

VOL. 22 NO. 1

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TRAFFIC

B U L L E T I N

MEXICO'S TRADE IN
ECHINODERMS

BIRD HUNTING
FOR FOOD IN THE EU

WILDLIFE AS PETS
IN THE UAE

OCTOBER 2008

The journal of the TRAFFIC network disseminates information
on the trade in wild animal and plant resources



The *TRAFFIC Bulletin* is a publication of TRAFFIC, the wildlife trade monitoring network, which works to ensure that trade in wild plants and animals is not a

threat to the conservation of nature. TRAFFIC is a joint programme of WWF and IUCN.

The *TRAFFIC Bulletin* publishes 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.

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A Survey of the Trade in Wildlife as Pets in the United Arab Emirates

*P.S. Soorae, A. Al Hemeri,
A. Al Shamsi and K. Al Suwaidi*



For those working to reduce the illegal and/or unsustainable trade of wild species, the 2008 IUCN Red List of Threatened Species makes grim reading. The number of species whose conservation status has declined was approximately four times larger than the number whose status had improved. Among the losers were several species traded illegally in large quantities, including Malayan Pangolin *Manis javanica* and Chinese Pangolin *Manis pentadactyla*, both of which are now classified by IUCN as Endangered. These small, reclusive anteaters are sought after for their scales, which are used in traditional medicine in Asia, and for their meat. Efforts to reduce illegal and unsustainable trade have been in place since the mid-1970s, with international trade bans

EDITORIAL

in place since 2000, with little apparent effect. Similarly, the trade in Tiger products continues today, despite major investments in strengthening and enforcing hunting and trade controls and discouraging consumers from buying Tiger products. Plant species are also under pressure—trade in agarwood, the scented heartwood of tree species in the genera *Aquilaria* and *Gonystylus*, resulted in declines reflected in the categorization of eight *Aquilaria* species as Threatened in the Red List in 1998.

These declines don't just threaten individual species. In the case of agarwood, the income earning potential of legal collectors—which include indigenous peoples such as the Orang Asli in Malaysia—is undercut by illegal and unsustainable collection. Over-harvest of medicinal plant species threatens health-care systems, both traditional and modern, dependent on them. Regardless of the species involved, wildlife population declines threaten to disrupt the balance of the ecosystems in which they occur.

Nevertheless, despite all the warnings, despite all the efforts to reverse the trends, these and many other species continue to be over-harvested and traded towards extinction. Many contend that the problem lies in not spending enough, and not doing enough, to enforce existing harvest and trade controls. Others believe that until consumers understand the conservation impacts of their purchasing decisions, demand for wildlife products will continue to drive illegal and unsustainable practices. Some think that market forces are the answer, some that market forces are the problem, and some that solving underlying issues of rural poverty or resource tenure provide the key.

Until recently, there has been little investment to assess the validity of the above beliefs under different circumstances, and therefore to identify what the best approaches might be to reduce illegal and unsustainable trade in a particular species, product or place. This may reflect in part the lack of information available for such an analysis: there are surprisingly few reliable data on wildlife harvests and trade that span a number of locations and/or time periods. This is particularly true of illegal harvest and trade. There are even fewer data available on the success (or failure) of efforts by governments, NGOs, businesses or others to bring trade within sustainable levels and stamp out illegal practices.

As a result, those striving to keep trade from driving still more species on to the IUCN Red List are working from a relatively limited pool of knowledge. This situation is not unique to the wildlife trade. A growing number of voices are calling

for better documentation of conservation project outcomes and sharing of lessons learned, for conservation efforts to follow the route of the medical profession and become more “evidence-based”, as put forward by Cambridge University Professor William Sutherland.

Thanks to strong interest and support from The World Bank, and funding from The World Bank-Netherlands Partnership Program, a small but important step has been made towards building such an evidence base for wildlife trade in South-east Asia. *What's Driving the Wildlife Trade? A Review of Expert Opinion on Economic and Social Drivers of the Wildlife Trade and Trade Control Efforts in Cambodia, Indonesia, Lao PDR and Vietnam*, considers both the key factors driving wildlife trade and the perceived effectiveness of different approaches to reducing trade that is illegal and/or unsustainable. The report was produced by TRAFFIC in collaboration with the IUCN Species Programme and Asia Ecosystems and Livelihoods Group, and drew on the knowledge of over 80 individuals with expertise on wildlife trade in and from these countries, as well as on published sources.

Some of the results are not surprising. For example, experts believed that the abundance of traded species in the wild had declined over the past decade, that rising affluence and increasing disposable income in consumer countries was a major driver of demand for wildlife in the region, and that wildlife trade controls, while generally somewhat or very effective, needed greater enforcement. By contrast, interventions to reduce poverty or diversify livelihoods were generally not considered to have reduced wildlife harvesting for trade, while those seeking to change consumer behaviour through awareness campaigns were considered successful in about half the cases.

These and other project results need to be considered for what they are, a review of expert knowledge and opinion, not an analysis of hard data, which, as noted above, do not exist. Nevertheless, they represent an important starting point from which individuals and institutions concerned with reducing illegal and unsustainable wildlife trade in South-east Asia and elsewhere could begin to pool their knowledge, and data, more effectively. This will require ongoing investments of both time and money, money that might be better spent, some will argue, on action rather than on what is, essentially, research.

However, as is all too clear from the Red List, our collective actions, as currently funded and targeted, are not enough. Nor, given recent economic downturns, does it seem likely that funding available to reduce illegal or unsustainable wildlife trade will increase substantially in the near future. This means we need to get even better at directing those funds that are available towards those treatments most likely to save the patient. This means moving from belief- to more evidence-based approaches. Further investments in generating the necessary evidence base, building on the initial commitment from the World Bank, will be critical to such efforts. So will be a willingness to collaborate more effectively on the part of governments, NGOs, and intergovernmental organizations. Wild species, and the people who depend on them for food, medicine, income and a variety of other uses—including the sheer enjoyment of simply knowing they exist in the wild—deserve nothing less.

Teresa Mulliken, Programme Development and Evaluation
Co-ordinator, TRAFFIC International.
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GERMAIN NGANDJUI has been appointed Senior Programme Officer for the developing TRAFFIC Central Africa Programme, based in the newly established TRAFFIC office hosted by IUCN in Yaoundé, Cameroon.

