**35 362.1**	**116 665**

Table 3. Quantities and value of imports (Commodity Code No. 12119080[1]) into Germany by geographical region, 1991 to 1994.
[1]plants and parts of plants (including seeds and fruits), of a kind used primarily in perfumery, in pharmacy or for insecticidal, fungicidal or similar purposes, fresh or dried, whether or not cut, crushed or powdered -- others.
Source: Anon., 1991-94

Commodity	1991		1992		1993		1994	
	tonnes	DEM'000s	tonnes	DEM'000s	tonnes	DEM'000s	tonnes	DEM'000s
Items imported under Commodity Code No. 12119080[1]	**35 849.1**	**144 733**	**39 855.2**	**165 410**	**32 832.5**	**113 930**	**35 362.1**	**116 665**
Linden flowers and leaves *Tilia platyphyllos/T. cordata/T. argentea*	-	-	-	-	916.0	4 708	756.6	3 446
Mint *Mentha* x *piperita*	-	-	-	-	3 790.9	13 136	4 820.6	16 687
Verbena *Verbena officinalis/Aloysia triphylla*	-	-	-	-	258.2	1 335	362.5	2 066
Marjoram *Origanum vulgare*	-	-	-	-	652.2	3 265	1 112.8	4 772
Sage *Salvia officinalis* (leaves and flowers)	-	-	-	-	315.8	1 194	378.5	893
Peruvian Bark *Cinchona pubescens/C. officinalis/C. calisaya*	1 280.1	2 946	1 527.1	3 353	-	-	-	-
Ginseng *Panax ginseng/P. quinquefolius* (roots)	158.9	8 304	174.6	7 120	119.0	3 777	126.3	2 440
Pyrethrum *Chrysanthemum cinerarifolium* (flowers) Roman or Spanish Pellitory *Anacyclis pyrethrum* (roots) German Pellitory *A. officinarum* (roots)	4.0	41	12.9	96	10.0	163	2.1	23
Extracts of Quassia *Quassia amara, Picrasma excelsa,* Aloe *Aloe* spp. and Manna *Fraxinus ornus*	206.5	2 035	302.5	3 627	134.9	1 864	211.6	2 643
Liquorice *Glycyrrhiza* spp. (roots)	540.7	1 671	755.8	2 487	541.8	1 209	682.3	1 472
Salep *Orchis* spp., Maranta *Colocasia esculenta,* (for medicinal and other purposes, but not food)	12.9	41	9.5	44	23.4	59	42.6	139
Total	**38 052.2**	**159 771**	**42 637.6**	**182 137**	**39 594.7**	**144 640**	**43 858.0**	**151 246**

Table 4. Imports of selected commodity groups to Germany, and their value.

Commodity	1991		1992		1993		1994	
	tonnes	DEM'000s	tonnes	DEM'000s	tonnes	DEM'000s	tonnes	DEM'000s
Items exported under Commodity Code No. 12119080[1]	**13 741.4**	**101 936**	**13 734.8**	**110 829**	**11 376.1**	**92 981**	**11 376.3**	81 562
Linden flowers and leaves *Tilia platyphyllos/T. cordata/T. argentea*	-	-	-	-	486.0	6 012	582.5	6 101
Mint *Mentha* x *piperita*	-	-	-	-	1 222.6	8 415	1 586.7	9 900
Verbena *Verbena officinalis*	-	-	-	-	155.1	1 424	166.6	1 735
Marjoram *Origanum vulgare*	-	-	-	-	187.1	1 275	265.9	1 707
Sage *Salvia officinalis* (leaves and flowers)	-	-	-	-	84.9	537	123.0	642
Peruvian Bark *Cinchona pubescens/C. officinalis/C. calisaya*	16.5	53	37.1	142	-	-	-	-
Ginseng *Panax ginseng/P. quinquefolius* (roots)	149.8	4 339	77.6	5 613	36.7	1 998	42.6	1 832
Pyrethrum *Chrysanthemum cinerarifolium* (flowers) Roman or Spanish Pellitory *Anacyclis pyrethrum* (roots) German Pellitory *A. officinarum* (roots)	24.5	114	1.8	26	8.5	57	7.3	79
Liquorice *Glycyrrhiza* spp. (roots)	502.4	2 399	381.9	1 917	366.7	1.903	424.2	2 190
Salep *Orchis* spp., Maranta *Colocasia esculenta,* (for medicinal and other purposes, but not food)	0.3	4	7.8	21	0.1	5	1.9	53
Extracts of Quassia *Quassia amara, Picrasma excelsa,* Aloe *Aloe* spp. and Manna *Fraxinus ornus*	101.0	1287	116.4	1496	83.5	1.210	92.2	1.341
Total	**14 535.9**	**110 132**	**14 357.4**	**120 044**	**14 007.3**	**115 817**	**14 669.2**	**107 142**

Table 6. Exports of selected commodity groups from Germany, and their value.

[1]plants and parts of plants (including seeds and fruits), of a kind used primarily in perfumery, in pharmacy or for insecticidal, fungicidal or similar purposes, fresh or dried, whether or not cut, crushed or powdered -- others. Source: Anon., 1991-94

TRAFFIC BULLETIN INDEX VOL. 16

Entries in bold type indicate illustrations

S

T

U

V

W

X

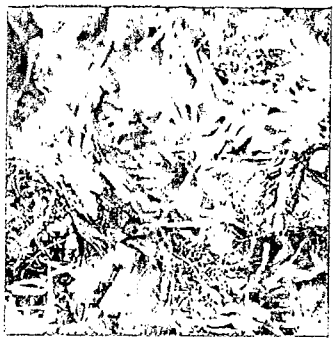
Y

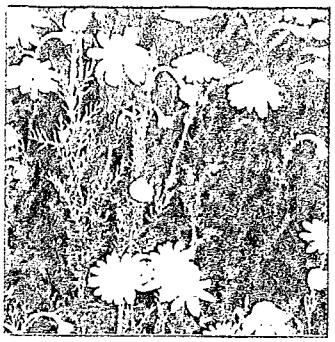
Z

From 1991 to 1994, an average of 40 000 t of botanicals, valued at DEM160 million (approximately US$100 million), was imported annually into Germany (Table 4). As only a few commodities are listed separately in the statistics, little information is available on the import volumes of individual botanicals. Customs tariff codes follow the Harmonized System (HS), commonly accepted between countries that comply with GATT (General Agreement on Tariffs and Trade), which classifies and codes merchandise into commodity groups. The code consists of an eight-figured sequence, the first six numbers being the same in each country party to the system, with the remaining two numbers used by each country for their own purposes. Some botanicals of high commercial value, like "linden flowers and leaves", "pyrethrum", "ginseng", "salep" or "sage" (Table 4) are monitored separately. All other botanicals, i.e. commodities obtained from about 1500 plant species, are grouped under the heading "plants and parts of plants (including seeds and fruits), of a kind used primarily in perfumery, in pharmacy or for insecticidal, fungicidal or similar purposes, fresh or dried, whether or not cut, crushed or powdered -- others" (Commodity Code No. 12119080). Table 4 shows trade volumes and values of the most important commodities traded.

When comparing trade data for the years 1991 to 1994 (Table 5), German import volumes for particular countries of supply of botanicals covered by Commodity Code No. 12119080 vary considerably. This may be caused by crop failures or especially good harvests, for example, or because a particular plant might not be needed in the same quantity every year. Remarkable differences in volumes can be observed with regard to botanicals imported from Austria; since 1991, these have increased from about 320 t to more than 1100 t annually. Since the corresponding values during the same period increased from less than DEM2 million to more than DEM13 million a year (Lange, 1996), the commodity traded must be very expensive or of excellent quality. Cultivated products, particularly those grown organically are both of excellent quality and expensive. This may confirm the claims of importers of "green" products that they frequently purchase botanicals obtained from plants organically cultivated in Austria. In comparison a considerable drop in volume was noted with regard to imports from Greece, Albania, Bulgaria and the former Yugoslavia. Yugoslavia was a very important supplier of botanicals until the war in Bosnia and Herzegovina and Croatia, and the international trade embargo on Serbia, brought the trade to an end in 1991 (Table 5).

Finally, reference should be made to the differences in imports of this commodity group originating from the USA between the years 1992 and 1993, when figures dropped by half. This can be attributed to a new definition of Commodity Code No. 1211 (Lange, 1996) which, since 1993, has not included mint imports from the USA (985.1 t in 1993).

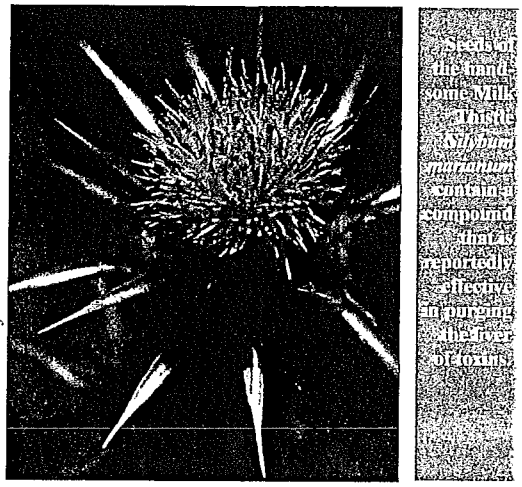




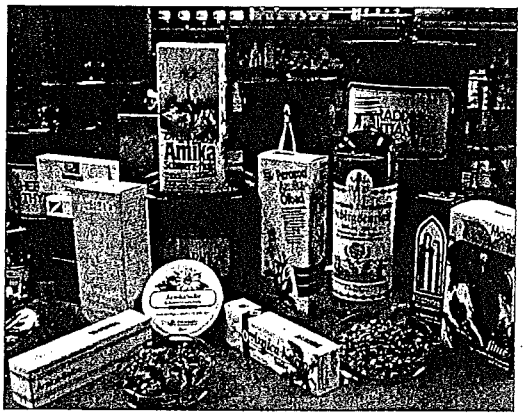
Exports from Germany

An annual average of 14 400 t of botanicals is exported from Germany, i.e. about 30% of that imported (Table 6). As only a few plant species from which this material is sourced are cultivated domestically, and wild-collection thought to be on a small scale, most are re-exports. However, most of the plant material is processed before export, i.e. cleaned, cut or ground. This fact is reflected by the fact that the average value per tonne is generally higher for exports than for imports.

During the period 1991 to 1994, botanicals were exported to 125 countries, the main destinations being the USA and western European countries such as Austria, Switzerland, the Netherlands, Spain, UK, Italy, and France. Few are exported from Germany to Africa and Asia.



WWF/Weber and Hofner



D. Lange

A display of medicinals and herbal preparations containing botanicals.

Country of export	1991	1992	1993	1994	average quantity
India	4 640.8	3 981.3	4 294.3	4 247.3	4 640.8
Bulgaria	2 803.8	3 487.6	1 360.1	2 723.3	2 803.8
Sudan	2 562.9	1 949.1	2 891.4	3 755.4	2 562.9
Poland	2 146.5	2 142.8	2 168.3	2 065.8	2 146.5
Chile	2 012.0	2 934.4	2 440.6	1 711.3	2 012.0
Hungary	2 004.6	2 170.2	2 039.5	2 185.0	2 004.6
Albania	1 700.8	2 296.9	1 158.7	1 471.4	1 700.8
Egypt	1 688.6	1 687.0	1 351.2	1 729.1	1 688.6
Argentina	1 655.9	1 812.9	1 477.2	1 129.0	1 655.9
China	1 496.3	1 633.3	1 336.7	1 594.6	1 496.3
USA	1 212.3	1 767.3	789.3	1 172.7	1 212.3
Yugoslavia[1]	1 457.6	1 326.7	769.3	917.2	1 117.7
Austria	965.8	1 247.6	1 169.9	1 125.3	965.8
France	861.7	748.7	1 016.7	1 011.4	861.7
Turkey	826.8	1 208.4	500.1	608.4	826.8
Thailand	681.1	1 236.9	651.1	443.6	681.1
Romania	588.1	747.4	476.3	656.9	588.1
Brazil	546.4	670.0	658.8	277.7	546.4
Netherlands	529.8	374.0	419.1	641.6	529.8
Australia	492.4	530.4	419.3	371.7	492.4
Morocco	420.9	567.8	286.3	267.0	420.9
Zaire	417.6	12.8	728.4	912.2	417.6
Greece	326.7	580.9	80.8	43.4	326.7

Table 5. Quantity (tonnes) of imports to Germany (Commodity Code No. 12119080[2]) by country of export. *[1]From 1993 onwards, figures are for Croatia, Macedonia and Slovenia only. [2]plants and parts of plants (including seeds and fruits), of a kind used primarily in perfumery, in pharmacy or for insecticidal, fungicidal or similar purposes, fresh or dried, whether or not cut, crushed or powdered --others.*
Source: Anon., 1991-94

RECOMMENDATIONS

It is clear that there is a growing pressure on some plant species in the wild owing to: (1) an unprecedented boom in the demand for plant-based medicines (Anon., 1990); (2) the increasingly global nature of the trade; (3) the relatively low prices for which wild-harvested plant species can be obtained; and (4) the destruction of habitat worldwide.

Based on the findings of the study, the following recommendations can be made:

- more information on the trade in botanicals is urgently needed; this should include an inventory of plant species involved in the trade - ideally to species level - their volumes and provenance.

- studies should be carried out on the leading import and export countries, particularly on the trade in east- and south-east European countries where there is a high diversity of plant species that are wild-collected and exported to Germany in large quantities.

- the trade in individual plant species of conservation concern should be examined from source to consumer in order for more effective conservation measures to be implemented.

- additional measures are required to facilitate detection and identification of botanicals by CITES Management Authorities and Customs officers: lists of protected plant species used as a source of botanicals should be included as a reference in EC legislation and in CITES documentation, as well as in national legislation, such as Germany's BArtSchV. In addition to the scientific and common names, the pharmaceutical and trade names should be noted in the three languages of the Convention (English, French and Spanish) as a minimum, as well as a brief description given of the characteristics and identifying features of each commodity, with illustrations/photographs of the plant's different forms in trade (whole, cut, powdered).

- there is a need to develop awareness campaigns or educational programmes to inform government officials, scientists, cultivators, collectors, traders, phytopharmaceutical companies, industry and consumers, of the legal status of the plants in use. Consumers in particular should be encouraged to purchase products derived only from plants that have been cultivated or which are labelled as having been collected in a sustainable manner.

Species	Part of plant used	Action/Use
African Stinkwood *Prunus africana*	bark	prostate ailments
Agarwood *Aquilaria malaccensis*	fungal-infested wood	gastritic; scent base, incense
American Ginseng *Panax quinquefolius*	roots	tonic
Arnica *Arnica montana/A. chamissonis foliosa*	flowers	wound healing: to treat bruises, insect bites; anti-rheumatic; cosmetic base
Bearberry *Arctostaphylos uva-ursi*	leaves	medicinal tea for urinary infections
Chamomile *Matricaria recutita*	flowers	tea: carminative, sedative, tonic
Chinese Foxnut *Euryale ferox*	sees	tonic, astringent, analgesic
Common Centaury *Centaurium erythraca*	herb	carminative; digestive, liqueur base
Common Cyclamen *Cyclamen purpurascens*	tuber	homeopathy, e.g. migraine
Costus (Kuth) *Saussurea costus*	roots	scent and medicinal
Golden Marigold *Calendula officinalis*	flowers	wound healing, anti-inflammatory (homeopathy), used against chilblains and warts; butter colouring, soup thickener
Goldenseal *Hydrastis canadensis*	rhizome	tonic; yellow dye
Himalayan Yew *Taxus wallichiana*	bark	anti-cancer
Iceland Moss *Cetraria islandica*	whole plant	cough-syrup, cough sweets
Indian Snakeroot *Rauvolfia serpentina*	roots	tranquilizer, to lower blood pressure
	fruit	dyes
Ivy-leaved Sowbread *Cyclamen hederifolium*	tuber	purgative; considered a cure for baldness when used as snuff
Joint Fir *Gnetum montanum*	stem, roots, seeds, oil	anti-periodic, anti-rheumatic
Linden *Tilia platyphyllos/T. cordata/T.argentea*	flowers	tea
Liquorice *Glycyrrhiza glabra*	roots	flavouring in confectionery, cough mixtures; anti-inflammatory; tobacco; cosmetics to treat ulcers; stabilizes foam in fire extinguishers
Manna *Fraxinus ornus*	resin	laxative; liqueur
Milk Thistle *Silybum marianum*	seeds	to purge liver poisons
Peruvian Bark *Cinchona pubescens/C. officinalis/ C. calisaya*	bark	antipyretic; astringent; source of quinine
Pheasant's Eye *Adonis vernalis*	herb	heart stimulant
Psyllium *Plantago afra*	seeds/husks	laxative, dysentery; cosmetic base
Branched Plantain *P. arenaria*	"	"
Ispaghul *P. ovata*	"	"
Purple Coneflower *Echinacea purpurea*	fresh flowers	antiseptic, increases resistance to infection
Pyrethrum *Chrysanthemum cinerarifolium*	flowers	insecticide
Quassia *Quassia amara*	wood	purgative; vermifuge; insecticide
Roman/Spanish Pellitory *Anacyclis pyrethrum*	roots	insecticide
Sideritis spp.	herb	tea
St John's Wort *Hypericum perforatum*	herb	pulmonary, bladder complaints, anti-depressant, anti-inflammatory
Salep, *inter alia Orchis* spp.	tubers	in cooking; tonic
Senna *Cassia acutifolia/C. angustifolia*	pods/leaves	laxative
Sea Onion/Squill *Urginea maritima/U. indica*	bulb	heart stimulant
Stag's-horn Clubmoss *Lycopodium clavatum*	spores	for coating condoms to prevent them from sticking together in the rolled state; used in fireworks
Star Anise *Illicium verum*	unripe fruit	culinary spice; flavouring in liqueurs; medicinal
Sweet Wormwood *Artemisia annua*	herb	anti-malarial
Valerian *Valeriana officinalis*	rhizome	sedative, anti-convulsant; flavouring
Yarrow *Achillea millefolium*	herb	medicinal tea: carminative, anti-inflammatory
Yellow Gentian *Gentiana lutea*	roots	a digestive; base for Enzian schnapps

Table. 7. Species mentioned in this report and some of their uses. *Sources include Grieve, 1980; Akerele* et al., *1991*

Chamomile *Matricaria recutita*/K. Lochen

In future, species-specific sustainable management programmes have to be developed to avoid potential danger or to reverse an existing threat to plant species. Basically there are six factors to consider:

1) to promote sustainable wild-harvesting based on individual user-responsibility, including the establishment of an effective management system;

2) the commercial use of plant resources provides incentive to protect the habitat in which they are grown;

3) to protect selected individual plant species at national or international level, including an absolute ban on trade when necessary;

4) to promote plant cultivation;

5) to grow the required active botanical substances in cell cultures;

6) to protect species *ex-situ*.

In summary, the future of the market for botanicals, and the chances for a sustainable existence of the populations of the plant species concerned, appears to lie in a combination of species-specific management programmes of wild-harvested and cultivated plants.