HENRIETTE BIKIE has been appointed Manager of the TRAFFIC Central African Bushmeat Project, which is largely funded by the German Federal Ministry for Economic Co-operation and Development (BMZ) and WWF.

CRAIG KIRKPATRICK has left TRAFFIC after a period of seven years as Regional Director of TRAFFIC East Asia. The East Asia regional programme is being managed on an interim basis by **JAMES COMPTON**, TRAFFIC's Asia-Pacific Programme Co-ordinator.

bulletin board

SIMON MILLEDGE left his position as Deputy Director of TRAFFIC East/Southern Africa in September 2008 after a period of eight years working for TRAFFIC.

ROB PARRY-JONES has been appointed TRAFFIC's Regional Director for Europe, effective 1 May 2008. Rob has been acting in this role for the past year and before that held a number of roles within TRAFFIC's regional programmes in Europe, Oceania and East Asia, as well as within the TRAFFIC International team.

COL. N.G. SITLHOU joined the TRAFFIC India team as an Officer on Special Duty (on deputation) specializing in enforcement assistance work, with effect from May 2008. Col. Sitlhou, a serving Indian Army officer, has been awarded the 'Chief of Army Staff Commendation Card' for distinguished service.

CAROLINE LIOU Programme Officer-Communications at TRAFFIC East Asia's China office left TRAFFIC in June 2008.

TRAFFIC's forestry/timber trade monitoring work in South America has been given a boost with the appointments of **FILIPPO DEL GATTO** and **ULRICH MALESSA**, both of whom will be based at the Quito office.

THOMASINA OLDFIELD has been seconded from the IUCN Species Programme to TRAFFIC in order to enhance IUCN/TRAFFIC research and analysis of wildlife trade and use. Thomasina has been leader of the new TRAFFIC Research and Analysis Programme since March 2008 and will act as a focal point for the Early Warning target of the new TRAFFIC programme.

SOYO TAKAHASHI was appointed Fisheries officer in August 2008 and will be based in TRAFFIC East Asia's Japan office.

traffic websites

www.traffic.org (English)
 www.trafficindo.org (English)
 www.wwf.ru/traffic (Russian)
 www.wwf.org.mx/traffic.asp (Spanish)
 www.wwfchina.org/traffic (Chinese)
 www.wow.org.tw (Chinese)
 www.trafficj.org (Japanese)

Videos: www.youtube.com/trafficnetwork

This issue of the TRAFFIC Bulletin is available on www.traffic.org

US Rulings on Timber . . .

Amendment of the US *Lacey Act* gives the US Government the power to fine or gaol individuals and companies who trade in illegally harvested wood products. The US Government can even use this law to impose significant penalties on individuals and companies who do not realize that their wood is tainted. This new law, and the new import declaration it requires, will affect manufacturers and exporters who ship a variety of products made from wood to the USA, including paper, furniture, lumber, flooring, plywood and picture frames.

The US Department of Justice has already warned that it intends to use the Act to prosecute those who import timber taken or transported in violation of the laws of the country in which the timber was originally harvested. Penalties under the Act include civil administrative penalties, forfeiture of the trafficked goods, criminal fines or imprisonment. A *Lacey Act* violation may also trigger charges of smuggling or money laundering. The *Lacey Act* will now apply to the full range of imported wood products and species, far beyond those few species listed in CITES Appendix I. Reports outlining the implications of this amendment for Chinese, Indonesian and Vietnamese forest product exporters can be found at: www.forest-trends.org/resources/publications/publications.php.

. . . and Shark Landings

The US National Marine Fisheries Service (NMFS) has filed new rules requiring federal shark fisheries in the Atlantic Ocean and Gulf of Mexico to land sharks with their fins still attached. Previous federal regulations required only that fins and carcasses be brought to dock in a specific ratio, allowing shark fins to be removed at sea.

The new fins-attached landing policy—part of Final Amendment 2 to the Highly Migratory Species (HMS) Fishery Management Plan—will aid conservation by facilitating species identification and data collection and by ensuring that fishermen are not engaged in shark finning at sea. It also includes an 85% reduction in fishing for Sandbar Sharks *Carcharhinus plumbeus*.

The rule became effective on 24 July 2008.

Federal Register Part III, Department of Commerce, National Oceanic and Atmospheric Administration, Vol. 73, No. 122, 24 June 2008; Oceana Press release, 19 June 2008: http://oceana.org/north-america/media-center/press-releases/press_release/0/806/

Sale of Ivory to China Approved

China has been designated the destination for the one-off sale of ivory that was agreed in principle at the 14th meeting of the Conference of the Parties to CITES, in June 2007. Botswana, Namibia, South Africa and Zimbabwe are now authorized to make a single sale of a total of 108 t of government-owned ivory. The following quantities of raw ivory have been approved: Botswana: 43 682.91 kg, Namibia: 9209.68 kg, South Africa: 51 121.8 kg, and Zimbabwe: 3755.55 kg.

Between March and April 2008, the CITES Secretariat conducted missions to these four countries and verified that the declared ivory stocks had been properly registered by 31 January 2007, that they were of legal origin and that the weights declared were within the acceptable range of usual variation. In each case, the findings of the audits were satisfactory.

The decision to allow the one-off sale was taken on 16 July 2008 at the 57th meeting of the CITES Standing Committee (which oversees the implementation of the Convention between the meetings of the Conference of the Parties). The Committee also agreed to designate China as an importing country. Japan had already been allowed to import ivory in 2006. Both countries stated that they would closely monitor their domestic markets.

All the proceeds of the sale are to be used exclusively for elephant conservation and local communities living side-by-side with elephants.

“The Secretariat will closely supervise this sale and evaluate its impact on elephant population levels throughout Africa. We will continue monitoring the Chinese and Japanese domestic trade controls to ensure that unscrupulous traders do not take this opportunity to launder ivory from illegal origin”, said the Secretary-General of the Convention, Mr Willem Wijnstekers.

CITES banned the international commercial ivory trade in 1989. In 1997, recognizing that some southern African elephant populations were healthy and well managed, it permitted Botswana, Namibia and Zimbabwe to make a one-time sale of ivory to Japan totalling 50 t. This sale took place in 1999 and raised some USD5 million for elephant conservation.

Legal sales of ivory derive from existing stocks gathered from elephants that have died as a result of natural causes or from problem-animal control. Today the elephant populations of southern Africa are listed in Appendix II of the Convention (which allows commercial trade through a permit system), while all other elephant populations are listed in Appendix I (which prohibits all imports for commercial purposes).

CITES Secretariat press releases, 14/16 July 2008



CITES SECRETARIAT STAFF MEMBER ON AN IVORY VERIFICATION MISSION.

JOHN SELLAR / CITES SECRETARIAT

Temporary Ban on Trade in Worked Ivory Within Namibia

Namibia imposed a temporary ban on the trade in worked ivory with effect from 1 September 2008 while new legislation is drafted that will bring the country's legislation in line with CITES regulations. The ban will include the sale of ivory jewellery and 'ekipas', carved ornamental ivory pieces which are worn as cultural objects by women of the Oukwanyama ethnic group in the north of the country, and in which personal effects have been permitted to be traded in the country since 2004. The Controlled Wildlife Products Bill was expected to be tabled in parliament in September 2008.

Afrol News: www.afrol.com/test2008/articles/30383

China Lists Coral Species in Appendix III

In accordance with the provisions of Article XVI, paragraph 2, of CITES, the following coral species—*Corallium elatius*, *Corallium japonicum*, *Corallium konjoi* and *Corallium secundum*—were included in Appendix III, on behalf of China. The listing took effect on 1 July 2008.

CITES Notification No. 2008/027, 2 April 2008

OMAN IN CITES

Oman deposited its instrument of accession to CITES on 19 March 2008. The Convention entered into force for Oman on 17 June 2008, making it the 173rd Party to CITES.

CITES Secretariat: www.cites.org

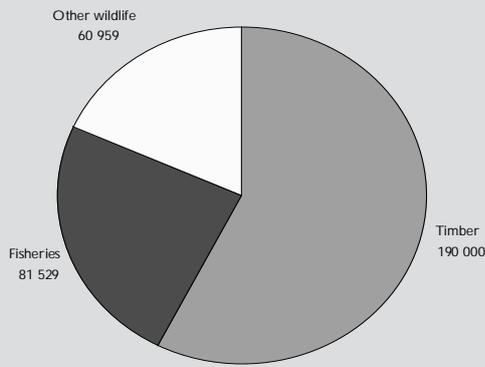


Figure 1. International import value (USD millions) of selected wildlife commodities, 2005.
Total = 332 489 (USD millions)

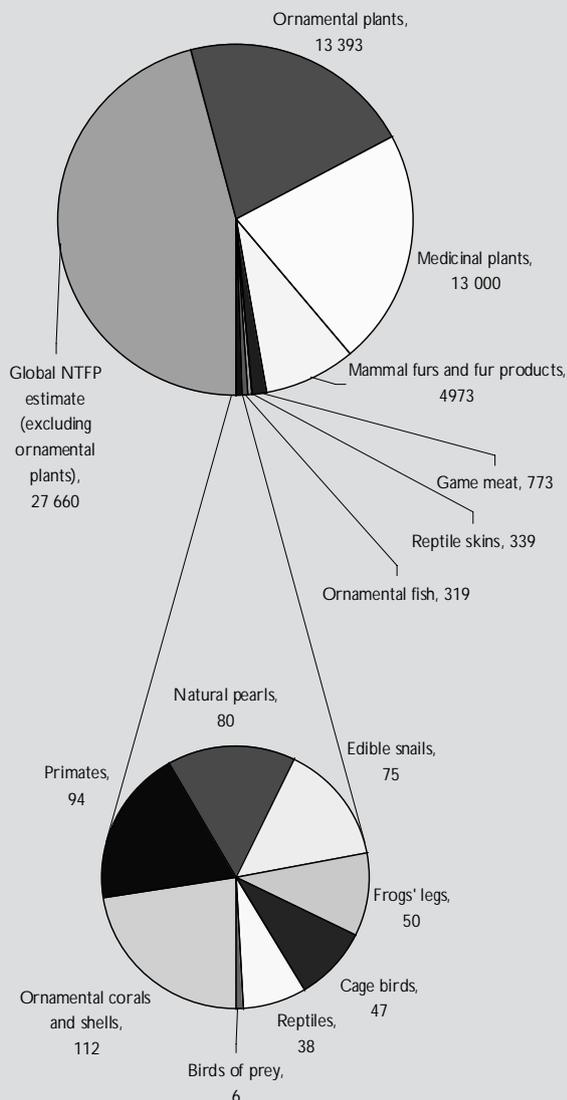


Figure 2. International import value (USD millions) of wildlife commodities excluding timber and fisheries, 2005.
Total = 60 959 (USD millions)

In the early 1990s, the value of international wildlife trade, based on import declarations, was estimated to be USD158.9 billion (Broad *et al.*, 2003). This is equivalent to about USD195 billion at 2005 prices. To gain an understanding of the effects of the increasing globalization of trade, international demand for and consumption of wildlife products and the quality of data available, an analysis of more recent data was carried out. Based on 2005 import declarations, international wildlife trade was estimated to be worth nearly USD332.5 billion (Figure 1), representing an increase of about 70% over the 1995 value, adjusted for inflation. This is equivalent to an average increase of 5.5 per cent per year, over ten years, or roughly the rate of growth of the world economy as a whole over the period. While this may suggest that global supply is keeping up with demand, volumes in trade may not rise as quickly as prices if resources are becoming scarcer.

THE VALUE OF INTERNA

While 82% of the 2005 value (91% in the 1990s) was from timber and fisheries, the import value of other wildlife products was also high. For example, the declared import value for non-timber forest products (NTFPs) was USD27.7 billion, and for ornamental plants¹ USD13.4 billion (Figure 2). Import values reflect wholesale values for wildlife commodities, so the actual retail market values would be considerably higher.

Some of the increase in value may be attributed to a wider range of products included in individual commodity codes and therefore accessible to analysis, but an increase in the total import value of wildlife products is also apparent for specific commodities. For example based on declared import value, the value of natural gums and resins in 1995 was estimated to be USD92 755 (Iqbal, 1995), or USD113 790 when adjusted for inflation up to 2005 levels, whereas in 2005 the global imports of this commodity were valued at USD161.7 million. Additionally, the adjusted global import values for nuts and spices increased 27 times and 19 times respectively, from 1995 to 2005.