References

Akerele, O., Heywood, V. and Synge, H. (eds) (1991). *The Conservation of Medicinal Plants*. Cambridge University Press, Cambridge. 362pp.

Anon. (1991-94). Foreign trade statistics, Federal Agency for Statistics, Wiesbaden, Germany.

Anon. (1994-95). UNCTAD COMTRADE database, International Trade Centre, Geneva, Switzerland.

Anon. (1990). Herbal medicines, a buoyant Euro market. *Marketletter*. London, McAlpine, Thorpe and Warrior, November 5.

Anon. (1993). *Guidelines on the Conservation of Medicinal Plants*. IUCN, WHO and WWF, Gland, Switzerland. 50pp.

Bernath, J. (1988). Ecological, production-biological background of utilization of medicinal plants. *Herba Hungarica* 26(2-3):49-66.

Falbe, J. and Regitz, M. (eds) (1989-1992). Rompp Chemie Lexikon. 9th edition, Vols. 1-6. Stuttgart, New York (Thieme).

Farnsworth, N.R. and Soejarto, D.D. (1991). Global importance of medicinal plants. In: Akerele, O., Heywood, V. and Synge, H. (eds). *The Conservation of Medicinal Plants*. Cambridge University Press, Cambridge. Pp.25-51.

Franke, R. and Kirsch, K. (1994). Tropische und subtropische Arzneipflanzen - von der Wildsammlung zum Anbau. Symposium "Tropische Nutzpflanzen - Biologie, Okologie, Okonomie", Hamburg, 22-24.9.93. Angewandte Botanik, Berichte (Hamburg) 5:15-20.

Grieve, M. Mrs (1980). *A Modern Herbal*. Penguin Books Ltd., London, UK.

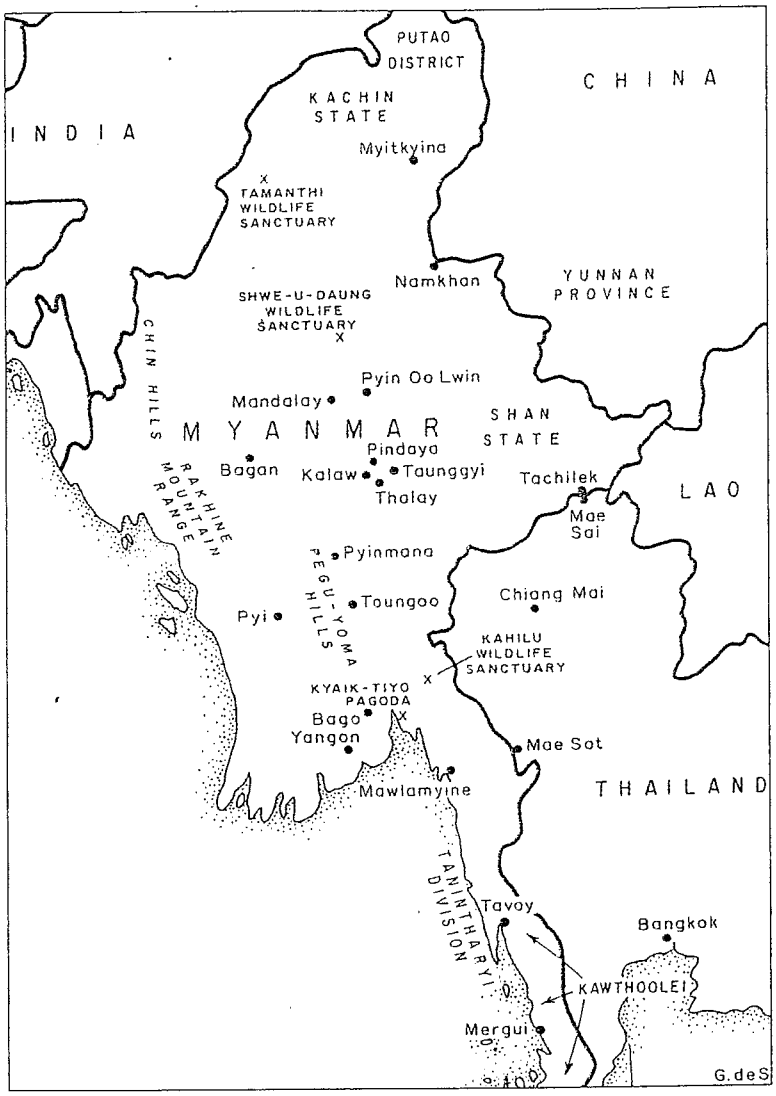
Groombridge, B. (ed.) (1992). *Global Biodiversity. Status of the Earth's Living Resources*. Chapman and Hall, London, Glasgow, New York. 585pp.

Lange, D. (1996). Untersuchungen zum Heilpflanzenhandel in Deutschland. Ein Beitrag zum Internationalen Artenschutz. Bonn-Bad Godesberg (Bundesamt für Naturschutz) 130 p.

Lange, D. and Schippmann, U. (1997). *Trade Survey of Medicinal Plants in Germany. A Contribution to International Plant Species Conservation*. Bonn-Bad Godesberg (Bundesamt für Naturschutz) 128pp.

Lewington, A. (1993). *A Review of the Importation of Medicinal Plants and Plant Extracts into Europe*. TRAFFIC International, Cambridge. 37pp.

Dr Dagmar Lange, Jahnstrasse 16, D-71642 Ludwigsburg, Germany.



Wildlife Products for Sale in Myanmar

E.B. Martin

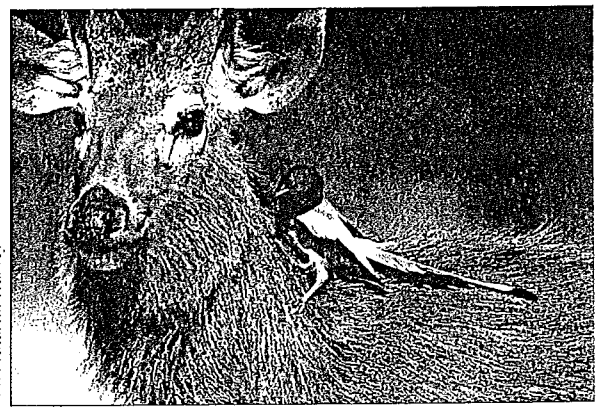
Although there have been no reliable surveys of wild animal populations in Myanmar, circumstantial evidence suggests a serious decline in certain species from the effects of habitat loss and unregulated hunting, especially in the last two decades. Smuggling is rife owing to shortages of food, consumer goods and luxury items, and economists believe that over half the country's foreign trade is unofficial (Vatikiotis and Holloway, 1995). The author of this report has undertaken a number of surveys in Myanmar, most recently in December 1995, to determine the availability of wildlife products for sale in the country. His findings indicate that there is a thriving domestic trade in wild animal products aimed at foreign tourists and at the wealthier inhabitants living in the country's towns and cities. Further, a large amount of wildlife is smuggled out of the country, mostly to Thailand and China, where it is sold for consumer items or to finance the armed resistance of ethnic groups in Myanmar fighting for their independence.

In June 1997, the Government of Myanmar announced its accession to CITES (effective September). Not only is it imperative that scientific study be made of Myanmar's wildlife, but further surveys of wildlife markets need to be carried out in the near future in order to establish whether domestic legislation and CITES controls are being implemented.

INTRODUCTION

Myanmar (formerly Burma) is the largest country on the Southeast Asian mainland and shares its borders with Thailand, Lao PDR, China, India and Bangladesh. The country comprises seven States (Chin, Kachin, Kayin [Karen], Kayah, Mon, Rakhine, and Shan). A general decline in wild animal populations in Myanmar was noted in 1959 and 1960 and attributed to the use of firearms that had been brought into the country in large numbers during World War II and which were still widely available. Species then under threat from hunting were the Sumatran Rhino *Dicerorhinus sumatrensis*, Takin *Budorcas taxicolor*, Musk Deer *Moschus*, Gaur *Bos gaurus*, Banteng *Bos javanicus*, Thamin Deer *Cervus eldi*, swiftlet and sea turtle (species not recorded) (Milton and Estes, 1963). From 1981 to 1984, the Food and Agricultural Organization of the United Nations (FAO) and the United Nations Development Programme (UNDP) worked with the Myanmar Government in order to identify and establish national parks and reserves. The UN official in charge of the programme wrote, "In the almost total absence of reliable data on the present status of wildlife populations in Burma it is impossible to give anything other than a very subjective impression of the degrees to which individual species may or may not be endangered" (Blower, 1982). Blower believed that the number and range of wild elephants was decreasing rapidly owing to excessive mortality incurred during their capture and subsequent training for timber extraction, as well as from the poaching of the animals for their tusks. The evident decline in numbers of Sumatran Rhinos, Gaurs, Bantengs, Saltwater Crocodiles *Crocodylus porosus*, Leatherback Turtles *Dermochelys coriacea* and Hawksbill Turtles *Eretmochelys imbricata* was ascribed to poaching by the army, the People's Militia and insurgents (Blower, 1982; 1985). In 1994, a survey in Tamanthi Wildlife Sanctuary found a high incidence of illegal hunting of Tigers *Panthera tigris*, Sambar Deer *Cervus unicolor*, Gaurs and otters, mostly with steel traps and wire snares (Rabinowitz *et al.*, 1995). That investigation indicated that poaching has resulted in a steady decline in wild animal populations over the past few decades in the forest reserves (which occupy 15% of the country) and parks and wildlife sanctuaries (which cover 1%).

WWF Denis-Huot BIOS



WWF/Martin Harvey

Indian Muntjac *Muntiacus muntjak* (top) and Sambar Deer *Cervus unicolor* (with Rufous Tree Pie *Dendrocitta vagabonda*).

The author of the following report visited Myanmar during the early 1980s and, in February 1988, crossed the border from Mae Sai in Thailand to Tachilek in Myanmar to investigate the wildlife for sale there. Although little was available at that time, there is recent evidence that wildlife trade in these border towns is growing at an alarming rate (Table 1) (Redford, 1994; K. Ammann, pers. comm., 1996). In December 1995, the author returned to Myanmar to follow up his investigation of the country's trade in wild fauna, and his findings, together with information on the recent history of wildlife trade in Myanmar, are presented in this report.

Item	Quantity	US$	Kyat
Asiatic Golden Cat *Catopuma temminckii* skin	14	16	400
Bear[1] gall bladder	30	18	450
Bear[1] tooth	>42	10	250
Clouded Leopard *Neofelis nebulosa* skin	20	320	8000
Elephant *Elephas maximus* ivory (raw pieces)	30	100	2500
Gaur *Bos gaurus* skull	>32	300	7500
Indian Muntjac *Muntiacus muntjak* skull	>230	4	100
Leopard *Panthera pardus* skin	24	400	10 000
Leopard skull	30	60	1500
Leopard Cat *Prionailurus bengalensis* skin	many	4	100
Macaque *Macaca* spp. skull	22	2	50
Serow *Naemorhedus sumatraensis* skull	>200	4	100
Takin *Budorcas taxicolor* skull	9	24	600
Tiger *Panthera tigris* penis	23	150	3750
Tiger skin	8	1400	35 000
Tiger skull	20	80	2000
Tiger tooth	>16	80	2000

Table 1. Tachilek (in Myanmar) and Mae Sai (in Thailand) border trade in wild animal parts, August 1994.
Survey by Tim Redford, unpublished. [1]Asiatic Black Bear *Ursus thibetanus* and/or Sun Bear *Helarctos malayanus*

Background

Traditionally, Myanmar has been an agricultural economy that has relied heavily on rice cultivation and timber exploitation. In addition to its forests and rivers, the country has a wealth of mineral and energy resources that remain largely untapped; these include oil, tin, copper and tungsten. The country is also a major source of illegal opium and cannabis (Anon., 1991).

Since independence from British rule in 1948; the Government has fought various armed insurgent groups, the largest of which were derived from the Kachin, Karen, Karenni and Wa ethnic groups (Anon., 1997). In 1962 the army took power and instituted a socialist state, and the economy was nationalized. The ensuing political isolation damaged the economy and resulted in the closure of many shops and businesses. Thousands of Indian and Chinese entrepreneurs (whose families had come to Myanmar in large numbers during the British colonial period, 1885 to 1948), left the country (Klein, 1994).

In September 1988, after some months of public demonstrations and unrest, General Saw Maung, leader of the armed forces assumed power and formed the State Law and Order Restoration Council (SLORC) (Anon., 1997). Martial law was again enforced. Although free elections were held in 1990 - the first for 30 years - and resulted in a majority for the National League for Democracy, the SLORC refused to transfer power to a civilian government and this Council remains in power today (Anon., 1997).

The formation of the SLORC saw certain changes in the country's economy: the establishment of private businesses was encouraged and a policy was launched to attract foreign investment. From 1989 to 1994, more than a billion dollars was brought into the country as a result and, according to the Government, contributed to a growth in the economy of just over seven per cent a year between 1992 and 1994 (Anon., 1996), boosted by an increase in tourism: 95 616 foreigners visited the country in 1994/95 compared with 7947 in 1991/92 (Anon., 1995a).

Despite some improvements, the economy remains fragile and poorly managed, however (Vatikiotis and Holloway, 1995). The population in 1994 was 44 million, with a per capita income of only US$280 a year (compared with over US$2000 in Thailand). A university graduate in Government service will earn about US$13 a month, while a salesperson in the private sector might earn US$21 a month. A Government study in 1994 in Yangon (formerly Rangoon) showed that the average household spent 67% of its monthly expenditure on food and drink (Anon., 1995b).

The Government itself is responsible for heavy exploitation of the country's natural resources, in particular of its forests, for much needed foreign exchange. Export of timber (primarily teak *Tectona grandis*) is now equal to food as the largest Government foreign exchange earner (Anon., 1995b). Since 1988, Thai companies have been given contracts to log large areas, resulting in an annual deforestation rate of 800 000 hectares to one million hectares, a reduction in forest habitat from 42.3% in 1981 to under 20% in 1989 (IUCN, 1991), and constituting one of the five highest rates of decline in forest cover in the world (Anon., 1993). The extensive removal of hardwoods has clearly been detrimental to the country's wild animals, but the effects have yet to be studied.

The Forest Department has been responsible for managing and conserving wildlife since 1856. The *Burma Forest Act* of 1902 and the *Burma Wild Life Protection Act* of 1936 provide for the establishment of sanctuaries and forest reserves within which animals are protected; protection does not cover habitats, however. As a result, valuable areas such as the Shwe-u-daung Wildlife Sanctuary have been logged and other wildlife areas have been damaged or ruined by human encroachment (IUCN, 1991; Blower, 1985).

On 8 June 1994 the Forest Department established a new law entitled *Protection of Wild Life and Wild Plants and Conservation of Natural Areas Law* which, *inter alia*, set up a committee to protect wildlife, designated the powers of the Minister to "natural areas" and zoological gardens, and enacted specific conditions for hunting. The Forest Department also announced that a fine of up to 50 000 kyat (US$417 in late 1995) and/or imprisonment for up to seven years would be imposed for the illegal possession, sale or export of protected species, or their parts. It was followed on 26 October 1994 by Notification No. 583/94 (Anon., 1994), which published a list of animals that are completely protected from hunting and trade, and includes 39 mammals, 50 birds and nine reptiles. Among these are the Sumatran Rhino, Musk Deer, Tiger, Leopard *Panthera pardus* and the Asian Elephant *Elephas maximus* (although trade in Government-owned ivory is permitted).

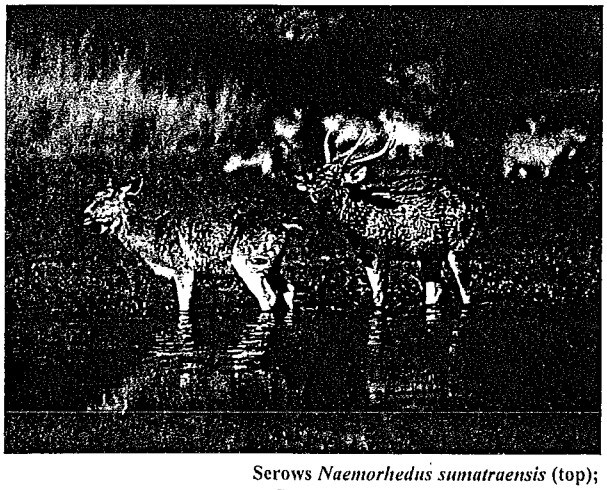
Possession of products (usually in the form of souvenirs) from more commonly-occurring species classified as "protected and seasonally protected animals", is allowed under the October 1994 law. Within Myanmar, it is also permitted to consume, sell and transport drugs made from these animals.

On 13 June 1997, Myanmar acceded to CITES, effective 11 September.

METHODS

The author first visited Myanmar in January 1981; at that time a foreign visitor could only obtain a one-week visa; this was later extended to two weeks and in the mid-1990s to one month in order to increase the country's foreign exchange income. The limitations on research imposed by visits of such short duration are compounded by the fact that large parts of the country are unsafe and are therefore closed to foreigners; further, the Government has not given permission to scientists to investigate the trade in wildlife. The reluctance by some people to divulge information owing to lack of trust, also hindered data gathering.

WWF/Eric Dinerstein



WWF/Martin Harvey

Serows *Naemorhedus sumatraensis* (top); Sambar *Cervus unicolor* pair in water.

Esmond Martin

Ivory carving in Myanmar

In December 1995, the author returned to Myanmar. Posing as a tourist and accompanied by a guide/interpreter, he visited the main towns and cities of Myanmar where wildlife products are offered for retail sale. These are Yangon (where the author made two visits over eight days), Bago (formerly Pegu) (one visit), Mandalay (one visit over four days), Pyin Oo Lwin (formerly Maymyo) (one visit), Taunggyi (one visit over two days), Thalay (one visit), Kalaw (one visit) and Pindaya (one visit) (see map). Keen for a sale, the vendors in these locations were willing to talk about the items they were selling and also allowed photographs to be taken. At the time of the survey, the border between Thailand and Myanmar had been closed for months owing to political disagreements between the two countries, and investigations in this area were not possible.

Official Government figures held at the Forest Department were provided by a reliable contact who shall remain anonymous. The official exchange rate of the local kyat in late 1995 was fewer than six to the US dollar compared with the unofficial market rate of 120, which is used in this report.

A BACKGROUND TO THE WILDLIFE TRADE IN MYANMAR AND RESULTS OF 1995 SURVEY

Elephant Ivory

Myanmar has the second-largest number of elephants in Asia, after India, with an estimated 4150 in the wild. In addition, about 5250 specimens are in captivity, of which nearly 3000 are owned by the Myanma Timber Enterprise of the Ministry of Forestry, for the purposes of extracting timber; the remainder are privately owned (R. Sukumar, pers. comm., 1996). Although hunting of the Asian Elephant is prohibited in Myanmar, tusks derived from elephants that have died naturally, or tusks that have been confiscated, may be purchased legally from the Government. Less than 50% of Myanmar's elephants have tusks: the short tusks, or "tushes" as they are known, of the female elephants are less commonly used for the purposes of carving as they are harder and more difficult to carve and fetch less money than ivory derived from the male elephant.

The Burmese have been making ivory items for sale to foreigners for over a hundred years. Around 1900, the main ivory production centres were in Moulmein (now Mawlamyine), Pyinmana and Rangoon (now Yangon). Picture frames, paper knives, knife handles, chess pieces and Buddha statues were among the most common ivory items available. Art historians believed that the carvers exercised little originality, however, and that the industry was languishing (Kunz, 1916; Watt, 1904). The standard of ivory carving in Myanmar today is not high.

Ivory Carving Centres

Mandalay

By the time of World War II, the main ivory centre was Mandalay, which had been the country's capital from 1861 to 1885, and was home to many ivory craftsmen working for the Burmese Royal family. When the Japanese occupied Burma (1942 to 1945), they purchased large amounts of ivory, such as signature seals, chopsticks and cigarette holders. In 1942 there were about eight ivory businesses in the city employing 56 craftsmen. After the war, demand for ivory items was largely for local consumption, mainly ivory combs for women; a few resident Indian money lenders working for timber companies bought ivory jewellery, combs, hairpins, and statues, and British residents bought, in particular, cigarette holders and cigarette cases.

Demand for ivory remained the same until around 1962 when an interest for polished tusks grew, especially in neighbouring Thailand. At this time, one of the main ivory manufacturers in Mandalay started importing raw African ivory - about half a tonne a year - but was forced to stop trading in 1964 when the Government banned import licences. Official export documents from East Africa show that raw African ivory was first exported direct to Burma in reasonable quantities from 1956. Zanzibar, the main exporter, was the source of an average of 2431 kg a year between 1956 and 1962, with smaller amounts imported from Kenya and Tanganyika (present day Tanzania) (Anon., 1956-1962).

In the mid-1970s, tourist visas were extended from 24 hours to seven days duration and the Government began to encourage ivory exports. The expansion of Thailand's tourist industry also provided a growing market for ivory items made in Burma. Other large buyers in the 1970s were Japanese and Chinese diplomats visiting Mandalay from Rangoon, who bought mostly seals, chopsticks and shoe horns. By the late 1970s there were about 45 craftsmen in Mandalay using ivory and wood. According to the ivory craftsmen, the Burmese stopped buying ivory combs at this time, however, as they became too expensive; combs made of wood, such as sandalwood, and in the 1980s, plastic, were purchased instead.

By 1981 the number of ivory craftsmen had fallen to about 30, all operating from three main workshops in Mandalay, while others who had previously worked with ivory, switched to carving wood, working from their homes or next to temples to target visiting tourists. An ivory craftsman earned around 20 kyats (US$0.55) a day, making mostly jewellery and seals. The main buyers at that time were Japanese, French, Germans and Italians. Few Burmese could afford ivory items by this time.

During the 1980s Mandalay's ivory industry expanded as more tourists were able to visit for longer periods. After the political upheavals in the country in 1988, however, tourism slumped and did not recover until 1994. Ivory items continued to be smuggled into Thailand during this period, however. A small amount of ivory carved into Chinese designs (gods, Buddha figures and traditional fishermen) was also smuggled overland to China by the Shan people who live along the border. There is virtually no trade in Burmese worked ivory items to neighbouring Bangladesh, India and Lao PDR, as there is no significant demand for such items there.

In late 1995 the Mandalay ivory carving industry was doing well, with 50 to 60 craftsmen using mostly ivory, but working with wood if business were slack. The larger ivory workshops located in the centre of the city were selling ivory products both wholesale and retail. Some craftsmen work in their houses or flats, and sell their goods at the main tourist sites: at the eastern gate of Maha Muni Temple 102 shops were observed in December 1995, with six selling between 200 and 400 ivory objects in total, the only wildlife derivative for sale there. The main buyers were tourists from Japan, South Korea, Taiwan and Italy, although importation of these goods by those countries without documentation would have contravened CITES and/or national laws. Ivory seals and chopsticks tend to be purchased mainly by Japanese; Singaporeans favour ivory Buddha statues and chopsticks; and Europeans tend to ask for elephant "bridges" (elephant forms carved along the curve of a tusk), carvings of other animals, and jewellery (Table 2).

Item	US$	Kyat
Earring	11	1300
Cigarette holder, 12.5 cm	21	2500
Signature seal (square), 7.5 cm	23	2800
Chopsticks, pair	27	3200
Bangle, 1.24 cm thick	33	4000
Elephant sculpture, 6 cm	42	5000
Chinese-style spoon	100	12 000
Large carved bangle	117	14 000
Chinese-style god sculpture, 25 cm	417	50 000
Elephant "bridge", 60 cm	708	85 000

Table 2. Ivory items for retail sale in Mandalay, December 1995.
Survey by the author

Yangon

Ivory carving is carried out in Yangon, the capital, but the quality is even poorer than in Mandalay because the craftsmen have less tradition and experience in working ivory than their counterparts in Mandalay: the main raw ivory buyers, who buy most of the available tusks, are based in Mandalay. By the early 1990s, most carvers who had formerly worked ivory had switched to wood, specializing in making small astrological amulets primarily for local buyers. The Burmese often approach astrologers or spirit mediums (Anon., 1951; Klein, 1994) and, according to traditional Burmese astrology, the day of the week a person is born determines certain aspects of that person's life. A person born on a Tuesday, for example, would be encouraged by an astrologer to wear an ivory amulet in the form of a lion

(about 2 cm-wide) for luck, while amulets made from sandalwood or teak are worn by people born on the other days of the week. These take the form of a Tiger (Monday), an elephant (Wednesday), a rat (Thursday), a guinea pig (Friday), a snake (Saturday) and a garuda (mythical bird) (Sunday). Several hundred carvers in Yangon make astrological wood amulets, with only a few working full-time on ivory amulets, ivory being generally too expensive for the carvers to buy. It is often the customer who brings the craftsman a small piece of ivory which will then take up to two hours to fashion into an amulet. Raw sandalwood *Santalum* is obtained for US$20 a kg, teak for only US$0.08 a kg and tamarind *Tamarindus indica* for even less. A craftsman of average ability will earn between US$1.50 and US$3 a day. According to the author's observations, a delicate 2.5 cm wood or ivory carving might earn him 350 kyats (US$2.92), but only 150 kyats (US$1.25) for an ordinary piece.

The main tourist attraction at Yangon is the Shwedagon Pagoda where, in December 1995, there were about 150 craftsmen making wood carvings and, very occasionally, a small ivory item on order. Seventeen shops displayed ivory Buddha statues, carved tusks, seals, chopsticks and old combs (most of which have been made in Mandalay). These are purchased mainly by Japanese, French and German customers. Many foreigners also visit the main city market, Bogyoke, where there are over 100 shops, of which about 10 sell more expensive ivory objects, including antiques: a one-hundred-year-old statue of two women, carved in Mandalay, was on sale for US$4000. The most valuable ivory item seen here in 1995 was a 20-cm tusk bearing many intricately carved figures, priced at US$20 000. The hotels in Yangon do not sell ivory items.

Bago

The ivory carving industry in Bago, the former capital of southern Burma and once an important sea port, has also declined owing to the high price of tusks and the difficulty in obtaining them. The main tourist site is the Shwemawdaw Pagoda, where 20 of the city's 50 woodcarvers are located. A few of these craftsmen occasionally work in ivory as well, making mostly amulets. An elderly and experienced carver explained that there was no longer demand for big ivory pieces as they were too expensive. He made about one ivory amulet a month: a 2.5 cm piece would cost 300 kyats (US$2.50) for the raw ivory and a further 300 kyats for several hours' labour. The retail value of an ivory amulet (US$5) compares with 500 kyats (US$4.17) for a sandalwood amulet requiring the same amount of labour, and 90 kyats (US$0.75) for one made of teak and carved in one or two hours.

Esmond Martin

Mandalay has been the centre for ivory craftsmanship in Myanmar for over a hundred years.

Ivory sources

According to craftsmen and shop owners in Myanmar, raw ivory is obtained from either Government sales, or from poachers and traders. During the political struggles in Yangon in 1988, many files in the city's Forest Department which dealt with ivory sales were destroyed and figures are only available since then. From 1988 the Department has collected only male tusks because the shorter female tushes are less valuable. The latter are purchased by the craftsmen from other sources, however. In 1989/90, the Forest Department sold 575 kg of elephant tusks, the majority having come from Government-owned elephants that had died. The large tusks sold for 3300 kyats (US$76) a kg, medium-sized ones for 2700 to 2900 kyats (US$62 to US$67), and small pieces for 1010 kyats (US$23) a kg. In 1990/91, three dealers bought one lot each for a total of US$37 571. In 1992/93 ten dealers tendered, but the entire 603 kg (209 pieces) went to one buyer for an average price of US$141 a kg. In 1994 the Forest Department granted permission for members of the Arts and Crafts Association to buy the raw ivory so that they could carve and exhibit the items at the 50th anniversary of Resistance (Tatmadaw) Day (27 March 1995). At the end of 1994, the Government sold 337 kg of raw ivory at an average price of US$204 a kg, mostly to craftsmen in Mandalay. There was no sale in 1995 and by January 1996 the Department had 538 kg of elephant tusks. At least another half a tonne of raw ivory has been sold annually since 1993 to craftsmen from elephants (both wild and domestic) that have died of natural causes but which are not in Government stocks, or illegal ivory that has been poached; tusk-ends are also cut from living animals. During the survey, ivory dealers in Mandalay admitted to having bought ivory originating from elephants poached mainly from around Toungoo, the Pegu-yoma Hills, and the Rakhine (formerly Arakan) Mountain Range, but also from near Pyinmana, Pyi and Myitkyina. Usually traders from these areas come to Mandalay and Yangon to sell their raw ivory.

As with ivory from Government sources, the cost of ivory from private sources rose sharply between 1981 to 1995, and varied according to size and quality. The larger, more valuable tusks from mature males sold for US$26 a kg in 1981, rising to US$256 a kg in 1993 and

US$239 by December 1995. The smaller tusks, and the least valuable female tushes, fetched, respectively, US$13.50 and US$10 a kg in 1981, rising to US$128 a kg (for both smaller tusks and female tushes) in 1993, and US$128 and US$107 a kg, respectively, at the time of the survey.

Elephant bone may sometimes be used as a cheap substitute for ivory. In 1995, raw bone cost US$9 a kg, a beaded bone necklace retailed for US$2.50, a 15-cm comb was just over US$1, and a poorly carved, 15-cm sculpture, was US$2.50. These objects are usually purchased by foreigners, mostly Europeans.

Quantity of ivory used

It is not possible to quantify the amount of ivory used by craftsmen each year, largely owing to the fact that some is illegal and therefore not recorded. Similarly, there are no reliable figures on the numbers of elephants poached annually. Even the number of craftsmen is unknown as some work away from the towns, supplying the border trade with Thailand. The author estimates, however, that at least 500 kg to 1000 kg of raw ivory are consumed each year by the craftsmen in Myanmar.

The amount of worked ivory being smuggled into Thailand, and the amount of tusks being transported out of Myanmar, is unknown. According to the traders, most tusks go to Bangkok, Chiang Mai and the border area of Tachilek/Mae Sai. In Tachilek, in September 1993, there were 30 pairs of raw ivory tusks on sale (T. Redford, pers. comm., February 1996). These were mostly small tusks and would probably be bought by Thais to decorate their houses and temples. The ivory trade to China similarly cannot be quantified, but may be significant. For instance, a craftsman in Mandalay had a confirmed order dated 9 November 1995 to make 400 sets of ivory chopsticks to be sent to China, for which he was charging a Burmese middleman 3200 kyats (US$26.67) a set. This middleman sold the chopsticks at the border; such items usually sell for 3500 kyats (US$29.17) a pair.

Other Souvenirs Derived From Wild Animal Parts

Although ivory items are widely available at the main tourist sites in Myanmar, souvenirs derived from other wildlife sources are less common. The tusks of Wild Pig *Sus scrofa*, antlers and horns of unidentified deer species and teeth of Asiatic Black Bear *Ursus thibetanus* and/or Sun Bear *Helarctos malayanus* are fashioned into jewellery by the Nagas, traditional hunters who live in the mountains of north-west Myanmar; necklaces of such items seen at Bogyoke market in Yangon in 1995 ranged in price from US$67 to US$100. The Nagas also use the animals' skins to make into clothes - a deer skin hat with a pair of Wild Pig tusks attached was on sale at the same market for US$50.

Tiger products can also be bought in the tourist centres, mainly in the markets and near the temples. According to the traders, the animals are killed with guns, traps or by poison placed in cow carcasses. Although Tiger bones are used in medicines, the nails, teeth, skull and skin are usually sold as souvenirs. In Yangon's Bogyoke market in December 1995, Tiger nails were available at one shop for US$10 each, and for an average of US$22 each at two other shops. Whole Tiger skins are rarely seen in Myanmar as there is a much larger market for these items across the border in Thailand. However, a Tiger skin was seen in Taunggyi, along with souvenirs made from other animal parts (Table 3).

Item	US$	Kyat
Bear[1] jaw	4.17	500
Elephant *Elephas maximus* tail hair	0.42/hair	50
Sting ray[2]	?	?
Takin *Budorcas taxicolor* horns (pair)	8.33	1000
Tiger *Panthera tigris* skin (poor condition)	42.00	5000
Wild Pig *Sus scrofa* tusk or tooth	1.67	200

Table 3. Ornaments made of animal parts for sale by a street vendor in Taunggyi, December 1995.
Survey by the author. [1]Asiatic Black Bear *Ursus thibetanus* or Sun Bear *Helarctos malayanus* [2]species unknown

The Kyaik-tiyo Pagoda (popularly called the Golden Rock), reached by a strenuous five-hour walk from the town of Kyaik-tiyo in south-east Myanmar, is visited mostly by Burmese. In January 1996, a shop beside the pagoda sold products from bears, Tigers, otters, monkeys, pythons *Python* and Indian Muntjacs *Muntiacus muntjak* (Table 4). These animals had mostly come from the surrounding mountains (Anon., pers. comm., January 1996).

Sambar Deer antlers and Gaur horns are also exported to Thailand. Based in the outskirts of Pyin Oo Lwin is a well-known trader who deals specifically in the skulls of these two species, and the only person in that town known to be selling these trophies. He regularly travels 250 km to the forested areas and to the town of Namkhan next to the Chinese border to obtain the

Karl Ammann

Parts of protected animals, such as the skins of Tiger, Leopard and Clouded Leopard, on sale at the border town of Tachilek in 1993.

Item	Quantity	US$	Kyat
Bear[1] gall bladder (dried)	2	42	5000
Bear[1] skin	2	17	2000
Bear[1] paws (pair)	4	17	2000
Indian Muntjac *Muntiacus muntjak* skin	2	?	?
Monkey[2] skull	1	?	?
Otter[2] penis	2	25	3000
Otter[2] skin	1	6	720
Python *Python* skin	3	6	720
Tiger *Panthera tigris* paws (pair)	2	17	2000
Tiger skull	3	15	1800

Table 4. Wild animal products for sale at the Kyaik-tiyo Pagoda, January 1996. *Survey by a Burmese national on behalf of the author.* [1]Asiatic Black Bear *Ursus thibetanus* and/or Sun Bear *Helarctos malayanus* [2]species unknown

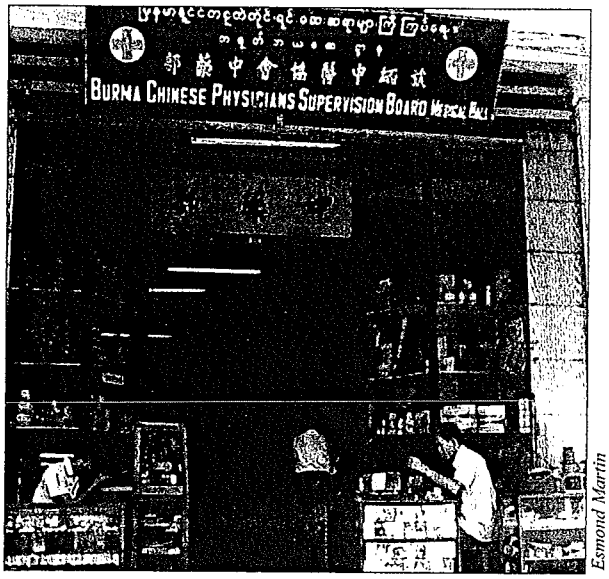
skulls, with antlers and horns attached, which he then cleans and polishes at his home. In December 1995, skulls of 16 Sambar Deer and 10 Gaurs were displayed on his walls for potential buyers: a high-quality Sambar Deer skull with antlers attached would sell for the equivalent of US$77 and a similar quality Gaur skull with horns, US$146. Normally, however, this trader organizes for their transport to the border towns of Tachilek, and Mae Sai, in Thailand, to sell wholesale to Thai traders who, in turn, would obtain 10 000 baht (US$400) retail for a Gaur trophy in Mae Sai.

A large quantity of wildlife products, mainly souvenirs, is for sale on the Myanmar/Thai border, including parts from endangered species, and a large amount is smuggled across the border to Mae Sai and Mae Sot. In 1994, skins of 20 Clouded Leopards *Neofelis nebulosa* and 24 Leopards *Panthera pardus*, skulls of 30 Leopards, 20 Tigers and 32 Gaurs, 30 bear gall bladders and 23 Tiger penises were recorded on the Tachilek/Mae Sai border (Table 1) (Redford, unpublished). Most of the wildlife items are bought wholesale by Thai traders who can sell them profitably in their country.

Wildlife as Medicine

Traditional Burmese medicine is based on the Ayurvedic system of medicine practised in India, but encompasses some of the metaphysical teachings of Buddhism. Up until the 1920s, over 90% of the rural population depended upon this form of medicine (Anon., 1951), but modern medicine has become increasingly important. Unlike traditional Chinese medicine (TCM), animal products have seldom been used in the traditional medicine of Myanmar. There are some exceptions such as python gall bladders (which are consumed by the Pa Oh tribe in the Shan State), bear gall bladders, Tiger teeth and Tiger bones (Table 6)

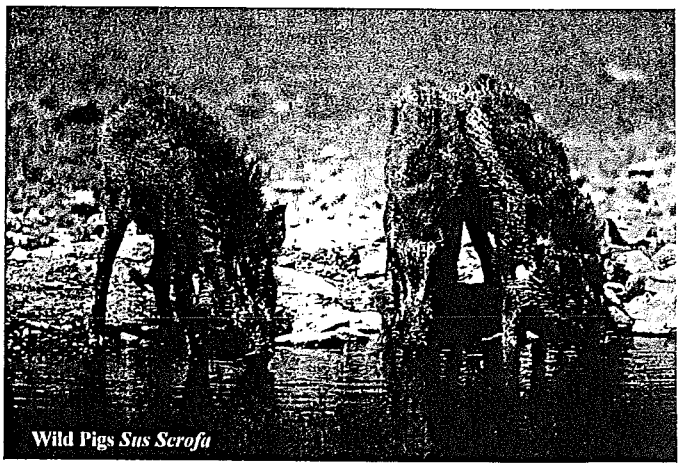
There were many more TCM shops in Myanmar prior to the military coup in 1962, when many Chinese left the country. Most wildlife products used as medicinals are now collected for export to China and Thailand where they fetch higher prices. In the Chinese district of Yangon, in and around Bandoola Street, there were



Esmond Martin

This medicine shop in Yangon sold rhino products in 1981, but is no longer able to obtain such items owing to the near extinction of the Sumatran Rhino in Myanmar.

nine shops selling TCM medicines in late 1995, mostly to local Chinese: seven of these outlets sold herbs and packaged medicines from China, while two larger shops also sold raw animal products: Tiger bones, bear gall bladders, pangolin *Manis* scales, tortoise shells, and python gall bladders (Table 5). Since the early 1990s, business has picked up for the two larger shops because more Asians coming to the country, both as tourists and to visit relatives, seek raw animal products to bring home with them. According to the shopkeepers, Japanese nationals want to buy bear gall bladders, in particular; Singaporeans ask for swiftlet birds' nests; Thais typically look for dried bear gall bladders, swiftlet birds' nests and Tiger bones; and South Koreans favour antlers. Taiwanese visitors are said to ask for Tiger penises but TCM shop owners are unable to obtain them. Chinese nationals purchase the largest selection of animal parts: pangolin scales, otter skins, deer antlers, Tiger bones, swiftlet birds' nests and tortoise shells. These products come mostly from hunters in the Pegu-yoma Hills, the Shan State, and the Chin Hills.