In some countries, imports of wildlife commodities may have increased by more than 5.5% per year from 1995 to 2005, in line with faster economic growth in those countries. In addition, people may consume more of certain wildlife products (e.g. wild mushrooms) as their income increases, while consumption in other wildlife products may decline (e.g. firewood). Despite the many different factors that may lie behind an

¹Ornamental plants are not included as NTFPs in this analysis or in Iqbal, 1995.

BRENT STIRTON / GETTY IMAGES / WWF-UK



A BRAZIL NUT FARMER HOLDING A POD, INTEROCEANICA HIGHWAY, PERU. A POD CAN CONTAIN BETWEEN 10–12 BRAZIL NUTS.

WILDLIFE TRADE can be defined as the sale and exchange by people of wild animal and plant resources, which includes timber and fisheries.

Import values for this analysis were derived using data from the UN Statistics Division Comtrade database, and FAO statistics. Although generally excluded from this analysis, import values may include some values for plantation and aquaculture commodities due to the difficulties related to distinguishing between wild specimens and other (e.g. captive-bred, farmed, aquaculture and plantation) specimens in some types of trade data. Where necessary, values were adjusted for inflation using the US Gross Domestic Product (GDP) Deflator as an index, from the US Department of Commerce Bureau of Economic Analysis.

To facilitate comparison with previous estimates, the HS2002 commodity codes used for the 2005 estimate were as similar as possible to the commodity codes used in previous estimates of wildlife trade and NTFP values (e.g.: Iqbal, 1995; Engler and Parry-Jones, 2007).

Due to variability in recording international trade data, estimates of international import values will, at best, only ever be indicative. Furthermore, it must be emphasized that domestic trade can be considerable, and is not included in these estimates. In addition, adjustment for inflation is only a rough indication of the actual real value of wildlife trade imports, as the US GDP Deflator was used to estimate inflation for an international value. Nonetheless these data, and comparison with earlier estimates, provide an overview of global international trade values and are useful when examining broad trends in international wildlife trade.

TIONAL WILDLIFE TRADE

increase in the total value of wildlife imports, these increases in commodity and overall values indicate that the value of international wildlife trade is significant, and has increased over the past 10 years.

Acknowledgements

Special thanks to Dr Joshua Bishop, IUCN Senior Advisor-Economics and the Environment, for providing helpful advice on the economics of international wildlife trade, and for reviewing this article.

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Rhino Poaching Increases in Zimbabwe

Rhinoceros poaching has been increasing throughout Zimbabwe including in the Lowveld Conservancies in the south of the country, home to three-quarters of the country's surviving rhinoceroses. About 20 rhinoceroses have been shot in the area during 2008.

For more than a decade, the Lowveld Conservancies have been host to a rhinoceros conservation project involving WWF, the Parks and Wildlife Management Authority of Zimbabwe, the private sector and several other conservation agencies including the International Rhino Foundation. Recent conservation work has led to the expansion of both species of African rhinoceroses in the Lowveld region, to current totals of 400 Black Rhinoceroses *Diceros bicornis* and 150 White Rhinoceroses *Ceratotherium simum* (of an estimated total, respectively, of 500 and 300 in Zimbabwe as a whole).

According to Raoul du Toit of WWF, Lowveld rhinoceros conservation project manager, approximately 70 rhinoceroses have been killed in the area since 2000, where previously there had been no rhinoceros poaching at all for a period of seven years. When the poaching first flared up, it was linked to the unplanned occupations of sections of the Lowveld Conservancies by subsistence farmers and primarily involved specimens getting caught in wire snares that were set out to catch wildlife for meat consumption. Now the poaching has reached commercial levels, with poachers not only killing the animals in snares but also shooting them for their horns, without taking the meat. Although a few poachers from Zambia have been arrested and convicted after cross-border raids into national parks in northern Zimbabwe, the few Zimbabwean poachers arrested have subsequently been released on bail (equivalent to a few American cents), and have then absconded, or have evaded prosecution in the courts. Most recently, a gang of four Zimbabwean poachers who were arrested admitted to killing 18 rhinoceroses in five areas of central Zimbabwe, including a semi-tame group of Black Rhinoceroses in their pens at Imire Safari Ranch. However, although they were initially denied bail and it was reported that they had received lengthy gaol sentences, WWF has been informed by the authorities that the poachers were granted bail, were freed and immediately absconded.

"WWF and other non-government organizations involved in rhinoceros conservation maintain very constructive relations with the Zimbabwean wildlife authorities," says du Toit, "but there is growing frustration over Zimbabwe's poor performance in law enforcement for rhinoceros crimes, which inevitably gives rise to concerns about corruption."

WWF press release, 25 September 2008;

<http://www.traffic.org/>



A FEMALE BLACK RHINOCEROS, RECOVERING FOLLOWING VETERINARY TREATMENT FOR A GUNSHOT WOUND, WITH HER CALF.

Quotas for Caspian Sea Caviar

Export quotas for caviar and other products from sturgeon from the Caspian Sea set by the range States for 2008 were published by the CITES Secretariat in March 2008.

In line with a recommendation made at the 14th meeting of the Conference of the Parties (CoP14), the quotas are at or below the levels of 2007. Iran's caviar quota for Persian Sturgeon *Acipenser persicus* has been reduced by 1000 kg as a conservation measure. Recognizing that sturgeon stocks in the Black Sea/lower Danube River fishery have been seriously depleted, Bulgaria, Romania, Serbia and Ukraine have maintained their zero caviar export quotas for 2008. In the case of the stock shared by China and the Russian Federation in the Heilongjiang/Amur River of Amur Sturgeon *Acipenser schrenckii* and Kaluga *Huso dauricus*, the quotas are: China 1) *A. schrenckii*, 1337 kg of caviar and 7740 kg of meat; 2) *H. dauricus*, 1595 kg of caviar and 10 260 kg of meat. Russia 1) *A. schrenckii*, 350 kg of caviar and 2000 kg of meat; 2) *H. dauricus*, 1280 kg of caviar and 6000 kg of meat.