Wild Pigs *Sus Scrofa*

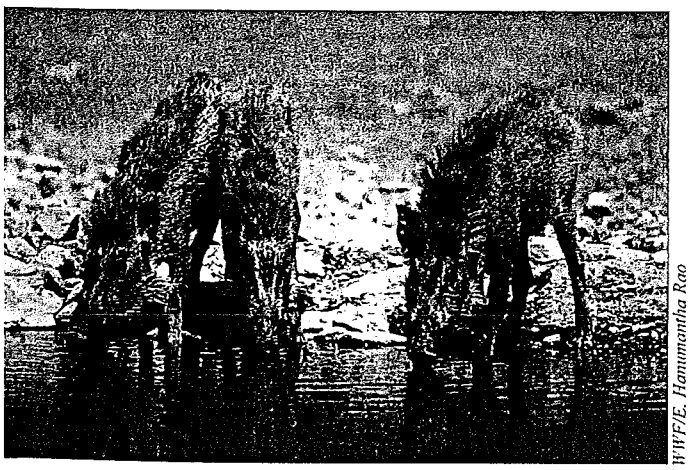
Item	Use/cure	US$	Kyat
Bear[1] gall bladder (dried)	*angina pectoris*	83	10 000
Pangolin *Manis* scale	boils	46/kg	5500
Python *Python* gall bladder (large, dried)	to restore speech following a stroke	33	4000
Tiger *Panthera tigris* bone	rheumatism	51/kg	6100
Tiger tooth	to make children brave	?	?
Tortoise[2] shell (piece)	to improve kidney function	?	?

Table 5. Wild animal products for retail sale in traditional Chinese medicine shops in Yangon, December 1995. *Survey by the author.* [1]Asiatic Black Bear *Ursus thibetanus* and/or Sun Bear *Helarctos malayanus* [2]species unknown

The horn, skin and blood of rhinos were for sale in Yangon's TCM shops at least until the early 1980s (Martin, 1983), but have not been available for some years.

The two TCM shops operating in Mandalay, both owned and managed by Chinese doctors, were selling a few pangolin scales, bear gall bladders, antlers, tortoise shells, python gall bladders, a sting ray (for alleviating muscle strains/cramps), oyster shells (for curing boils) and a species of beetle (taken to improve circulation).

Taunggyi, south-east of Mandalay and the administrative capital of the Shan State, is a large trading centre comprising Chinese, Burmese, Shan, Indian and Gurkha traders. Foreigners cannot travel east of this town owing to the danger posed by the presence of Shan warlords and smugglers of drugs, gemstones and wildlife. Many smugglers operate their trading networks from Taunggyi to Thailand in the east and China in the north. Opium and gemstones (such as jade) are sent to Thailand, and wildlife products are sent through the infamous golden triangle (an opium-producing area of Southeast Asia comprising parts of Myanmar, Lao PDR and Thailand) to Tachilek and Mae Sai, while in return come consumer goods which are for sale in Taunggyi's main market. Animal products are not available in this market. However, an open-air stall in the town, on the corner of General Aung San Street opposite the main market, displayed the largest variety of animal products seen by the author in Myanmar (Table 6). This is the only outlet for the sale of animal products in this town.



WWF/E. Hanumantha Rao

Most are used as medicines. The owner, a Burmese, had been selling his goods there for 40 years, preferring to remain safely with his family than to risk encounters with armed insurgents on the journey to the Thai border. He obtains his wildlife goods from forests, 20 km to 70 km east of Taunggyi. The hunters there are mostly Shans and Karens who kill Tigers, bears, Takins, Wild Pigs and smaller animals with the use of guns and wire snares. The vendor's main customers are Burmese, Shans, Pa Ohs and Chinese, mostly from the Taunggyi area, and not foreign tourists. Popular items include elephant skin, and various horns and antlers and altogether he claims to gross 4000 kyats to 6000 kyats (US$33 to US$50) a day.

A Chinese doctor who runs a small clinic in Taunggyi buys all his medicines ready-packaged from China's Yunnan Province. He is occasionally offered bear gall bladders and Tiger bones, but they are too expensive for him to purchase.

Since 1980, there has been demand in Myanmar for rhino urine to reduce chest congestion. This use arose following the gift of two Greater One-horned Rhinos *Rhinoceros unicornis* to the Burmese Government from the King of Nepal. The animals were sent to Rangoon Zoo and cared for by a Nepalese veterinarian who informed the zoo keepers that the Nepalese and Indians drink rhino urine to treat chest congestion and asthma. When the author first visited the zoo in January 1981, the zoo keepers were accepting small payments from Burmese and Indians for urine taken from the rhinos (Martin, 1983). This continued regularly until the animals died in June 1993. Since then, the keepers have collected urine from two tame White Rhinos - about once every two weeks - for sale to the public. The zoo provides no other animal products to visitors, although Tiger whiskers are occasionally requested.

Item	Use/cure	US$	Kyat
Bear[1] claw	strength	4.17	500
Bear gall bladder (dried)	asthma, malaria	100	12 000
Bear oil	prevents baldness	2.50/50 ml bottle	300
Elephant *Elephas maximus* skin	skin diseases	10.21/kg	1225
Gaur *Bos gaurus* horn	eye infections	?	?
Otter[2] penis	aphrodisiac	5	600
Pangolin *Manis* scale	children's tonic	0.33	40
Peafowl *Pavo cristatus* leg and claw	?	?	?
Porcupine[3] quill	nose bleeds	0.08	10
Python *Python* gall bladder (dried)	stroke	2.50	300
Python *Python* skin	rashes, ringworm, warts	?	?
Tiger *Panthera tigris* bone	to give courage/strength to children	51/kg	6100
Tortoise[2] shell (whole)	kidney	0.80	100
Wild Pig *Sus scrofa* tusk	smallpox	1.67	200

Table 6. Medicinal products from wild animals, mostly for use in traditional Burmese medicine, for retail sale by a street vendor in Taunggyi, December 1995. *Survey by the author.* [1]Asiatic Black Bear *Ursus thibetanus* and/or Sun Bear *Helarctos malayanus* [2]species unknown [3]*Atherurus macrourus* and/or *Hystrix hodgsoni*

Wildlife as Food


WWF/Vin Toledo

Mouse Deer *Tragulus nigricans*

The quantity of wild animal meat sold in meat markets and restaurants in Myanmar's cities appears to be significantly less than that which is available in some cities in other parts of Southeast Asia (such as Ho Chi Minh City, Vientiane and Phnom Penh). However, around the small towns and villages, in areas with many deer, Wild Pigs, bears and wild cattle, such as in the Shan State, Kachin State, and in the Tanintharyi Division (formerly Tenasserim), there is much hunting for meat. A TRAFFIC Southeast Asia survey of wildlife trade in Mergui Tavoy District in south-east Myanmar in 1993 showed that wildlife was hunted both for local consumption and for trade, and included gibbons *Hylobates*, Spectacled Langurs *Presbytis obscura*, mouse deer *Tragulus*, Indian Muntjacs, Serows *Naemorhedus sumatraensis*, Common Palm Civets *Paradoxurus hermaphroditus* and terrapins (Hill, 1993). The survey suggested that hunting in this area was not organized systematically but, rather, was opportunistic (Hill, 1993).

A significant number of wild animals - deer, Wild Pigs, pangolins, tortoises and snakes, for example - are transported, both dead and alive, to China for food. The Karens in the Mergui Tavoy District often sell their animal kills to Thai middlemen, who sometimes transport their purchases across the border in lorries owned by Thai logging companies. In 1993, meat was sold in this region for about US$1.20 a kg in the villages and for US$2.40 to Thai middlemen. Thai Government officials and villagers sometimes cross the border into Myanmar to hunt wild animals for meat, and then illegally take the carcasses back to Thailand to sell (Hill, 1993).

Wildlife as Pets

The small flats and houses of Myanmar's large cities are unsuited to housing pets and, with the exception of birds and fish, wild animals are rarely sold for this purpose. Even the bird markets are small compared with elsewhere in Southeast Asia, demand for birds having been greater in Myanmar 30 years ago when more Chinese and Indians were resident in the country.

The main shops selling birds in Yangon are along Lanmadaw Street in the Chinese district: in December 1995 there were four small pet shops, three of which sold birds in cages, placed mostly out on the pavement, and one which sold only fish. Except for 37 Budgerigars *Melopsittacus undulatus*, reported to have been imported from Australia, all birds seen were indigenous species and included 88 pigeons which had been caught in and around Yangon, 74 parakeets *Psittacula* from central Myanmar, 19 wildfowl from the delta region south-west of Yangon, 10 Hill Mynas *Gracula religiosa* from just north of Yangon and two Common Kestrels *Falco tinnunculus* from around the town of Pyi. Owing to lack of demand, the prices were low: US$12.50 for each kestrel, the Hill Mynas and wildfowl were US$4 each, the parakeets (the most popular birds) were US$1 each, while the pigeons (which are also sold as food) were US$0.42 each.

Throughout Myanmar, birds - mostly sparrows *Passer* spp. - are sold outside temples. These are bought mainly so that they can be released into the wild, an act considered by Buddhists to be a good deed. However, small numbers may be bought as inexpensive pets. One of the main wholesalers of sparrows supplies most of his sparrows to itinerant sellers at the temples in the Yangon area. He works from a flat in the Kanaawlay ward in the city and is supplied by about 10 to 15 traders. The birds are caught in the delta region southwest of Yangon, and transported to the city on schooners, a journey taking two days. The wholesaler also goes to the delta himself to buy sparrows. He claimed that about 20% of all the birds die on the return journey, while a further 20% die awaiting sale. In 1994, this dealer bought an average of 25 500 birds a month, but in 1995 he could only buy a total of about 15 000 a month, presumably, according to the trader, owing to their reduced numbers in the wild. In that year, he received 1000 birds every other day and, depending on the season, paid US$0.10 to US$0.125 per sparrow. He sold them for US$0.13 to US$0.21 each to 10 or 20 regular customers who, in turn added a few kyats mark-up. If an itinerant trader managed to sell a hundred birds a day (a good return for a day's work), he earned about US$25 gross, while his net earning was about US$6.

There is no formal bird market in Mandalay but, as in Yangon, specimens may be purchased outside the main temples for the purposes of release, and as pets. For example, at the Mahamuni Temple, baskets of Spotted Doves *Streptopelia chinensis* and sparrows were being sold, respectively, for US$1.25 and US$0.17 each.


WWF/Fred Hazelhoff

Common Kestrel *Falco tinnunculus*

Government Exports of Wildlife

The Myanmar Forest Department has been exporting live animals and wildlife products for years in order to earn hard currency for the Government. For example, elephant ivory was a major export commodity from 1970 to about the late 1980s. However, as most of the relevant Forest Department documents were destroyed

in 1988, few records for that period survive. Official statistics from Thailand, however, show that from 1982 to 1986, an annual average of 115 kg of ivory was officially imported to Thailand from Myanmar (Parker, 1989). In addition, Hong Kong Customs statistics recorded the importation of 91 kg of raw ivory from Burma in 1979, and Macao Customs recorded 100 kg in 1984 (Parker, 1989). According to the Forest Department statistics, 133 kg of ivory were exported in 1988 at an average price of US$86.64 a kg, while in 1989 two tusks were sold to a Singaporean company for US$595; no weight was given. These ivory imports apparently contravened CITES.

The Forest Department also sold live elephants to foreign traders. In the fiscal year 1987/88, three elephants were exported to a dealer in the Netherlands for US$13 000 each, and two to a dealer in Japan for US$13 500 each. In the following fiscal year, a further nine elephants were exported to the same dealer in the Netherlands, again for US$13 000 each, followed by another 14 in 1989/90, for US$16 000 each. These sales of CITES Appendix I-listed species caused a stir in the international press and reports of assurances from Myanmar that the animals had been bred in timber camps could not be proved (Broad, 1990). As a result, the CITES Secretariat issued a statement in that year recommending that import licences for elephants from Myanmar should not be granted by Parties unless reliable evidence were given that the elephants had been captive-bred (Broad, 1990). The Dutch trader, however, continued to buy elephants from the Myanmar Forest Department and to export them: 14 in 1990/91 for US$17 000 each, and two in 1993/94 for US$18 000 each. In Europe, a female Asian Elephant with correct documentation was worth at least US$35 000 in 1995 (H. Demmer, pers. comm., 1996).

The Forest Department also earned hard currency by exporting other live animals. Figures from the Forest Department are again incomplete, but there are comprehensive records for 1988/89 for the export of Hill Mynas, parakeets and Rhesus Monkeys *Macaca mulatta*. In that year the Department tried to export about 5000 Hill Mynas, but sold only 2450, earning the country US$34 875, or an average of US$14.23 per bird. The Department planned to export 1000 parakeets, but only 583 were sent abroad, fetching US$3452, or US$5.92 each. The export projection for Rhesus Monkeys was 200 but only 64 were sent out of the country in that year for US$12 800, or an average of US$200 per monkey.

Wildlife Decline in Myanmar

In late 1995 there were reports of a continuing decline in the numbers and ranges of many wildlife species from the effects of hunting and diminishing habitat. A Catholic priest who has lived in Kalaw since the 1930s stated that most of the larger species in the area had disappeared over recent years as a result of heavy hunting by the Karen and the army (A. de Meiro, pers. comm., December 1995). Medicine shop owners say they are no longer offered rhino products (except urine from zoo specimens) as the animals have been poached virtually to extinction in Myanmar. A survey in 1994 to find rhinos in Tamanthi Wildlife Sanctuary in north-west Myanmar (the most likely area for any remaining Sumatran Rhinos), was unable to locate any, although it is believed that one or two might be left in this sanctuary (Rabinowitz *et al.*, 1995). There may also be some specimens left in Tamanthi, Kahilu Wildlife Sanctuary and in Putao District (Uga, 1993).

The sharp increase in ivory prices since the late 1980s can be attributed to the growing demand for a dwindling resource, and would seem to indicate that the elephant population in Myanmar is shrinking (R. Sukumar, pers. comm., 1996).

Tiger parts are also becoming more difficult to obtain. A major souvenir trader in Pyin Oo Lwin stated he is only offered a Tiger carcass every three to four years compared with more frequently in the past. He last purchased a Tiger carcass in 1995. The animal was 1.5 m in length and cost US$167; the trader later sold the specimen for US$317 to a Chinese doctor in the area. Another trader confirmed that Tigers in the Shan State are becoming rarer owing to over-exploitation.

Enforcement

Myanmar's illegal wildlife trade continues to flourish largely because of a lack of commitment to protecting wildlife, resulting in poor law enforcement. The lucrative income derived from wildlife encourages the poachers and smugglers in Myanmar to continue in the business, either until the animals cannot be found or until Myanmar and neighbouring countries more rigorously enforce their wildlife laws. However, the Forest Department does not have sufficient manpower and equipment to patrol and manage the wildlife areas adequately. This is particularly true in certain parts of the country taken over by insurgent groups: the Mergui Tavoy District in the Karen State of Kawthoolei, for instance, is unofficially administered by the Karen National Union which allows the sale of live elephants to Thailand - at least 42 were exported in 1992 alone. The Karen National Union does, however, prohibit the killing of elephants, rhinos, Malayan Tapirs *Tapirus indicus*, gibbons *Hylobates*, hornbills Bucerotidae and Green Peafowl *Pavo muticus*, and outlaws the transport of wild animals (except elephants) and their products out of the region, but again these laws are often ineffective owing to lack of control and commitment (Hill, 1993). A further problem is that the work of the Forest Department focuses more on forest utilization than on wildlife conservation (Uga, 1993; IUCN, 1991; Blower, 1985; Rabinowitz *et al.*, 1995). There are few arrests of wildlife traders. For example, the main wildlife trader in Taunggyi displays Tiger bones and skins on the pavement of the busiest street in the city.

Although Myanmar has recently joined CITES, it is not party to any of the other major international wildlife treaties such as the World Heritage Convention or the Ramsar Convention.

Conclusions and Recommendations

There exists a sizeable, largely illegal, trade in wildlife in Myanmar for tourist souvenirs, and to a lesser extent for medicine and food. The main product used is ivory, about half of which is illegal. There is clearly a considerable illegal export trade in wildlife commodities, predominantly to China and Thailand. Of the areas visited, by far the largest quantity of wildlife products offered for sale in a single location was at the border town of Tachilek, and just across the Thai border in Mae Sai. In addition, there have been officially sanctioned exports of natural resources including live animals. Although scientific study of wildlife populations of Myanmar has yet to be carried out, and knowledge obtained from wildlife traders and market surveys is limited, there is enough circumstantial evidence to suggest the decline of certain species. It is imperative that Myanmar's wildlife areas be surveyed soon and regularly, and that Tachilek, one of the country's main wildlife trading centres and a location easy to visit and to monitor, be studied frequently in order to learn about quantities and turnover of animal products.

The Myanmar Government has hitherto not demonstrated sufficient commitment to stopping the illegal killing and trade in wild animals and greater efforts must be taken to enforce the country's laws in this regard. Further, a thriving underground economy in illegal exports of opium, timber, gemstones and wildlife, which is often controlled by people of influence to those in authority, has served to inhibit action by the Government to provide for greater protection of endangered species in the country. Perhaps following Myanmar's recent accession to CITES, some officials may become more committed to implementing wildlife trade controls. But a great deal of effort and resources will be needed to put in place the proper enforcement measures.

References

Anon. (1956-1962). *Annual Trade Report of Kenya, Uganda, and Tanganyika.* East African Customs and Excise, Mombasa, Kenya.

Anon. (1951). *Report of the Committee of Enquiry into the Indigenous System of Medicine.* The Government of Burma. Government Printing and Stationery, Rangoon, Burma.

Anon. (1991). *The 1992 Information Please Environmental Almanac.* Compiled by World Resources Institute. Houghton Mifflin Company, Boston, USA.

Anon. (1993). *Southeast Asia Rainforests: A Resource Guide and Directory.* Rainforest Action Network, San Francisco, USA.

Anon. (1994). Ministry of Forestry, Forest Department, Notification No. 583/94, 26 October. The Government of the Union of Myanmar. Unpublished.

Anon. (1995a). *Selected Monthly Economic Statistical Indicators.* Paper No. 3. Central Statistical Organization, Yangon, the Government of the Union of Myanmar.

Anon. (1995b). *Statistical Abstract 1994.* Central Statistical Organization, Yangon, the Government of the Union of Myanmar.

Anon. (1996). *The Economist.* 6 April. Pp.65-66.

Anon. (1997). *Whitaker's Almanack.* J. Whitaker & Sons Ltd., UK.

Blower, J. (1982). Species Conservation Priorities in Burma. In: Mittermeier, Russell and Konstant, William (eds), *Species Conservation Priorities in the Tropical Forests of Southeast Asia.* Occasional papers of the IUCN Species Survival Commission (SSC), No.1, IUCN, Gland, Switzerland.

Blower, J. (1985). Conservation priorities in Burma. *Oryx* 19:79-85.

Broad, S. (1990). Controversy over Asian Elephants. *TRAFFIC Bulletin* 11(4):49.

Hill, G. (1993). Wildlife trade in Mergui Tavoy District, Kawthoolei, December 1991-April 1993. A TRAFFIC Southeast Asia Field Report. Unpublished.

IUCN (1991). *Protected Areas of the World. A review of national systems.* Vol. 1: Indomalaya, Oceania, Australia and Antarctic. Gland, Switzerland.

Klein, W. (1994). *Insight Guides. Myanmar, Burma.* APA Publications (H.K.), Singapore.

Kunz, G.F. (1916). *Ivory and the Elephant in Art, in Archaeology, and in Science.* Doubleday, Page and Co., Garden City, New York, USA.

Martin, E.B. (1983). *Rhino Exploitation: The Trade in Rhino Products in India, Indonesia, Malaysia, Burma, Japan and South Korea.* WWF-Hong Kong.

Milton, O. and Estes, R. (1963). *Burma Wildlife Survey, 1959-1960.* Special Publication No.15, American Committee for International Wild Life Protection, New York, USA.

Parker, I.S.C. (1989). The raw ivory trade 1979-1987. A consultancy report for Parties to CITES through the Secretary General. Unpublished.

Rabinowitz, A., Schaller, G.B., and Uga, U. (1995). A survey to assess the status of Sumatran rhinoceros and other large mammal species in Tamanthi Wildlife Sanctuary, Myanmar. *Oryx* 29(2):123-128.

Redford, T. (1994). An investigation of wild animal trade on the Thai/Burmese border at Mae Sai. Unpublished.

Uga, U. (1993). Conservation of wild populations of rhinoceros: country conservation action plan Myanmar. Report submitted to the UNEP Conference between the rhinoceros range states, consumer states and donors on financing the conservation of the rhinoceros. Unpublished.

Vatikiotis, M. and Holloway, N. (1995). Almost back in favour: international donors flirt with Burma's generals. *Far Eastern Economic Review* 23 November. P. 80.

Watt, G. (1904). *Indian Art at Delhi 1903.* John Murray, London, UK.

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

The sources of information upon which the cases below are based are cited at the end of each country section.

EUROPE

BELGIUM

On 8 January 1997, at Brussels National Airport, Customs officers of the GAD (Anti-Drug Group) Inspection Service seized a box containing 10 reptiles which had been included in a shipment of live tropical fish arriving from the USA. They included 2 Gold-Dust Day Geckos *Phelsuma laticauda*, 2 Madagascar Day Geckos *P. madagascariensis grandis*, 2 Four-spot Day Geckos *P. quadriocellata*, 2 Common Iguanas *Iguana iguana* (all App. II) and 3 Leopard Geckos *Eublepharis macularius*. The reptiles have been placed at Antwerp Zoo. The addressee, a Belgian trader, denies ordering the reptiles.

TRAFFIC Europe

M. Bonnodot

Among more than 500 Mexican cacti seized at Orly Airport, France, in February, were seven specimens of *Astrophytum senile* (=*capricorne*) (App. II), estimated to be over 50 years old.

FRANCE

On 8 January 1997, Customs officers at Roissy Airport apprehended nine Syrians who were transporting 53 birds from Côte d'Ivoire, for sale in Syria. These included 42 African Grey Parrots *Psittacus erithacus*, 1 Meyer's Parrot *Poicephalus meyeri*, 8 Senegal Parrots *P. senegalus* (all App. II), and 2 Ring-necked Parakeets *Psittacula krameri* (App. III). The next day, Customs officers in Gironde recovered 97 Senegal Parrots from the vehicle of a Portuguese national.

On 7 February 1997, Customs officers at Orly Airport seized some 540 cacti that had been transported, without authorization, by a German national arriving from Dallas, USA. They were handed to the Natural History Museum and identified as Mexican species mainly of *Ariocarpus* (App. I) and *Echinocereus* (App. I/II): several specimens of *Ariocarpus* and *Astrophytum* species were estimated to be between 50 and 80 years old; many other plants in the consignment are believed to be over 20 years, including 105 *Echinocereus pectinatus* plants.

On 27 May 1997, Customs officers at Orly Airport seized a commercial shipment of 1738 Hippopotamus *Hippopotamus amphibius* teeth (App. II), one tusk of an African Elephant *Loxodonta africana* (App. I) and 4 Warthog *Phacochoerus africanus* teeth. The items, weighing a total of 840 kg, had been shipped from Uganda, and were bound for Hong Kong.

WWF Press Releases, 15 January/5 June 1997; WWF News Bulletins, 27 February/15 March 1997; TRAFFIC Europe

M. Bonnodot

Customs officer at Orly Airport, France, with a consignment of Hippopotamus *Hippopotamus amphibius* (App. II) and Warthog *Phacochoerus africanus* teeth, in transit from Uganda to Hong Kong.

GERMANY

On 17 December 1996, the Customs Investigation Agency of Munich confiscated a large number of live tortoises. These included 204 Hermann's Tortoises *Testudo hermanni*, 198 Horsfield's Tortoises *T. horsfieldii*, 26 Spur-thighed Tortoises *T. graeca* (all App. II), 47 Egyptian Tortoises *T. kleinmanni* (App. I), and 2110 Red-eared Sliders *Trachemys scripta elegans* (listed in EU Annex B which imposes import controls). The reptiles had been concealed in two vehicles being driven from Poland to Germany by Polish nationals. Three people were imprisoned, two were later released.

On 21 December 1996, the Customs Investigation Agency of Munich confiscated a number of protected reptiles from three Czech nationals. These included 124 Hermann's Tortoises *Testudo hermanni* (App. II), 11 Egyptian Tortoises *T. kleinmanni* (App. I), 100 Common Iguanas *Iguana iguana*, 12 pythons *Python*, 67 Yellow Anacondas *Eunectes notaeus* (App. II), 20 Indian Star Tortoises *Geochelone elegans* (App. II), 49 day geckos *Phelsuma* and 374 Red-eared Sliders *Trachemys scripta elegans* (listed in EU Annex B which imposes import controls). The animals had been smuggled in two cars and were to be sold in Germany. Two people were imprisoned; one has been released from custody.

On 20 February 1997, Customs officers at Düsseldorf Airport confiscated 330 live Strawberry Poison Frogs *Dendrobates pumilio* and 30 live Green and Black Poison Frogs *D. auratus* (both App. II). A German citizen, who had collected the specimens in Costa Rica, had attempted to smuggle the frogs in three plastic boxes he had concealed in the hidden compartment of a sports bag. About half the specimens were dead on arrival, or have since died. Shortly after this incident, Customs officers at Munich Airport seized about 30 Strawberry Poison Frogs from another German citizen arriving from Costa Rica.

On 18 April 1997, Customs officers at Nürnberg confiscated the following reptiles being smuggled into the country by a German citizen arriving from the Czech Republic: 8 Sepik Monitors *Varanus jobiensis*, 14 Emerald Monitors *V. prasinus*, 5 Timor Tree Monitors *V. timorensis*, 47 Green Tree Pythons *Morelia viridis* (all App. II), and 1 Blue-tongued Skink *Tiliqua gigas* (protected by German law).

All the above cases are under investigation. Confiscated specimens have been deposited in bona fide zoological and private collections in Germany, in accordance with the provisions of CITES Resolution Conf. 9.11.

On 18 June 1997, following a search of apartments in the provinces of Bayern, Baden-Wuerttemberg, Rheinland-Pfalz and Hessen, a number of individuals were picked up in connection with the alleged smuggling of reptiles into the country from Madagascar. Sixteen snakes were seized. One man, charged with being the ring leader of an operation which involved the smuggling of some 800 reptiles from Madagascar over the past five years, has been detained. A warrant for his arrest has already been issued by authorities in the USA. The case is under investigation.

CITES Management Authority, Germany; TRAFFIC Europe

SEIZURES AND PROSECUTIONS

ITALY

On 10 April 1997, authorities in Calabria seized 168 dead birds, a number of which were of indigenous species including Peregrine Falcon *Falco peregrinus* (App. I), Lanner Falcon *F. biarmicus*, Short-toed Snake-Eagle *Circaetus gallicus* and Osprey *Pandion haliaetus* (all App. II), as well as Black-winged Kite *Elanus caeruleus* from Spain, Little Green Bee-eater *Merops orientalis*, Blacksmith Lapwing *Vanellus armatus* (all App. II) and Sacred Ibis *Threskiornis aethiopicus* (App. III) from Africa, and Wattled Jacana *Jacana jacana* and a kite *Rostrhamus* sp. (App. II) from South America. The birds had been found in a laboratory, together with chemicals, tools and a number of guns. The seizure of 130 birds in the same area on a previous occasion leads authorities to believe that this region is a focal point in Italy for the illegal trade in birds.

On 21 May 1997, the Forest Corps CITES Service at Fiumicino Airport, Rome, seized one live juvenile Red Howler *Alouatta seniculus* (App. II) from a Venezuelan tourist. The two-month-old animal was in a stressed condition and had been injured during his period in captivity. It is being cared for at Rome's zoo.

TRAFFIC Europe

NETHERLANDS

On 21 May 1997, Customs officers seized 50 Giant Clams *Tridacna gigas* (App. II) from a container in transit through Rotterdam harbour. The shipment, which also contained non-CITES items, was labelled as "wooden handicrafts" and had arrived from Surabaya, Indonesia, bound for Tenerife. Forty-six of the clams were complete double shells. Customs officers at Rotterdam are reported to be particularly vigilant of containers arriving from the Philippines, following the seizure in Rotterdam last year of 11 000 *Tridacna* shells from that country.

TRAFFIC Europe

UK

On 13 March 1997, at Hampshire Magistrates' Court, Bang Hue Thi, a Vietnamese, pleaded guilty to four charges under the *Control of Trade in Endangered Species (Enforcement) Regulation 1985* (COTES) of illegal sale of traditional Chinese medicines. She was fined £2000 (US$3336) and £150 costs.

Among the items seized were packages which listed derivatives of the following CITES species among their ingredients: Tiger *Panthera tigris*, Leopard *P. pardus* (both App. I), Bear *Ursus*, Musk Deer *Moschus*, Saiga Antelope *Saiga tatarica*, Costus Root *Saussurea costus* and American Ginseng *Panax quinquefolius* (all App. II). These items had been purchased in Hong Kong.

Ms Bang's shop in Portsmouth had been under surveillance since early 1996, prompted by a covert investigation by TRAFFIC. She was arrested in August of that year when Hampshire police, assisted by TRAFFIC staff, carried out a raid on the premises.

In April 1997, at Luton Crown Court, Paul Noble of Sandy, Bedfordshire, was sentenced to eight months' imprisonment after being found guilty on three charges relating to the illegal sale of Eleonora's Falcons *Falco eleonorae* (App. II) and one charge of keeping the birds for sale. The evidence clearly suggested that the birds had been taken from the wild as eggs in Majorca in 1994 and 1995, and smuggled into the UK where they were hatched.

Six juvenile birds were seized from Noble's home by Bedfordshire police, assisted by staff of the Royal Society for the Protection of Birds who had been alerted by an advertisement placed by Noble offering the birds for sale. A further eight birds taken as eggs in 1994 and which had been sold to falconers who were told that the birds had been captive bred, were traced and seized.

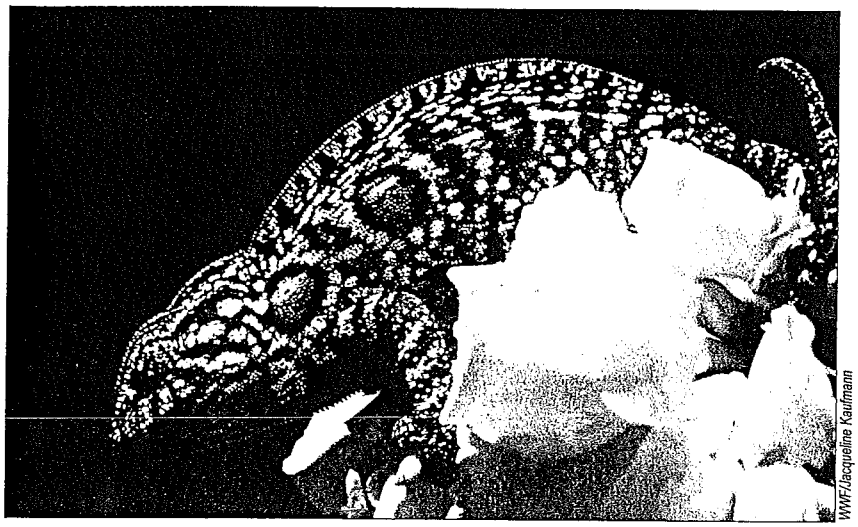
The juvenile birds have been returned to Majorca for reintroduction to the wild; the other eight are not suited for release, however.

On 15 April 1997, 199 Kenyan Sand Boas *Eryx colubrinus* (App. II) were seized by the Customs CITES Enforcement Team at Heathrow Airport. On 2 June, a further 95 specimens were seized. Both shipments had been in transit from Zambia to the USA. The reptiles were identified on the permit as being of wild origin; the species does not occur in Zambia, however. They have been placed with UK zoos and reptile societies.

On 24 April 1997, hundreds of reptiles and amphibians from Madagascar were seized at Heathrow Airport, among which were 231 day geckos *Phelsuma*, including Side-striped Day Geckos (30 *P. lineata lineata* and 15 *P.l. bifasciata*), Gold-Dust Day Geckos (30 *P. laticauda laticauda* and 20 *P.l. angularis*), Madagascar Day Geckos (30 *P. madagascariensis grandis*, 48 *P.m. kochi* and 30 *P.m. madagascariensis*), 28 Four-spot Day Geckos *P. quadriocellata quadriocellata*, 2 Madagascar Giant Chameleons *Chamaeleo verrucosus* (all App. II); 30 Panther Chameleons *C. pardalis*, Carpet Chameleons (25 *C. lateralis lateralis* and 15 *C.l. major*) and 60 Golden Mantellas *Mantella aurantiaca* (all App. II). No documentation accompanied the shipment and the animals have been placed with UK zoos.

On 5 May 1997, the Customs CITES Enforcement Team at Heathrow Airport intercepted a package arriving from Brazil which was found to contain a fresh Jaguar *Panthera onca* (App. I) skin. The item, labelled as "shoes", continued its journey to its destination in Italy where the recipient was questioned by Italian authorities but later released without charge.

On 19 May 1997, at Gatwick Airport, officers of the Customs CITES Enforcement Team seized 366 kg ivory that had arrived in transit from Zambia, bound for Sabah, Malaysia. The items had been sent air freight in three metal boxes which claimed to contain malachite (a mineral). The ivory was in the form of sawn 30-cm lengths of unprocessed tusks, including 58 tusk tips. Some of the ivory was clearly freshly cut and bore machine oil traces on the cut areas. TRAFFIC has been assisting Customs in their enquiries.



WWF/Jacqueline Kaufmann

▲ Carpet Chameleons *Chamaeleo lateralis* (App. II). Some 40 specimens from Madagascar were recently seized in a shipment at Heathrow Airport, UK - just one of several cases reported below which demonstrate the global trend in the illicit trade in Madagascar's exotic and often endangered species.

WWF/W. Suetens & P. van Groenendael

◀ Six young Eleonora's Falcons *Falco eleonorae* (App. II) were recently repatriated to Majorca. The world population of this species is estimated at 4500 pairs, confined mostly to rocky islands in the Mediterranean and north-west Africa.

In June 1997, a consignment of 1115 Rajah Brook's Birdwings *Trogonoptera brookiana* (App. II), which had no accompanying documentation, was seized by the Customs CITES Enforcement Team at Heathrow Airport. The shipment was in transit from Malaysia to Turkey.

TRAFFIC International; Cage & Aviary Birds, April 19 1997; Wingtips, No. 5, July 1997

AFRICA

MALAWI

On 18 July 1997, at Area 43, in Lilongwe, security officials seized 2 African Elephant *Loxodonta africana* tusks, each weighing 5 kg, and 2 Hippopotamus *Hippopotamus amphibius* teeth, of 1 kg each. Two men who were seeking prospective buyers for the trophies were arrested. The items are in the custody of Lingadzi police and a trial is pending.

Department of National Parks and Wildlife, Lilongwe, Malawi

ASIA

EAST ASIA

CHINA

Five men have been sentenced to prison terms of between 7 and 14 years for their part in selling the pelt of a Giant Panda *Ailuropoda melanoleuca* (App. I), according to a report in the *Beijing Daily* newspaper. The men were trying to sell the pelt for 200 000 yuan (US$24 000).

International Herald Tribune, 28 August 1997

HONG KONG

A HK$200 000 (US$25 840) fine has been imposed on a firm found guilty of possessing for sale medicines purporting to contain Tiger bone and rhino horn.

The TCM wholesale firm Van Due Co of Sheung Wan was convicted in September 1996 following a raid on the premises uncovered 166 packets of controlled medicines: 142 listed rhino horn among the ingredients, while the remainder listed Tiger *Panthera tigris* (both App. I) bone. Although no forensic test was performed to confirm that the products contained traces of these species, it is illegal in Hong Kong to sell products claiming to contain derivatives or parts of Tiger or rhino.

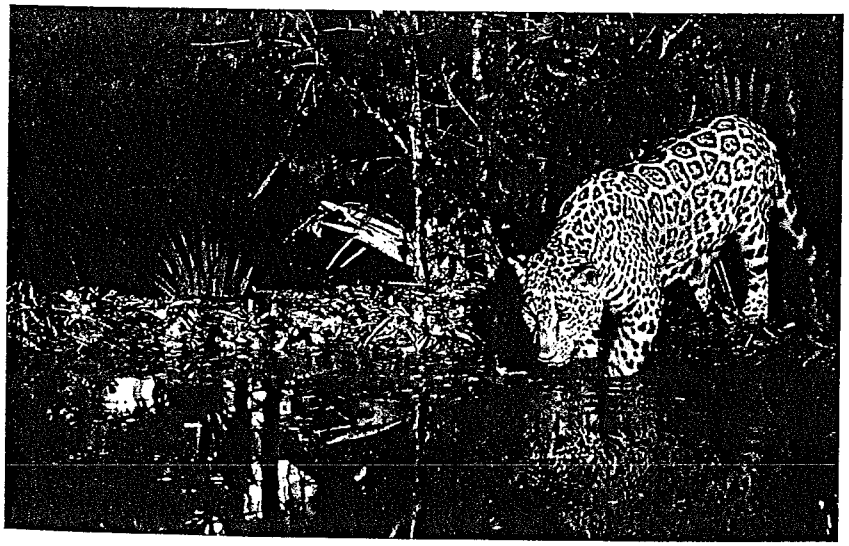
Following the conviction, the firm appealed to the High Court against the verdict, stating that the fine was too high. The appeal was subsequently withdrawn, however.