The publication of these quotas follows a change in the system governing the establishment of quotas from shared stocks of sturgeon species adopted at CoP14. The quota year for caviar and meat will now run from 1 March until the last day of February in the following year, in order to reflect the fishing and marketing seasons.

To have their proposed quotas published, countries with shared sturgeon stocks must agree amongst themselves on catch and export quotas based on scientific surveys of the stocks. They must also adopt a regional conservation strategy, combat illegal fishing and provide details of the scientific data used to establish the catch and export quotas.

The CITES provisions require caviar and other sturgeon products to be sold during the quota year in which it is harvested and processed. Because caviar is also a popular local delicacy in many of these countries, they must also focus on strengthening their controls over domestic trade in sturgeon. As caviar stocks continued to decline through the 1990s, the CITES Parties decided to place all sturgeon species that remained unlisted in Appendix II, a decision that came into effect on 1 April 1998. Since then, all exports of caviar and other sturgeon products have had to comply with strict CITES provisions, including the use of export permits and specific labelling requirements.

In 2001, CITES responded to high levels of poaching and illegal trade in the Caspian Sea by agreeing a temporary ban. Extensive discussions and stronger actions by the range States were required before the annual quotas could be agreed for 2002 to 2005. The Secretariat was unable to publish quotas for 2006.

Reduced supplies of caviar from the wild have encouraged many countries to establish aquaculture facilities for sturgeon, but in order to preserve incentives for the conservation of wild sturgeon stocks it is important to maintain a catch of these fish at sustainable levels.

CITES Secretariat: www.cites.org

Developing a Certification System for Captive-bred Birds in Indonesia

Introduction

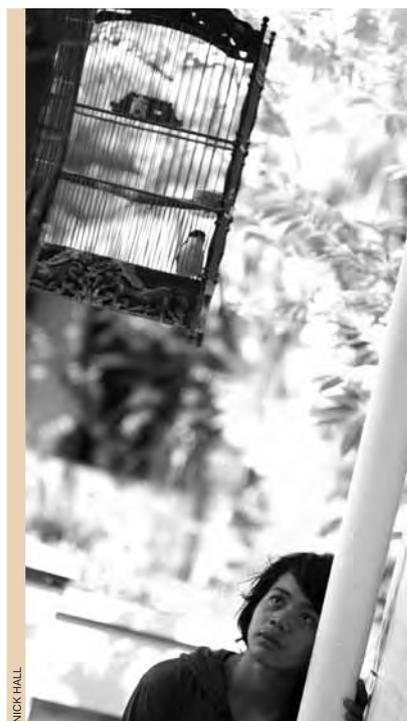
The hugely popular Indonesian pastime of keeping wild birds as pets is threatening the long-term survival of many songbird species on the islands of Java and Bali (BirdLife International, 2001; Jepson and Ladle, 2006). In response to this threat, the authors have been working with leaders of the songbird-keeping fraternity to develop a non-State, market-based governance approach to guide consumer preferences in Indonesia away from wild-caught birds towards captive-bred alternatives. A key component of this approach is empowering consumer choice through the establishment of a labelling system to certify bird-breeding facilities in Indonesia. This paper reports on the development and initial design of the certification tool. The broader approach to governing includes planned activities to: i) market captive-bred birds as more desirable on ethical and quality grounds; ii) increase the supply of captive-bred birds; iii) set up a social marketing campaign to encourage ethical and sustainable bird purchasing choices (and dissuade casual purchase of birds); and iv) promote the prestige of captive-bred 'ring class' birds (birds that have been captive bred and hence ringed) at songbird competitions.

The authors' design of this system of governing is informed by a research project that comprised two phases: 1) a questionnaire survey and media analysis to generate overview data on the scale and attributes of bird-keeping and scope out the key actors and networks that need to be influenced, and 2) in-depth interviews and workshops that aimed to reveal insights on the contemporary culture of bird keeping in Indonesia and identify and engage influential actors within the bird-keeper fraternity in the development of a suitable and effective policy approach.

Bird keeping and breeding in Java and Bali

Bird keeping is hugely popular in Java and Bali. In the six cities surveyed during April 2006, 35.7% of households (636 out of 1781 households surveyed) kept a bird and 57.6% had kept a bird in the last 10 years. A projected 1.45 million households keep an estimated 2.15 million wild-caught birds (Jepson and Ladle, in press).

Entering songbirds into competitions is a popular recreation in Java and Bali (and now gaining popularity in Kalimantan and Sumatra). Five of the nine species regularly found in competition are among the ten commonest species kept, namely Canary *Serinus canarius*, Long-tailed Shrike *Lanius schach*, Orange-headed Thrush *Zoothera citrina*, White-rumped Shama *Copsychus malabaricus*, and Magpie Robin *Copsychus saularis* (Jepson, 2008).



NICK HALL

In traditional Javanese culture, a hobby such as bird keeping is considered important to a well-balanced life.

Preliminary projections arising from the survey suggest that songbird keepers contribute approximately €50 million (USD70.6 million) to the economy of these six cities. Of this, ca €1.6 million is produced by the sale and trading of birds, ca €7.5 million from the collection, breeding and sale of live food (ant eggs, worms, crickets), and ca €5.6 million from the manufacture and selling of bird cages. This figure does not include other aspects of the hobby which may make significant economic and employment contributions, namely bird markets, song contests and bird-breeding enterprises (Jepson, Ladle and Sujatnika, in prep.).

Species such as Canary, Zebra Dove *Geopelia striata* and lovebirds *Agapornis* are bred in large numbers. The rise in popularity of songbird keeping in Indonesia since the mid-1990s, combined with declining wild populations, is resulting in a growth in the number of songbird breeders. Breeders now produce species such as Straw-headed Bulbul *Pycnonotus zeylanicus*, White-rumped Shama, Chestnut-capped Thrush *Zoothera interpres*, Asian Pied Starling *Sturnus contra*, Bali Starling *Leucopsar rothschildi*, and Black-winged Starling *Sturnus melanopterus* in increasing numbers. Several of these species are classified as Threatened and continue to be taken from the wild (Shepherd, 2006). Indeed supplies of White-rumped Shammas increased as the expansion of illegal logging in the late 1990s opened up new areas for trapping. At present the picture concerning acquisition of breeding stock is complex. Most breeders prefer to exchange breeding stock within their networks but many will buy wild-caught birds on occasion. Some of these, such as White-rumped Shammas, may be recently taken from the wild whilst others, notably long-lived species such as Straw-headed Bulbul, are purchased from bird keepers and may have been caught from the wild up to 20 years previously.