TRAFFIC East Asia

INDIA

Major seizures/poaching incidents in India since December 1996 to July 1997 are summarized below, and follow on from reports in 16(3). Staff of TRAFFIC India and the Wildlife Protection Society of India assisted authorities in a number of these investigations:

15-20 December 1996: 3 rhinos poached inside Orang Wildlife Sanctuary and Kaziranga National Park (Assam) in separate incidents (horns had been removed).
25 December: 670 live turtles seized in Hooghly and Raigunj District, North Dinajpur (West Bengal). 2 arrests.
end December: 5 Leopards *Panthera pardus* (App. I) poached from hills of Pithorgarh and Uttar Pradesh (UP).
1 January 1997: 1 female rhino poached inside Pobitora Wildlife Sanctuary (Assam) (horn removed).
4 January: 1460 live freshwater turtles seized Mizapur Railway Station (UP). 2 arrests.
8 January: skins of 3 Desert Cats *Felis silvestris* (App. II), 3 Indian Foxes *Vulpes bengalensis* and 3 Red Foxes *V. vulpes* seized in Rajasthan. 3 arrests.
9 January: 3 shawls of *Pantholops hodgsoni* (App. I) wool (shahtoosh) seized from Jammu & Kashmir Government emporium, Calcutta.
20 January: 37 animal skins including Tiger *Panthera tigris* (App. I), Leopard, antelope and jackal, seized from a house in Kohlapur, Maharashtra. 1 arrest.
23 January: 1 Tiger skin seized in Bangalore (Karnataka). 3 arrests.
28 January: 28.5 kg of Tiger bones and 3 Tiger skulls seized near Corbett Tiger Reserve (UP). 5 arrests.
31 January: 3 Leopard skins seized in Satna (Madhya Pradesh (MP)). 2 arrests.
1 February: 11 Leopard skins, 25 jackal skins, 9 fox skins and 9 civet cat skins seized in Satna (MP). 1 arrest.
2 February: 2 Leopard skins, 56 Sambar *Cervus unicolor* horns and 1 Chital *Axis axis* skin seized in Satna (MP).
10 February: 5 Leopard skins seized. 2 arrests in Satna (MP).
10 February: 2 male elephants poached in Nilgiri area (Tamil Nadu (TN)) (tusks removed).
11 February: 9 kg raw ivory seized. 3 arrests in Kokrajhar District (Assam).
11 February: 1 Leopard skin seized at Dadakhar village, Betul District (Andhra Pradesh (AP)). 1 arrest.
15 February: 2 male elephants poached in Nilgiri area (TN) (tusks removed).
16 February: 1 male rhino poached in Orang Wildlife Sanctuary (Assam) (horn removed).
18 February: 1 Leopard skin seized. 2 arrests at Tilak Marg, New Delhi.
19 February: 1 Leopard skin (cub) seized. 1 arrest at Khatauli (UP).
19 February: 2 Leopard skins seized on Sarnath Express train near Satna (MP). 2 arrests.
20 February: 1 Leopard skin seized in Sundernagar, Sarkaghat District (Himachal Pradesh (HP)). 2 arrests.
21 February: 1 Tiger trophy (mounted) and 2 Tiger skins seized in Katni (MP). 1 arrest.
5 March: 700 live Indian Star Tortoises *Geochelone elegans* (App. II) seized at Chennai International Airport (TN). 3 arrests.
17 March: 2 Leopard skins and 9 skins of other endangered species seized at Darjeeling (West Bengal). 1 arrest.
18 March: 2.5 kg of Leopard bones seized in Corbett National Park (UP). 2 arrests.
27 March: 6 Alexandrine Parakeets *Psittacula eupatria* (App. II), 160 Rose-ringed Parakeets *P. krameri* (App. III), 300 Blossom-headed Parakeets *P. roseata* (App. II), 200 Red Munias *Lonchura bicolor*, 7 Baya Weavers *Ploceus philippinus* and 56 pigeons, seized in Delhi.
3 April: 18 jackal skins seized at Chennai International Airport (TN).
5 April: 1 Leopard skin recovered by Forest Department, Calcutta. 3 arrests.
7 April: 1 rhino horn seized in Jalpaiguri District (West Bengal).
13 April: 1000 live turtles seized at Konaseema, East Godavari District (AP). 2 arrests.
13 April: 4 Leopard skins seized at Kondli, East Delhi.
17 April: 3 Leopard skins seized at Deeddag village, Sirmour District (HP).
19 April: 5000 live turtles seized at Chakdah village, Nadia Murshidabad District (West Bengal). 1 arrest.
4 May: 16 Goral *Naemorhedus goral* (App. I) skins seized in the Terai District (UP).
4 May: 1 male elephant poached in Rajaji National Park (UP) (tusks removed).
14 May: 1 Leopard skin and 4 Chital skins seized in Bhuvaneshwar (Orissa).
15 May: 3 Leopard skins seized in Bhuvaneshwar (Orissa). 2 arrests.
16 May: 8 Leopard skins seized in Vikas Nagar, Dehradun (UP). 5 arrests.
17 May: 1 Tiger skin seized in Jamshedpur (Bihar). 1 arrest.
20 May: 2 Leopard skins seized in Vikas Nagar, Dehradun (UP). 1 arrest.
22 May: 3 Leopard skins seized in Dehradun (UP). 1 arrest.
22 May: 237 live turtles seized in Saharanpur (UP).
23 May: 4 Leopard skins and 1 Chital skin seized in Dehradun (UP). 1 arrest.



WWF/Tony Rath

◀ A Jaguar *Panthera onca* (App. I) skin, bound for Italy, was recently intercepted at Heathrow Airport, UK.

26 May: 712 processed skins and 96 coats made out of Jungle Cat *Felis chaus* (App. II) skins recovered by city police of Srinagar, Jammu & Kashmir. 2 arrests.
28 May: 1 Leopard skin seized in Cuttack (Orissa). 1 arrest.
29 May: 6 Tiger skins and 3 Leopard skins seized from a circus in Nagpur (Maharashtra). 1 arrest.
8 June: Skins of 1 Tiger, 1 Chital, 1 Indian Rock Python *Python molurus molurus* (App. I) and 1 crocodile, and a quantity of raw ivory seized from a hotel in Palia, Lakhimpur Kheri District (UP). 8 arrests.
10 June: 93 Desert Fox skins, 19 Jungle Cat *Felis chaus* (App. II) skins and 1 jackal skin seized in Sadar Bazar, Delhi. 2 arrests.
11 June: 1 Tiger skin and 1 Leopard skin seized in Bijnore District (UP). 1 arrest.
17-26 June: In separate incidents, 4 elephants found poached in Athgarh Division, Kuru Reserved Forest (Orissa), in Simlipal Tiger Reserve and in Angul Forest Division (Orissa). The tusks had been removed.
4 July: 4 Leopard skins were recovered in Shimla (HP) by Enforcement Directorate. 2 arrests.
11 July: Skins of 2 Tigers and 43 snakes (species not yet known) seized by Criminal Investigation Department of West Bengal, Calcutta. 4 arrests.

Wildlife Protection Society of India; TRAFFIC India

SOUTH KOREA

Four attempts to smuggle ivory into South Korea have been detected this year, three involving considerable quantities from Gabon.

The first case was uncovered in January by Belgian Customs officials who seized 8 postal parcels containing semi-worked ivory bound for South Korea from Libreville (see *TRAFFIC Bulletin* 16(3):113).

The second case, currently under investigation by Seoul Customs officials, involved the attempted illegal import of 87 pieces of ivory tusks, 800 ivory blocks and 2 Leopard *Panthera pardus* (App. I) skins which were found at Seoul Customs depot. The goods, contained in three large metal boxes, had arrived in November 1996 from Libreville. The consignee has not claimed the items.

Thirdly, in July, Customs authorities in Pusan uncovered 82 kg of ivory tusks and 2410 ivory blocks concealed in items of furniture. The owner was returning to the country from Gabon. His scheme was uncovered when, judging that clearance of the goods through Customs would not be easy, he attempted to have them sent back to Gabon.

Korean Customs Service; TRAFFIC East Asia

TAIWAN

On 26 June 1997, after months of investigation, the Ministry of Justice Investigation Bureau (Pingtung county office) arrested three individuals for alleged involvement in the smuggling of ivory and rhino products from South Africa to Taiwan. Investigators seized items, including one rhino horn (5.5 kg), with an estimated total value of more than New Taiwan Dollars NT$30 million (US$1.1 million), from locations in four cities around the island. Investigations continue.

Ministry of Justice Investigation Bureau Press Release (Chinese); English summary by TRAFFIC East Asia-Taipei

OCEANIA

AUSTRALIA

On 20 January 1997, at Bunbury Court, Bunbury, Western Australia, brothers Brett Steven Hahn and Graham Robin Hahn pleaded guilty to nine charges under the WA *Fish Resources Management Act* of illegally collecting and selling abalone *Haliotis* spp. The conviction came after seven months of surveillance by the WA Fisheries Special Investigation Unit. Friends and relatives of the pair had acted as couriers, transporting the molluscs, which had been poached in Augusta over a period of several years. The pair were fined AU$240 000 (US$178 632).

TRAFFIC Oceania

AMERICAS

ARGENTINA

On 19 November 1996, a consignment of 82 marmosets *Callithrix* sp. bound for Bangkok, Thailand, was detected at Ezeiza International Airport, Buenos Aires; two specimens were dead and two were to die later, following their transport in three boxes measuring 60 cm x 40 cm x 20 cm, each divided into six compartments. The exporter is well known to the authorities and the police were granted a warrant to search two of his properties. They found 1 Hyacinth Macaw *Anodorhynchus hyacinthinus*, 1 Scarlet Macaw *Ara macao* (both App. I), 1 Blue-and-yellow Macaw *Ara ararauna*, 2 Red-and-green Macaws *Ara chloropterus*, 1 Red-fan Parrot *Deroptyus accipitrinus*, 3 Mitred Parakeets *Aratinga mitrata* and 7 Maroon-bellied Parakeets *Pyrrhura frontalis* (all App. II), in addition to false transport documents. An investigation is underway.

CITES Management Authority, Argentina

USA

On 31 January 1997, in Miami, Florida, Michael J. Van Nostrand, Dale Marantz and the firm Strictly Reptiles, Inc., were indicted by a federal grand jury on 13 charges relating to a conspiracy to smuggle reptiles from Argentina into Miami International Airport. The alleged misdemeanours, which contravened the US *Endangered Species Act*, the US *Lacey Act* (a federal statute which prohibits interstate wildlife trade in violation of State laws and laws of other countries) and CITES, took place between November 1990 and April 1992 and involved over 750 specimens of six species: Argentine Boa Constrictors *Boa constrictor occidentalis* (App. I), Rainbow Boas *Epicrates cenchris alvarezi*, Chaco Tortoises *Geochelone chilensis*, Red-footed Tortoises *G. carbonaria*, tegu lizards *Tupinambis* and Yellow-spotted Amazon Turtles *Podocnemis unifilis* (all App. II). The case is pending.

On 26 March 1997, at Benton District Court, Illinois, James P. Zaworski of Marion, Illinois, pleaded guilty to charges relating to a conspiracy to smuggle reptiles into the USA from Spain, as well as to shipping nearly 70 poisonous snakes through the US mail in unmarked packages. Zaworski, a reptile dealer, faces five years' imprisonment and/or a US$250 000 fine.

The investigation into Zaworski's activities began in 1994 at John F. Kennedy Airport, New York, where US Fish and Wildlife Service wildlife inspectors discovered a postal package from Spain addressed to Zaworski. Hidden inside were 13 Lilford's Wall Lizards *Podarcis lilfordi* (App. II). The package was sent on to its destination and collaboration between officials of the USFWS, the US Post Office and the police led to a search of Zaworski's residence. In addition to the discovery of records chronicling 10 years of reptile smuggling to and from Spain, France and South Africa, a number of reptiles were also found. These included the 13 Lilford's Wall Lizards, Ladder Snakes *Elaphe scalaris* which had also been smuggled from Spain, box turtles *Terrapene carolina* illegally collected from a National Wildlife Refuge, Massasauga Rattlesnakes *Sistrurus catenatus* mailed illegally from Florida, a Timber Rattlesnake *Crotalus horridus* and Great Plains Rat Snakes *Elaphe guttata emoryi* listed as threatened in Illinois, and two Desert Tortoises *Gopherus agassizii*, a species listed as threatened under the US *Endangered Species Act*.

Zaworski allegedly solicited and traded reptiles through the mail with a reptile supplier in Barcelona, Spain, on whom search warrants have also been served, and where investigations are underway.

In a related smuggling investigation, Robert L. Mitchell, of St. Charles, Missouri, pleaded guilty in April 1996 for violations of the *Lacey Act*. Mitchell was fined US$10 000 for unlawfully importing 18 live Hermann's Tortoises *Testudo hermanni* (App. II) through the mail. The tortoises had been sent by the same Spanish dealer with whom Zaworski had collaborated.

On 14 July 1997, Adolph "Buzz" Pare, of Miami, Florida, was sentenced to a year and a day in gaol for illegally smuggling more than 4000 "Congo" African Grey Parrots *Psittacus erithacus erithacus* (App. II) into the USA and for filing false importation documents. He was also ordered to pay US$300 000 in fines, the largest sum ever levied against a defendant in a federal wildlife smuggling case.

Pare is director of Gators of Miami, Inc., the nation's largest importer of African Grey Parrots during the late 80s and early 90s: between February 1988 and August 1991, the defendant conspired to smuggle more than 4000 specimens into Miami in approximately 14 shipments. The birds had been illegally taken from their wild habitat in Zaire, smuggled into Senegal, and exported to the USA under false CITES export documents. These stated that the birds had originated in Guinea or Côte d'Ivoire, countries where this subspecies does not occur in the wild.

Pare is the 38th and last person to be convicted as a result of "Operation Renegade", a three-year undercover investigation by the US Fish and Wildlife Service into schemes involving the smuggling of birds or their eggs into the USA.

US Department of Justice News Releases, 31 January/ 26 March/29 July 1997; TRAFFIC USA; US Fish and Wildlife Service, CITES Update 52, May 1997

India's Illegal Falconry Trade

Peregrine Falcon *Falco peregrinus* WWF/John Mitchell

A. Ahmed, A.R. Rahmani, G. Das, and M.K. Misra

Introduction

The training of raptors, or birds of prey, to hunt birds and small mammals is a long-standing tradition in parts of Asia, the Middle East and Europe. Though the sport of falconry is now a vanishing art in India (Osman, 1991), a large number of raptors continue to be caught every year for this purpose (Ahmed, 1997), even though the hunting, local trade and export of all raptors in India, including migrant raptor species, is prohibited according to the *Wildlife (Protection) Act 1972* (amended in 1991).

Raptors are among the most valuable of all birds, and those found trading in these species face harsh penalties in India; the trade is therefore well concealed and difficult to penetrate. The birds are mostly smuggled out of India to the Middle East through Pakistan and Nepal, with a smaller number sold illegally in domestic bird markets.

A study by TRAFFIC India, described below, aimed to investigate the major trade centres for raptors in India and was based on surveys carried out in areas with a significant history of trade in birds. Attempts were made to identify the main traders and their *modi operandi* in order to facilitate enactment of more effective conservation strategies in India for endangered raptors.

Methods

The study, carried out in 1993 and 1995, formed part of a broader, continuing, survey by TRAFFIC India of the wild bird trade in India. Investigations centred on 40 districts in eight states. A total of 90 surveys were conducted randomly in 65 markets, with the focus on Nakhas Market in Lucknow and Baheliya Tola in Varanasi (Uttar Pradesh), Mir Shikar Toli and Sonpur Cattle mela (Fair) in Patna (Bihar), Mehboob Chowk in Hyderabad (Andhra Pradesh), Crawford Market in Mumbai (Bombay) (Maharashtra), Jama Masjid in Delhi, and New Market, Hathibagan and Narkul danga, Calcutta (West Bengal), all of which are large and well-known outlets for the sale of birds.

Since most of the trade in raptors is carried out covertly, it took some time to establish links with those involved. In the guise of buyers or traders starting in the business of dealing in birds of prey, the investigators interviewed local experts, traders and trappers, and sometimes the falconers themselves (those who keep, train and use falcons for hunting), in order to determine the trapping techniques, the frequency of catches, bird mortality rates, and the methods employed for feeding and caring for the birds. Information was also gathered on the season(s) in which the raptors are caught and traded, their distribution in the wild, collection centres within India and the birds' export destinations, where applicable. In most cases, permission to take photographs or notes at traders' premises was refused, making it impossible to record distinguishing features of species that could not be identified immediately; those specimens were noted as having been unidentified (Table 1).

Results and Discussion

Trapping

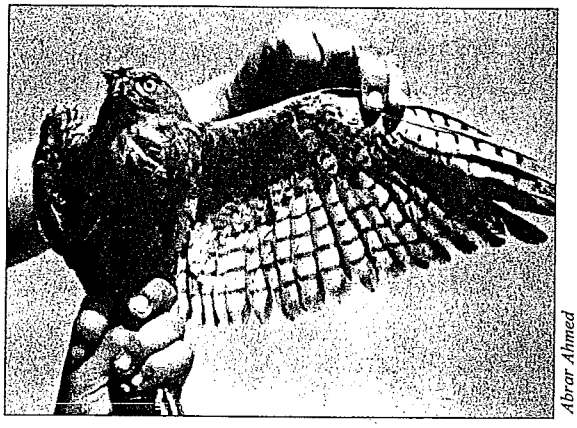
An important finding of the study was that, despite the huge profit to be made from the raptor trade, trappers seldom target raptors. It was found, for example, that some 150-200 trappers in northern India use traps containing decoy birds in order to attract pigeons (Ahmed, 1997), and that raptors and other birds are caught incidentally. The reasons raptors are not targeted more often is because the more commonly occurring birds, such as pigeons Columbidae, parakeets *Psittacula* and munias *Lonchura* and *Amandava* spp., are much easier to trap and, although raptors can earn middlemen

and dealers large sums of money, there is negligible increase in profit to the trapper who, per bird, will receive only 5% to 15% of the price fetched by the middleman or at retail.