NICK HALL

Chicks are often reared in families in order to supplement household incomes; this role is often undertaken by the grandmothers.

Bird farms which previously bred Zebra Doves are now converting to breeding songbirds.



NICK HALL

Informal forms of 'certification' are emerging in Indonesia.

The ring on this wild-harvested Orange-headed Thrush chick certifies that it is a male and with the characteristics to compete in songbird competitions.



PAUL JEPSON

Five general business models for breeding birds were identified during the survey: i) independent breeder; ii) breeder with outsourcing; iii) breeder association; iv) village co-operative; and v) commercial-scale bird farm. In addition, huge numbers of 'amateur' bird-keepers breed and sell the common domestic species: Canary, lovebirds and Budgerigar *Melopsittacus undulatus*. The first three types of enterprise are the source of innovation on techniques to breed and rear songbirds. Central to each is a technically adept individual who has a passion for developing new breeding and husbandry techniques. New techniques are shared between breeders at workshops convened by Pelestari Burung Indonesia (PBI). These business modules are suited to rapid expansion and scaling up.

Important aspects of the bird-keeping hobby are governed by PBI. For instance, since the 1980s, PBI has trained and accredited songbird competition judges and most competitions seek PBI endorsement (use of their logo) as this brings status and an assurance of impartiality and integrity to their event. More recently, PBI has been actively expanding its breeder membership and organizing workshops and training events to promote knowledge-sharing and the creation of active breeder networks.

Developing a bird certification system

The questionnaire survey revealed positive or ambivalent attitudes towards certification

among bird keepers. The authors' research identified six communities of practice within and interacting with bird keeping, namely: i) organizers of songbird contests and prominent hobbyists; ii) breeders and breeder associations; iii) manufacturers of bird food; iv) journalists and editors in the bird-keeper media; v) the governing committee of PBI; and vi) conservationists within the international bird conservation community associated with Burung Indonesia (BirdLife Indonesia).

Representatives of each community came together in a series of three regional workshops held in Yogyakarta (Central Java), Surabaya (East Java) and Jakarta (West Java) during December 2007. The workshops were independently facilitated by the social enterprise, Aksenta, who specialize in strategy facilitation, certification and accreditation. The goal of the workshops was to prepare the public for the concept of certification, build trust and communication between different communities of practice and identify points in bird supply chains that could be certified.

Participants at these workshops were enthusiastic about the idea of certification and proposed that a working group be formed to work up the details. The working group met in February and March 2008. Their deliberations were informed by a review of international certification schemes, relevant Indonesian law and Aksenta experience of ISO9000 (a family of standards for quality management systems), forest and coffee certification. The Species Unit with the Department of Forest Protection and Nature Conservation (PHKA) was kept informed of progress but not directly involved in the process.

Elements of a proposed certification system

The certification system will focus on songbirds with the following agreed objectives: 1) to guarantee the captive-bred status of birds produced by certified breeding facilities; 2) to promote best practice in bird breeding both in terms of quality, welfare and quantity; 3) to accelerate the replacement process of wild-caught birds with captive-bred birds for pets or other purposes. There are three groups of song-

birds with different certification requirements: i) native songbirds; ii) non-native songbirds (Canary and lovebird) which are bred locally; and iii) Orange-headed Thrush chicks which are harvested from agroforests in Bali (Jepson, 2008). Developing standards and criteria for certifying the first two groups was the goal of the working groups. The object of the certification system will be the bird-breeding business unit (not the birds) and will cover all the bird breeding business models listed above. The system will focus on the production process (input–output); a measuring and monitoring system; and documentation that allows for a traceable system.

A stepwise approach to the development and introduction of certification is planned. This reflects current administrative and breeding capacity and the need to expand the number of breeders. It also aligns with the PBI policy that competition categories for wild-caught songbirds will be prohibited from PBI-accredited songbird contests after 2012. Initially, the songbird certification body will be hosted by PBI as a “Certification Committee”. This was approved at the PBI national meeting in March 2008 and will provide the new entity with credibility and administrative support. The Certification Committee will issue certificates to songbird breeders that have been independently audited against two basic criteria: suitability and competency of breeding facility; and, assurance that birds produced are captive-bred at the facility. Auditors must complete training and pass a competency test, be registered, and agree to abide by a code of ethics. They should also be knowledgeable about bird-breeding and the songbird hobby.

The intention is to fund a certification system through a combination of fees from bird breeders and sponsorship. Many breeders are small businesses so the system will be affordable but not free, pricing systems will reflect the number of breeding pairs and extent of production, and groups of breeders will be assessed during one audit. The certification committee hopes to secure additional funding from songbird contest organizers and the companies producing bird food and products.

Prognosis and next steps

The certification system outlined represents a starting point. It may change and evolve as it is introduced. The next step is to conduct pilot audits/certifications of bird breeders breeding different species in different regions of Java. A number of questions still need to be thought through; for instance, if the ultimate goal is to provide consumers with a means to identify a bird of captive-bred origin (for example, with a ring), should certification extend to Canary, lovebirds and Budgerigars which are already bred in large numbers by bird keepers? The authors are of the opinion that this should not happen because people already class these birds as ‘imports’ and semi domesticated species. They also believe it will be necessary and possible to extend certification to the harvesting of chicks as is occurring on Bali, but that differ-

ent criteria and standards will be needed to control harvesting practice and stimulate breeding initiatives.

The establishment of a bird certification scheme will require the leadership and commitment of a number of people within the world of bird keeping, breeding and conservation. Certification and a move to captive-bred birds supports the agendas of many interests and is not necessarily counter to others. In addition, the judges of songbird contests are already accredited by PBI so the general principle is not new within the hobby. There is a good chance that this work will translate from the conceptual stage into reality, especially if funds for a pilot certification scheme can be secured.

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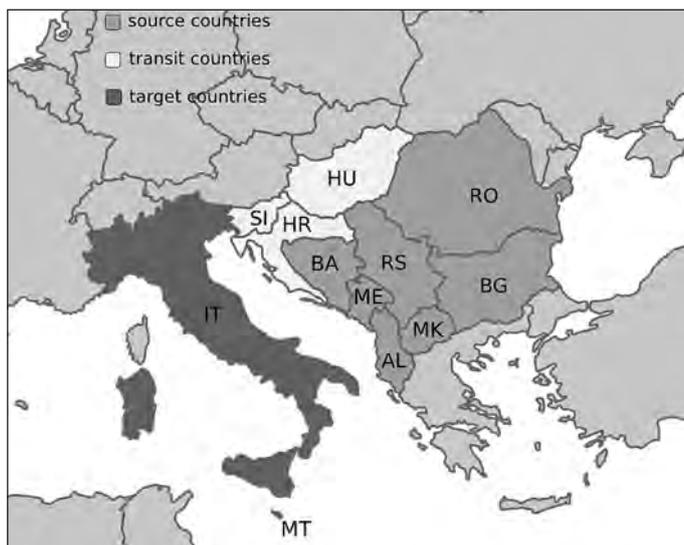
THE ILLEGAL TRADE IN WILD BIRDS FROM SOUTH-EAST AND CENTRAL EUROPE FOR FOOD IN THE EU

RICHARD THOMAS / TRAFFIC



The hunting of songbirds for consumption as a delicacy in restaurants, principally in Italy, is an issue of serious conservation concern. This activity, which involves highly organized criminal activity in South-east and Central Europe, has received insufficient attention to date, however. Hunters are illegally shooting birds and smuggling them to northern Italy and Malta. Many of the affected species are protected by European Community (EC) and national legislation, and some species are very rare. The scale of this trade is huge. Hundreds of thousands of birds are illegally taken and exported every year. Birds seized in trade are estimated to be worth EUR2–3 million¹ (USD2.8–4.2 million) per year and the industry as a whole is estimated to be worth around EUR10 million per year (N. Pierotti, Corpo Forestale Service, pers. comm., July 2008).

In order to bring this issue to the attention of a wider audience, including wildlife trade regulation and other enforcement authorities in the EU and neighbouring countries, TRAFFIC has produced an English language brochure about the problem



< MEADOW PIPIT *Anthus pratensis*.

The hunting of all pipits is prohibited in the EU. Meadow Pipits were among 120 700 birds seized in Italy in 2001 as part of the Balkan Birds Operation. Like many songbirds, the species is considered a delicacy and is consumed in restaurants.

based on two earlier studies (Steiner, 2006; Rocco and Isotti, 2006), as well as recent research on seizures and prosecutions, undertaken with the kind financial support of the Dutch Ministry of Agriculture, Nature and Food Quality. The brochure will shortly be distributed to enforcement officials in South-east and Central Europe and will be available on-line via the TRAFFIC website and to designated enforcement officials through EU-TWIX (EU Trade in Wildlife Information eXchange), an EU enforcers' intranet run by TRAFFIC for exchanging information on wildlife seizures across all 27 Member States.

Principal hunting areas and trade routes

In recent years, the main illegal wild bird hunting hotspots in South-east and Central Europe have shifted from Hungary to Bulgaria, Romania, Serbia and Montenegro, but illegal hunting also occurs in other countries such as Bosnia and Herzegovina, Macedonia, Albania and Croatia. The main transit countries are Slovenia, Croatia and Hungary, from where the birds are exported to Italy (Steiner, 2006) (see Figure 1).

Illegal hunting and smuggling

Hunters are permitted to hunt some species in certain seasons. However, hunters targeting small birds for the food trade often use illegal hunting methods to maximize the number of birds killed in each attempt. Illegal methods include the use of recordings, or tape lures, to attract birds, very fine nets known as "mist nets", birdlime,

< FIGURE 1. COUNTRIES INVOLVED IN THE HUNTING AND TRADE IN BIRDS FOR FOOD IN CENTRAL AND EASTERN EUROPE.

MAP KEY:

Source countries: Albania (AL), Bosnia and Herzegovina (BA), Bulgaria (BG), the Former Yugoslavian Republic of Macedonia (MK), Montenegro (ME), Serbia (RS), Romania (RO).

Transit countries: Croatia (HR), Hungary (HU), Slovenia (SI).

Target countries: Italy (IT), Malta (MT).

http://commons.wikimedia.org/wiki/Image:Europe_countries.svg
Map created by Mihály Zentai based on a blank map produced by Júlio Reis.

¹Values estimated using an average retail market price in Italy of EUR8.50 for one specimen (price range EUR3–14).

and automatic or semi-automatic shotguns, sometimes shot from a moving vehicle or boat (Steiner, 2006). Dead birds are concealed in a variety of ways for smuggling across borders, often hidden in cars or in refrigerated lorries or among other products (Rocco and Isotti, 2006).

Species in trade

The vast majority of bird species illegally hunted and traded in Europe—mainly to northern Italy—are songbirds (such as finches *Carduelis* spp. and *Fringilla* spp.) (M. Rocco, Corpo Forestale Service, *in litt.*, May 2008) protected under international treaties, EU and national legislation.

One of the rarest species hunted is the Red-breasted Goose *Branta ruficollis* (M. Rocco, Corpo Forestale Service, *in litt.*, May 2008). The European population of the Corncrake *Crex crex*, also hunted, once numbered over 1 300 000 pairs, but suffered extreme declines in Europe from 1970 to 1990 mainly due to habitat loss. The population has still not recovered and is classified as “Depleted” in Europe in the list of *Species of European Conservation Concern* (Anon., 2004a). The situation is similar for European populations of the Common Quail *Coturnix coturnix*, especially in Central and Eastern Europe (Anon. 2004b). Some 38 000 Common Quails were shot in Serbia during two months in 2004—more than the entire breeding population of Serbia (Simic and Tucakov, 2005). It is estimated that over 90% were shot illegally, using tape lures and semi-automatic shotguns (Simic *et al.*, 2003).