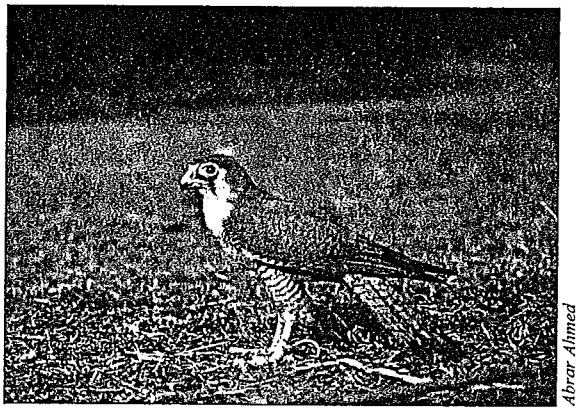
In most of the areas studied, raptors were caught close to the trapper's settlement. Bird trade centres, where birds for sale are placed in cages in the open air, are popular sites for trapping raptors which fly over in search of easy prey; Shikras *Accipiter badius* and Eurasian Sparrowhawks *A. nisus*, in particular, are the most commonly found raptors in these localities. The raptors are caught in clap traps and it is not long before other birds of prey (termed a "floating population") move into their territory and are caught, in turn.

A small number of bird trappers target falcons, employing one of three methods: 1) with the use of a Do-gazza net, a type of mist net that is stretched between two poles loosely inserted into the ground; a common passerine or rodent placed as bait at the foot of the trap attracts passing birds, which fly into and become entangled in the net, causing it to collapse; 2) using a similar bait as in 1) and surrounding it in twigs coated in bird lime or latex (a sticky plant substance obtained from *Ficus* spp., to which the birds adhere); or 3) using hand-held bamboo poles, the ends of which are attached with twigs coated in bird lime. Trappers from Hyderabad, Patna and Calcutta, and rural areas around Lucknow, focus their catching effort on falcons during October to December, the start of the raptor hunting season, and the peak time for the falcon trade in India, when the birds fetch their maximum price. At this time, bird numbers are boosted by juveniles and migrant birds passing through the country. Specimens caught at the end of winter are not much in demand for falconry as by the time they have been transported and have completed the 15- to 20-day training period, the season for using raptors to hunt prey is over. Raptors are therefore not targeted at this time as the cost of caring for the birds until the following season would be high; the birds are unsuited to the hot climate, and run the risk of damaging flight feathers if kept caged; moreover, the risk of being apprehended increases the longer the trapper keeps the bird.

To prepare the birds for transport to collection centres or for immediate export out of the country, their feathers are cleaned with kerosene oil (if latex has been used to catch the birds), and their eyelids are stitched with silk or cotton thread; camphor may be administered to induce calm and drowsiness.



Abrar Ahmed



Abrar Ahmed

A Shikra *Accipiter badius* (top) being offered for sale at Crawford Market, Mumbai, for Rs.500 (US$14). The trader is showing the wing condition, an important criteria for bird selection.

A recently caught Red-necked Falcon *Falco chicquera* is tied to the ground while it becomes acclimatized to its new surroundings.

Transportation routes and sale of birds

As raptors are not sought by most bird hobbyists or keepers, and as falconers are rare in India, most of these birds are bought from local markets or dealers and quickly smuggled out of the country. Following the blanket bird trade ban in India in 1991, most raptors are smuggled to Dhaka, Bangladesh, and Kathmandu, Nepal, from where they are smuggled, in particular, to Pakistan and Dubai (United Arab Emirates), both important centres for the bird trade.

The main bird trade markets in India are Nakhas Market in Lucknow, Mir Shikar Toli and Sonpur Cattle mela (Fair) in Patna, Mehboob Chowk in Hyderabad, Crawford Market in Mumbai and Jama Masjid in Delhi. Birds caught in northern and western Uttar Pradesh are sent to Delhi or Mumbai, via Lucknow and Moradabad, whereas those caught in eastern Uttar Pradesh are sent to Varanasi for onward shipment to Patna or Mumbai. From here, the birds are sent to Pakistan and Saudi Arabia, or Europe and the USA. The stock from Bihar state is usually sent to Patna and thence Nepal. Careful investigation of seizures in Nepal in 1995 revealed that birds of prey are smuggled into Nepal across the border with India and smuggled out to Pakistan and Dubai in collusion with airline/airport staff. Birds are also reportedly smuggled by train to Pakistan by female couriers carrying commercial consignments of Betel *Piper betle* leaves in which the birds are concealed in cages or cardboard boxes.

Species	No. on sale	No. of occasions
Shikra *Accipiter badius* and/or Eurasian Sparrowhawk *Accipiter nisus*	80	21
Common Kestrel *Falco tinnunculus*	20	3
Laggar Falcon *Falco jugger*	9	7
Peregrine Falcon *Falco peregrinus calidus*	5	4
Shaheen Falcon *Falco peregrinus peregrinator*	4	4
Saker Falcon *Falco cherrug*	1	1
Amur Falcon *Falco amurensis*	1	1
Red-necked Falcon *Falco chicquera*	1	1
Black-winged Kite *Elanus caeruleus*	1	1
Brahminy Kite *Haliastur indus*	1	1
Black Kite *Milvus migrans*	2	2
Tawny Eagle *Aquila rapax*	1	1
Eurasian Hobby *Falco subbuteo*	1	1
Buzzard *Buteo* spp.	2	1
Unidentified falcons *Falco* spp.	3	2

Table 1. Raptors seen on sale during live bird trade survey, 1993-1995.
Source: Ahmed, 1997

Mortality of birds during transport has increased since the ban because efforts made to conceal the illicit cargo often compromise the welfare of the bird. The investigation showed that the strict wildlife laws in India and Pakistan, combined with a declining number of people involved in the falconry business, have served to drive up international prices for the relevant species. A falcon may sell for between Rs.500 and Rs.80 000 (US$14 and US$2238) or more in India or abroad, depending upon the species, the potential hunting ability of the specimen, and the customer's ability to pay. The raptors are trained, in most cases by the buyers, to hunt partridges, quails *Coturnix*, Houbara Bustards *Chlamydotis undulata*, Eurasian Thick-knees *Burhinus oedicnemus* and small mammals such as hares.

Species in trade

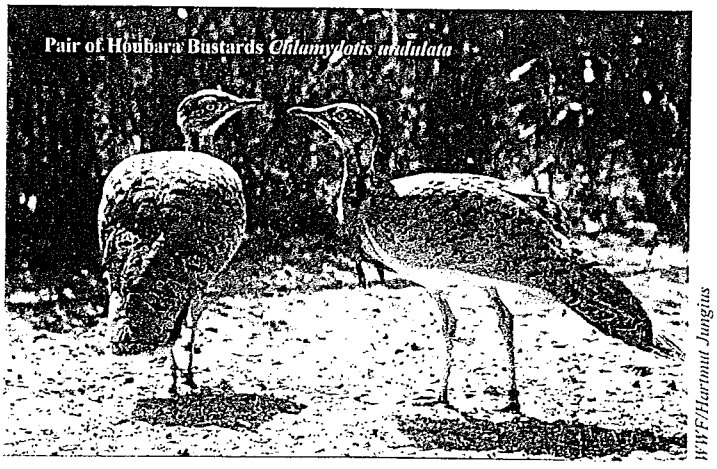
During the survey it was observed that a great deal of knowledge about raptors is required among those dealing in these birds: few of the many raptor species occurring in India are actually in demand for falconry purposes, and expertise is therefore essential in identifying those that will be attractive to a falconer. A marketing strategy that goes wrong could bring heavy losses to the primary dealer who may end up with a bird that is of little or no commercial value.

A total of 15 species were found in local trade for the purposes of falconry. The number of specimens in trade was found to increase during the period of the winter surveys, with a total of 132 birds seen in 48 of the 65 markets surveyed (Table 1). Raptors in local trade, falcons for example, may be purchased by a small number of specialized customers, otherwise the limited local demand for birds for falconry within India is satisfied with less-prized species such as


Eurasian Sparrowhawk *Accipiter nisus*

WWF/A. Mackenzie

Shikras, Eurasian Sparrowhawks, Common Kestrels *Falco tinnunculus* or Black Kites *Milvus migrans*. Traders manage to sell Common Kestrels and Black Kites to the uninitiated buyers claiming, untruthfully, that such species can be trained for falconry. Peregrine Falcons *Falco peregrinus calidus*, Shaheen Falcons *F. peregrinus peregrinator* and Laggar Falcons *F. jugger* seen or offered for sale during the survey had been rejected for falconry purposes or were specimens destined for local, non-commercial use. The main criteria for rejection of a bird are the breakage of its primary feathers, a comparatively small size, old age, or if it is a male (the male bird generally being smaller in size).


Pair of Houbara Bustards *Chlamydotis undulata*

WWF/Hartmut Jungius

Recommendations

The following steps should be taken to ensure that the illegal trade in raptors is stopped:

1) Investigation must be made into the socio-economic aspects of the trade, with alternative employment schemes established for those involved.

2) Increased vigilance is required at airports and land borders to foil attempts to smuggle protected species out of the country.

3) Local people need to be made aware that trapping and trade in these species is illegal. Personnel at airports, buses and railways should be trained to identify species and be encouraged to check cargo.

4) All markets selling wild animals should be monitored regularly by enforcement authorities.

Acknowledgements

The authors would like to thank Mr Samar Singh, Secretary General of WWF-India for his support. The authors are grateful to Mr Humayun Taher for sending the data for Hyderabad and Madras bird markets, and to Mr Anjan Bose for assisting with a number of the surveys in Calcutta. Dr Vibhu Prakash of the Bombay Natural History Society is especially thanked for his guidance and inspiration. The Editor is grateful to Tim Inskipp of the World Conservation Monitoring Centre for his technical review of an early draft of this manuscript.

References

Ahmed, A. (1997). *Bird Trade in Northern India*. TRAFFIC India Report. New Delhi, India.

Osman, S.M. (1991). *Hunters of the Air - a Falconer's Notes*. WWF-India, Delhi, India.

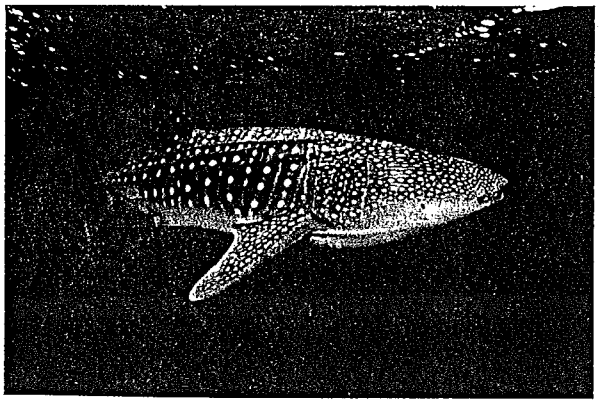
Abrar Ahmed, Consultant, TRAFFIC India; Asad R. Rahmani, Director, Bombay Natural History Society; Gautam Das, Consultant, WWF-India; Manoj Kumar Misra, Director, TRAFFIC India.

Preliminary Report on Taiwan's Whale Shark Fishery

Chen Che-Tsung, Liu Kwang-Ming and Joung Shoou-Jeng

INTRODUCTION

The Whale Shark *Rhincodon typus* is the largest fish in the world, growing to a length of up to 18 metres (m) or more. However, little is known of the species' biological history, its ecological role, or its conservation status. There is increasing concern that heavy and largely unregulated trade in shark species in general could be contributing to a decline in global shark stocks. Efforts by the IUCN/SSC Shark Specialist Group and relevant national and international authorities to gauge the current level of threat for many species are hindered by a lack of data. Although the Whale Shark is listed in the IUCN 'data deficient' category (IUCN, 1997), there is growing concern that trade may be depleting stocks of this fish.



J. Stafford-Deitsch/WWF-UK

Whale Shark *Rhincodon typus*

In Taiwan, there appears to be no dedicated Whale Shark fishery and the species is caught mainly as a bycatch of set net fisheries and opportunistically, by harpoon. Referred to as the "Tofu Shark" in Taiwan on account of its soft, white flesh, the species has recently emerged as a delicacy. The last five or six years have seen much interest among Taiwan's media in Whale Shark landings, particularly in details such as the shark's large size, capture methods, its high price, and whether or not the animal poses a danger to humans. Little attention has been paid, however, to potential conservation problems for the species resulting from increasing domestic consumption.

The survey described below was conducted as a first step in collecting information on the distribution and catch of Whale Sharks around Taiwan, as well as in gathering market and trade information for future use as a reference in developing management and conservation strategies. The data compiled here supplements information on the history of and trends in Taiwan's shark fisheries in Chen *et al.*, 1996. The report hopes to contribute towards other regional research and monitoring efforts such as WWF's 1996 investigation into the Whale Shark fishery in the Bohol Sea (Philippines) (Trono, 1996) and research into the migratory patterns of the species through electronic tagging of specimens in northwest Australia (Taylor, 1996).

Financial support for this project was provided by the Rufford Foundation via WWF-UK.

METHODS

Initial research for this study was conducted from February to July 1996. Information was primarily based on interviews with the crews and owners of harpoon and set net vessels: 58 of a total of 97 set net fishermen (60%) and 32 captains of 98 harpoon vessels (32.7%) operating in Taiwan were interviewed. Questions covered catch volumes, size of specimens caught, capture locations, Whale Shark behaviour, and migratory routes.

Data on numbers of set nets and harpoon vessels in operation were collected from the Taiwan Fishery Bureau, as well as from regional and local fishermen's associations. Local fishermen's associations are responsible for the collection of fisheries catch and sales data in Taiwan. Available data for Whale Shark catch and sales are limited, however, for reasons explained later in the report.

Regional catches were estimated from the average catch per unit of set net or harpoon vessel, as reported in interviews, and multiplied by the total number of set nets and harpoon vessels in operation. Figures for the estimated total annual catches of Whale Sharks may not accurately reflect the catches of those set net operators and harpoon fishers who were not interviewed. Furthermore, catch effort data for the two types of fishery were not collected for this preliminary report.

BIOLOGY AND DISTRIBUTION

Whale Sharks live in epipelagic (waters to a depth of 200 m), oceanic, and coastal areas of tropical and subtropical regions, including the western and eastern Atlantic, west Indian, central Pacific, and eastern Pacific oceans (Compagno, 1984). In the western Pacific, the species is commonly found along the Kuroshio Current. Although few tagging or marking studies documenting their larger migration routes have been published to date, Whale Sharks are believed to be highly migratory, their movements corresponding to plankton blooms and blooms associated with coral spawning, and the changing temperatures of water masses. They are associated with schools of pelagic fishes, especially mackerel Scombridae (Compagno, 1984). Examination of the stomach contents of landed Whale Sharks revealed small fish such as anchovy and shrimp, as well as plankton.

Joung *et al.* (1996) found that the Whale Shark is ovoviviparous (the female produces live offspring from eggs hatched in the uterus) and found one gravid female, 16 t and 10.6 m in length, to contain 300 embryos. This level of fecundity is possibly the highest among elasmobranches (sharks, skates, and rays). However, even female Whale Sharks larger than 15 t are rarely found to be carrying offspring, which may indicate an extremely late sexual maturity, low reproductive capacity, and high vulnerability to over-exploitation.

Taylor (1994) suggested that Whale Sharks do not reach maturity until they are over 30 years of age at a size of nine metres. Given the body weight and length of a full-term Whale Shark foetus (0.7 kg and 60 cm) (Joung *et al.*, 1996), such a lengthy maturation period is possible. The gestation period is unknown. The species is thought to grow to a maximum of 18 m in length (Compagno, 1984); however, in March 1987, two of the authors recorded one specimen in Lotung fish market (Ilan county) which was approximately 20 m in length and weighed 34 t. This is believed to be the largest Whale Shark ever caught in Taiwan.

Limited population data exist for Taiwan's Whale Sharks. Figures collected for set nets indicate that the species is distributed around Taiwan's coastal area, particularly off the eastern coast (Figure 1), and specimens can be sighted around the island year-round, with winter (December to February) and summer (June to August) being the peak seasons. The fish follow the Kuroshio Current north along the coastline, and are known to enter the waters of southern Japan in spring. The duration and route of their migration south is not known.

Fishing Methods

In Taiwan, Whale Sharks are caught accidentally by set net or on an opportunistic basis by harpoon; catches by gillnets and longlines are less common. Set nets are nets which are suspended vertically from floats at a fixed location. These are used to target seasonally migratory fish including mackerel Scombridae, scad Carangidae, tuna *Thunnus*, barracuda *Sphyraena japonica*, and bonito *Auxis*. Whale Sharks occasionally swim close to the coastline while in pursuit of prey, and blunder into set nets, making them an easy catch for set net operators.

Harpoon fishers, using three-prong or spear-headed weapons, target billfish Istiophoridae, including Sailfish *Istiophorus platypterus*, Black Marlin *Makaira indica*, marlin *M. mazara* and Striped Marlin *Tetrapturus audax*. Because of the difficulty of handling such large animals, harpoon fishers have previously avoided catching Whale Sharks. However this situation is changing following the growing demand for this fish and the correspondingly high price it fetches. The animal's docility, combined with its habit of swimming slowly and near the surface, make it an easy target for harpoon fishers. After it has been harpooned, the Whale Shark is towed to the harbour.

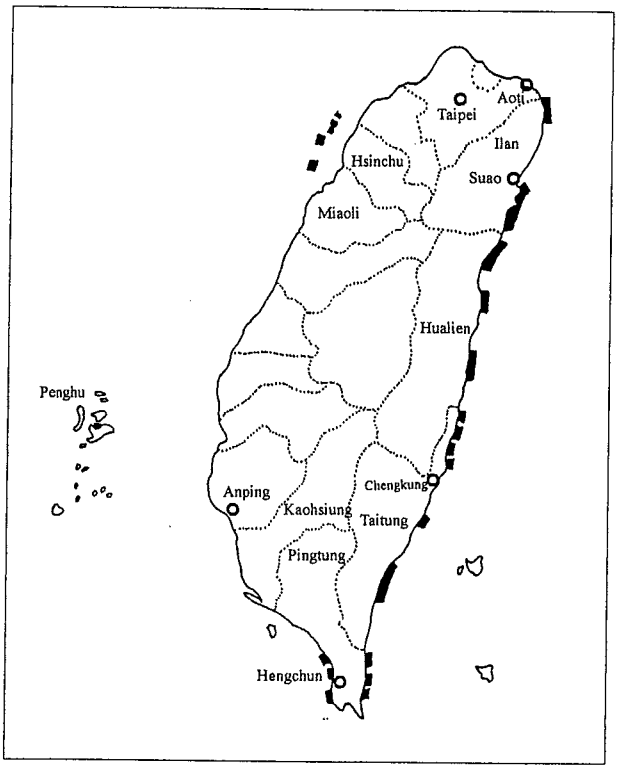


Figure 1. Map of Taiwan with black areas along the coastline showing set net operations in the Hsinchu, Ilan, Hualien, Taitung, Pingtung and Penghu coastal regions.

Catch Volumes

Figure 1 shows the area of operation for set nets in the Hsinchu, Ilan, Hualien, Taitung, Pingtung, and Penghu coastal regions. All but three of the 58 set net operators interviewed have recorded the capture of Whale Sharks. As no set nets or harpoon vessels operate between Hsinchu in the north-west and Pingtung in the south-west, there are no capture records for Taiwan's western coastal region except for the Penghu area. However, the authors believe that Whale Sharks do occur in this region.

It is difficult to estimate the actual catch from local fish market data as the majority of landed Whale Sharks are sold outside the regular fish market system to avoid incurring market fees. Only the markets at Chengkung, in Taitung county, and Suao, in Ilan county, have recorded landing data for Whale Sharks.

A wholesaler in Suao who specializes in Whale Shark meat estimated that about 250 Whale Sharks are landed in Taiwan annually (Y.S. Yu, pers. comm., August 1995). He also estimated that landed specimens range in weight from several hundred kilogrammes to as much as 30 t.

Set net catch

Table 1 shows the distribution for set nets based on data collected from the Taiwan Fishery Bureau and regional fishermen's associations. A total of 97 set nets are in operation in Taiwan's inshore area; 58 set net

fishermen (60%) were interviewed. The main fishing areas for set nets are Taitung, Hualien and Ilan, comprising 84.86% of the total annual catch of Whale Sharks. Ilan has the highest annual catch rate for set nets, with 2.35 animals per set net per year, and Miaoli has the lowest, with 0.83 per set net per year (Table 1). Taking the average annual catch per year in each region and multiplying it by the number of nets gives the estimated total catch of Whale Sharks by set net as 158 specimens.

Harpoon catch

Harpoon fisheries operate in the Hengchun, Taitung, and Ilan coastal areas, with the harpoon-equipped vessels in each region numbering 20, 46, and 32, respectively (Table 2). Based on catch information provided by the harpoon fishermen interviewed (32 of 98, or 32.7%), the total annual catch of Whale Sharks for harpoon fisheries in Taiwan is estimated to be 114 individuals. Three captains of harpoon vessels who were interviewed in the Aoti region had never captured Whale Sharks.

Total combined catch

The current combined annual catch of Whale Sharks from set net and harpoon fisheries is estimated by the authors to be 272 individuals (158 for set net; 114 for harpoon). This estimate is very close to that of 250 specimens mentioned by the wholesaler in Suao. Figures for the estimated total annual catches of Whale Sharks may not completely reflect the catches of those set net operators and harpoon fishers who were not interviewed, given a variety of factors including differing sizes and designs for set nets and harpoon vessels.

Insufficient information exists to estimate catch trends for Taiwan's Whale Shark fishery. However, information provided by the fishermen indicates that, in the mid-1980s, harpoon fishermen from Hengchun harbour were able to harvest between 50 and 60 specimens from the waters south of Penghu each spring. Over the last decade, the catch has declined gradually to approximately 10 individuals annually. Fewer than 10 were captured in this area in 1994 and 1995. The apparent decline in overall Whale Shark numbers could be attributed to environmental factors including changes in water temperature, abundance of prey, or the flow of the Kuroshio current. Changes in catch effort could also be a factor.

	Hengchun	Taitung	Ilan	Total
No. of harpoon vessels in operation[1]	20	46	32	98
No. of captains interviewed[2]	14	7	11	32
Average annual catch per vessel[2]	1.68	1.36	0.56	1.22
Estimated total annual catch[2]	33.64	62.43	17.78	113.85

Table 2. Distribution of harpoon fisheries in Taiwan and estimated minimum number of Whale Sharks caught by harpoon each year.
Sources: [1]Regional fishermen's associations; [2]based on interviews with fishermen

Sale, Marketing, and Utilization of Whale Sharks

Sale

After being towed to the fishing harbour, the Whale Shark is weighed before auction (the weight of large specimens can only be estimated). The auctions usually take place at Suao, Chengkung or Anping fish markets; however, this procedure usually takes place outside the official fish market system in order to avoid market fees which, being a proportion of the total price (0.4%), could result in a substantial amount of money for large specimens. The whole animal, including the fins, is sold intact to one buyer and, in the case of specimens too large to weigh, the price is based on estimated weight.

After auction, the specimen is transported either whole or cut into several pieces, with fins and viscera removed, to processors. The major processing centres for Whale Sharks in Taiwan are located in Lotung, Ilan, and Suao, in Ilan county. Smaller numbers of Whale Sharks are landed in Chengkung and Hengchun. Whale Sharks landed in Chengkung are processed in that district while specimens landed in Hengchun are processed in Anping. Processors handle a range of products and are not specifically set up to handle Whale Shark.

Marketing

In the past, the meat of the Whale Shark was less popular than it is today and the price relatively low: prior to 1985, a specimen weighing several tonnes would fetch between New Taiwan Dollars NT$5 500 and NT$8 200 (US$200 and US$300) at auction. Since the late 1980s, however, the wholesale price of an ungutted Whale Shark has increased to roughly NT$190

County	Taitung	Hualien	Ilan	Hsinchu	Miaoli	Pingtung	Penghu	Total
No. of set nets in operation[1,2]	11	32	26	12	4	7	5	97
No. of operators interviewed[3]	5	14	17	12	3	2	5	58
Average annual catch per set net[3]	2.3	1.46	2.35	0.43	0.83	2.0	0.4	1.63
Estimated total annual catch[3]	25.3	46.8	61.1	5.17	3.33	14.0	2.0	157.7

Table 1. Set net distribution in Taiwan and estimated minimum number of Whale Sharks caught by set net each year.
Sources: [1]Taiwan Fisheries Bureau; [2]Regional fishermen's associations; [3]based on interviews with fishermen

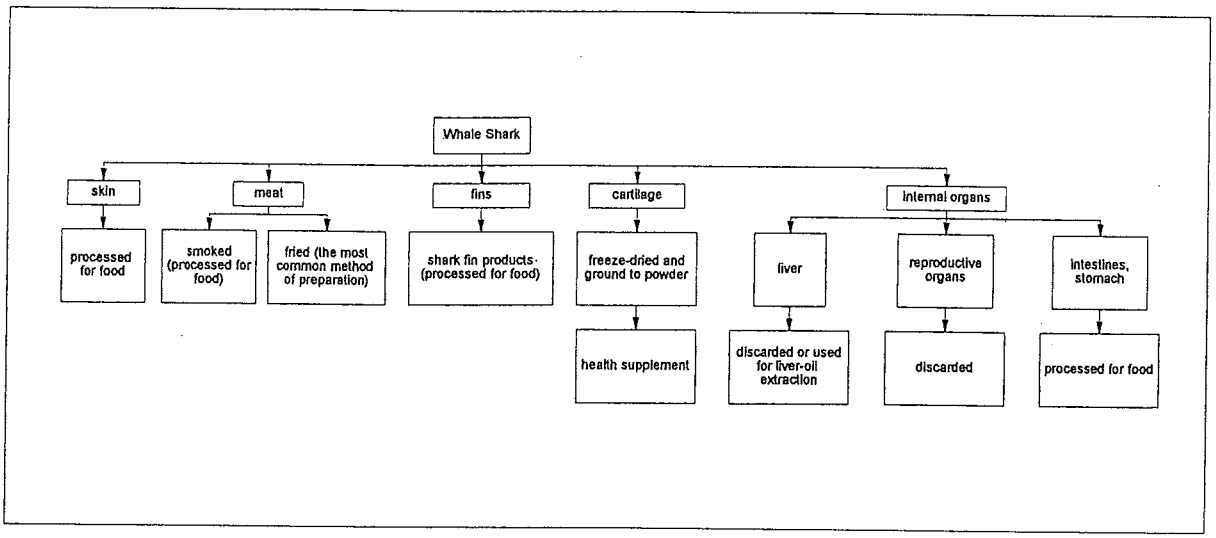


Figure 2. The Whale Shark processing system in Taiwan.

(US$7) per kg (total price divided by estimated weight) and is now the most expensive of the shark meats available. A small Whale Shark of 2000 kg could fetch NT$360 000 (US$14 000) while a larger specimen of 10 000 kg could sell for NT$ 1.9 million (US$70 000). Because of these high prices, the number of wholesalers who purchase Whale Sharks is small.

For comparative purposes, Table 3 summarizes the landing price of shark species caught by Taiwan's coastal and offshore fisheries. Prices are those paid at auction after landing at fishery markets (production sites) for whole specimens, including fins and internal organs. The price of shark meat in the market varies according to season and freshness, with prices highest in winter (December through February).

Species	Price range per kg NT$	US$
Whale Shark *Rhincodon typus*	70-180	2.56-6.59
Shortfin Mako *Isurus oxyrinchus*	50-80	1.83-2.93
Scalloped Hammerhead *Sphyrna lewini*	50-70	1.83-2.75
Pelagic Thresher *Alopias pelagicus*	35-70	1.28-2.56
Silvertip Shark *Carcharinus albimarginatus*	50-60	1.83-2.20
Dogfish sharks Squalidae	30	1.10
Blue Shark *Prionace glauca*	15-20	0.55-0.73

Table 3. Range of shark prices in Taiwan's fish markets, 1995.
Exchange rate: US$:NT$=1:27.322
Source: Chen et al., *1996*

Following processing, the meat is distributed through usual channels to retail outlets, supermarkets, and restaurants around the island. The retail price of Whale Shark meat in local fish markets is about NT$400 (US$15) per kg. Non-meat products of Whale Sharks are sold by the buyer to individuals who deal in shark viscera and other byproducts.

Utilization

Meat comprises about 45% of the body weight of a Whale Shark. The fins, skin, stomach and intestines are also used for food. As with other shark species, its cartilage can be processed and exported for use in health supplements. The processing system is illustrated in Figure 2.

Discussion

Traditionally, Taiwan has utilized the body parts (fins, meat, skin, cartilage, for example) of a variety of shark species. However, Taiwan's Whale Shark fishery is a recent development. The increasing popularity and high price of Whale Shark meat have made this species a valuable catch for fishermen. This preliminary study has documented a significant annual take of Whale Sharks by Taiwan's fishermen. Although information is too sketchy to conclude with any certainty that Whale Shark populations off Taiwan are declining, anecdotal evidence, paired with recent information on the species' reproductive patterns, give cause for concern. As with a number of other shark species which may be vulnerable to overexploitation, there is a need for more comprehensive, long-term monitoring of Whale Shark populations and catch.

Currently, no international fishery, trade or conservation regime exists for shark fisheries. In Taiwan, Whale Sharks are caught for local consumption predominantly by set net and harpoon. Under these circumstances, a domestic management system based on size limits or a quota system should be created. However, a successful management system for Whale Shark fisheries will require further research into the life history of the species, its population structure, behaviour, migration patterns, and genetics, as well as more in-depth research into current fisheries practices.

W.L. Chen

Landed Whale Shark *Rhincodon typus*, Chengkung fish market, Taitung county.

RECOMMENDATIONS

The authors would like to make the following recommendations to further the management and conservation of Whale Sharks in Taiwan:

1) Education

Fishermen and the general public should be better informed about the behaviour, ecology, limited reproductive capacity, and conservation status of the Whale Shark, by means of the media, public seminars, etc.

2) Establishment of catch and trade databases

Reporting of Whale Shark catch and landing data should be made mandatory. Portside monitoring should be improved. All trade should be required to go through the market system and destinations of catches should be documented to the extent possible. Attention should be paid to possible international trade, both legal and illegal. All these data should be made available to scientists for future study.

3) Scientific research

Further research into the Whale Shark's life history, population structure, behaviour, migration patterns, and genetics should be considered of high priority, as should co-operation with other scientists internationally.

4) Development of a domestic management system

The relevant fisheries agencies in Taiwan should compile and analyse the information gathered from the implementation of recommendations 2) and 3) above. The results should be used to develop a feasible Whale Shark management plan taking account of both the conservation needs of the species and the economic needs of local fishermen. It is comparatively straightforward to establish size and catch limits for Whale Sharks targeted by harpoon. Regulation of set nets is more difficult to control and requires further study, particularly the feasibility of releasing live specimens caught in excess of a quota.

REFERENCES

Bass, A.J., D'Aubrey, J.D. and Kistnassmy, N. (1975). *Sharks of the East Coast of Southern Africa.* IV. The families Odontaspididae, Scapanorhynchidae, Isuridade, Cetorhinidae, Alopiidae, Orectolobidae and Rhiniodontidas. Investigation Report No. 39, Oceanographic Research Institute, Durban. 102pp.

Bigelow, H.B. and Schroeder, W.C. (1948). Sharks. Sears Memorial Foundation for Marine Research. 1:53-576.

Chen, C.T., Liu, K.M., Joung, S.J. and Phipps, M.J. (1996). *Shark Fisheries and Trade in Taiwan.* TRAFFIC East Asia-Taipei, Taipei, Taiwan. 48pp.

Clark, E. (1992). Whale sharks. *National Geographic* 182(6):120-139.

Compagno, L.J.V. (1984). FAO species catalogue. *Vol. 4. Shark of the World. An Annotated and Illustrated Catalogue of Shark Species Known to Data.* FAO Fish Synopsis 125, Vol. 4, Pt. 1, Rome, Italy. 249pp.

Guder, E.W. (1915). Natural history of the whale shark *Rhincodon typus* Smith. *Zoologica*, New York, USA. 1(19):349-389.

IUCN (1997). *1996 IUCN Red Data List of Threatened Animals.* World Conservation Monitoring Centre, Cambridge, UK. IUCN, Gland, Switzerland, and Cambridge, UK.

Iwasaki, Y., (1970). On the distribution and environment of the whale shark *Rhincodon typus* in skipjack fishing grounds in the western Pacific Ocean. *Journal of College of Marine Science and Technology.* Tokai University. 4:37-51.

Johnson, R.H. (1978). *Sharks of Tropical and Temperate Seas.* Les Editions du Pacifique. Papeete, Tahiti. 170pp.

Joung, S.J., Chen, C.T., Eugenie, C., Uchida, S. and Huang, W.Y.P. (1996). The whale shark *Rhincodon typus* is a live-bearer: 300 embryos found in one 'megamamma' supreme. *Environmental Biology of Fishes* 46:219-223.

Taylor, G. (1994). *Whale Sharks.* Angus & Robertson Publishers, Sydney, Australia. 176 pp.

Taylor, J.G. (1996). Seasonal occurrence, distribution, and movements of the whale shark, *Rhincodon typus*, at Ningaloo Reef, Western Australia. *Marine and Freshwater Research* 47, Pp.637-642.

Trono, R. (1996). Philippine whale shark and manta ray fisheries. *Shark News* 7. Newsletter of the IUCN/SSC Shark Specialist Group. June. Pg. 13.

Wolfson, F. H., 1983 Records of seven juveniles of the whale shark, *Rhiniodon typus. Journal of Fish Biology* 22:647-655.

Wolfson, F.H. and Notarbartolo di Sciara, G. (1981). *The Whale Shark,* Rhiniodon typus *Smith, 1828: An Annotated Bibliography (Selachii Rhiniodontidae).* Atti Social Italian National Museum and Civil Story National Milano 122(3-4):171-203.

Chen Che-Tsung, Liu Kwang-Ming and Joung Shoou-Jeng, National Taiwan Ocean University, Taiwan.

TRAFFIC NETWORK

219c Huntingdon Road, Cambridge, CB3 0DL, UK
Tel: (44) 1223 277427; Fax: (44) 1223 277237; E-mail: traffic@wcmc.org.uk

Regional Office
Room 1701, Double Building, 22 Stanley Street, Central, Hong Kong
Tel: (852) 2530 0587; Fax: (852) 2530 0864; E-mail: tea@asiaonline.net

Japan Office 6th Floor, Nihonseimei Akabanesbashi Bldg., 3-1-14, Shiba, Minato-ku, 105; Tokyo, Japan
Tel: (81) 3 3769 1716; Fax: (81) 3 3769 1304; E-mail: trafficjapan@twics.com

Taipei Office PO Box 7-476, Taipei, Taiwan
Tel: (886) 2 362 9787; Fax: (886) 2 362 9799; E-mail: treatai@ms1.hinet.net

Regional Office
c/o Department of National Parks and Wildlife
PO Box 30131, Lilongwe 3, Malawi
Tel: (265) 743645; Fax: (265) 743648; E-mail: traffic@unima.wn.apc.org

Kenya Office c/o IUCN Eastern Africa Regional Office
PO Box 68200, Mukoma Road, Langata, Nairobi, Kenya
Tel/fax: (254) 2 890471; E-mail: nina.marshall@iucn.unon.org

South Africa Office c/o Endangered Wildlife Trust, Private Bag x11, Parkview 2122, South Africa
Tel: (27) 11 486 1102; Fax: (27) 11 486 1506; E-mail: trafficza@global.co.za

Tanzania Office c/o WWF Programme Office, Plot No. 350 Regent Estate
PO Box 63117, Dar es Salaam, Tanzania
Tel: (255) 51 72455/75346; Fax: (255) 51 75535; E-mail: WWFTPO@raha.com

Regional Office
Waterloosteenweg 608, 1050 Brussels, Belgium
Tel: (32) 2 343 82 58; Fax: (32) 2 343 25 65;
E-mail: traffic_europe@compuserve.com

France Office 151 Blvd de la Reine, 78000 Versailles, France
Tel: (33) 1 39 24 24 02; Fax: (33) 1 39 53 04 46

Germany Office c/o WWF Germany, Hedderichstr. 110,
D 60591 Frankfurt (M), Germany
Tel: (49) 69 60500380; Fax: (49) 69 617221; E-mail: melisch@wwf.de

Italy Office Via Garigliano 57, 00198 Rome, Italy
Tel: (39) 6 844971; Fax (39) 6 85300612; E-mail: md1125@mclink.it

Netherlands Office PO Box 7, 3700 AA Zeist, The Netherlands
Tel: (31) 30 6937307; Fax: (31) 30 6912064; E-mail: jjonkman@wwfnet.org

Russia Office c/o WWF Russia Programme Office, Box 55,
Moscow, Russia 125319
Tel: (7) 095 2649948; Fax: (7) 095 2649927; E-mail: vaisman@deol.ru

WWF-India Secretariat, 172-B, Lodi Estate, New Delhi-110 003, India
Tel: (91) 11 4698578; Fax (91) 11 4626837; E-mail: traffic@wwfind.ernet.in

GPO Box 528, Sydney NSW 2001, Australia
Tel: (61) 2 9299 6582; Fax: (61) 2 9299 6557; E-mail: traffico@msn.com

Locked Bag No. 911, Jln. Sultan PO, 46990 Petaling Jaya, Selangor, Malaysia
Tel: (60) 3 7944097; Fax: (60) 3 7947220;
E-mail: hkchen@pc.jaring.my

1250 24th Street, NW, Washington, DC 20037, USA
Tel: (1) 202 293 4800; Fax: (1) 202 775 8287; E-mail: traffic.us@wwfus.org

The TRAFFIC Network is the world's largest wildlife trade monitoring programme with offices covering most parts of the world. TRAFFIC is a programme of WWF (World Wide Fund For Nature) and IUCN – the World Conservation Union, established to monitor trade in wild plants and animals. It works in close co-operation with the Secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

The TRAFFIC Network's international headquarters is co-located in the United Kingdom with The World Conservation Monitoring Centre.

For further information contact:
The Executive Director
TRAFFIC International
219c Huntingdon Road
Cambridge CB3 0DL
United Kingdom
Telephone: (01223) 277427
Fax: (01223) 277237
Email: traffic@wcmc.org.uk