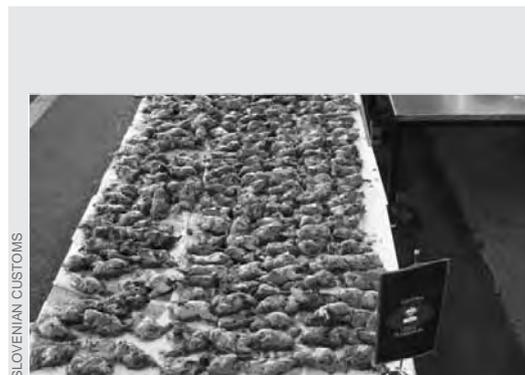
Unless further attention is given to this trade, other European bird populations may experience similar declines—such as the European Turtle-dove *Streptopelia turtur*. This species is classified as “Declining”, yet is in trade legally in significant numbers (UNEP-WCMC, 2008), (e.g. as “hunting trophies”) and there are also very high levels of illegal trade (Rocco and Isotti, 2006).

Law enforcement

From 2000 to 2006, Croatia, Hungary, Serbia, and Slovenia seized over 100 000 wild birds (see Figure 2). Some single seizures have been very large too, including around 60 000 birds seized in Serbia in 2001 (Rocco and Isotti, 2006).

In 2001, Hungarian Customs intercepted 11 800 frozen birds on the border with Croatia. The original, legal, cargo with Customs documentation had been switched for illegally hunted species. This shipment of protected birds was valued at EUR1.2 million (USD1.7 million). Of the 11 people arrested, seven were prosecuted for damage to the natural environment. Sentences ranged from six months to over two years’ imprisonment, and fines totalling over EUR70 000 were imposed which were paid to Kiskunság National Park (M. Kardos, Kiskunság National Park, *in litt.* to TRAFIC Europe, November 2007).

In 2003, an Italian court determined that two hunting tourism firms had facilitated the smuggling into Italy of



SLOVENIAN CUSTOMS

OVEN-READY SNIPE SEIZED IN SLOVENIA AT OBREZJE INTERNATIONAL BORDER CROSSING WITH CROATIA, SEPTEMBER 2007.



MASSIMILIANO ROCCO / WIPF-ITALY

SOME OF THE 120 700 BIRDS SEIZED IN VICENZA, ITALY, DURING THE BALKAN BIRDS OPERATION IN 2001.



SLOVENIAN CUSTOMS

DEAD BIRDS HIDDEN IN THE BACK SEAT OF A CAR SEIZED IN SLOVENIA AT OBREZJE INTERNATIONAL BORDER CROSSING WITH CROATIA, OCTOBER 2002.

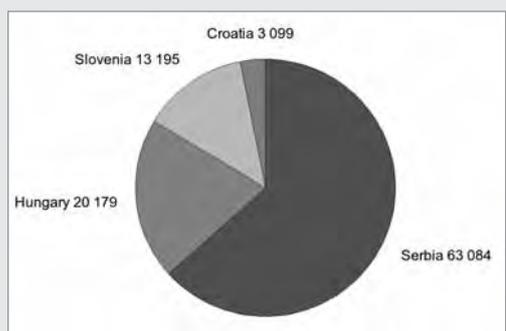


FIGURE 2. NUMBER OF SEIZED BIRDS IN SELECTED SOURCE AND TRANSIT COUNTRIES (2000–2006).

over two million birds, shot in Serbia, over six years. In the so-called Balkan Birds Operation, the Italian police seized a trailer in Vicenza in November 2001 carrying 12 t of deep-frozen birds: 120 700 specimens comprising 83 species, including Meadow Pipit *Anthus pratensis* and Tree Pipit *Anthus trivialis*, Eurasian Skylark *Alauda arvensis* and other songbirds, as well as Common Quail and European Turtle-dove (Rocco and Isotti, 2006).

Many of the locations where the birds were shot are key wild bird habitats designated as Important Bird Areas (IBAs). Among the dead birds seized, 68 species were under a permanent hunting prohibition, 33 were very rare species, and the rest represented various species of songbirds. The birds were caught in nets or attracted with tape lures and then shot—both prohibited means of hunting (Rocco and Isotti, 2006).

Eight people were found guilty of smuggling over 7000 birds from Slovenia during 2002 to 2003. Four people were fined and sentenced to between six and 12 months' imprisonment (Rocco and Isotti, 2006).

In August 2008, the CITES Management Authority of Slovenia published a report that presents cases of attempted smuggling of endangered wild birds into Slovenia that have been uncovered by Slovenian Customs authorities at the international border crossings with Croatia. *Report on the Attempts of Smuggling of Wild Birds into the Republic of Slovenia: 2002–2006* is available in both Slovenian and English at, respectively, <http://www.arso.gov.si/narava/poro%c4%8dila%20in%20publikacije/Cites%20-%20Ptice%20SLO.pdf> and <http://www.arso.gov.si/en/nature/reports%20and%20publications/> or via the Slovenian Management Authority: cites.arso@gov.si.

Bird hunting ban in Malta

Malta is located on an important bird migration route in the Mediterranean. Hunting during the breeding and spring migration period is prohibited under EU law, in all Member States. In January 2008, based on a complaint by BirdLife, the European Commission took the Maltese Government to court for having allowed, every spring since the country's accession to the EU in 2004, hunting and trapping of European Turtle-dove and Common Quail, in direct contravention of the EU Birds Directive (RSPB, 2008).

According to the RSPB (2008), the Maltese Government was ordered by the European Court of Justice on 25 April 2008 not to allow the spring hunting of birds—a practice which is in direct contravention of European bird protection laws. A final ruling is not expected before 2009.

Recommendations

1. Italy and Malta should carry out activities to increase the awareness of consumers, enforcement officers and the judiciary about this illegal trade and its impact on wild bird populations, as well as measures taken against offenders.

2. Italy should promote an information campaign in collaboration with hunting agencies and hunters' associations to inform hunters of national hunting laws outside Italy;
3. Italian enforcement authorities should carry out inspections at border crossings based on risk analysis assessments (Arih *et al.*, 2008);
4. Enforcement officers in source, transit or final destination countries should be informed about the equipment used by illegal hunters, including nets, tape recorders, concealment methods, etc.;
5. Consumer, transit and source countries should:
 - a. use existing channels, including workshops, on more general wildlife trade issues, to exchange information regarding hunting and smuggling techniques, tools for identification and detection, and sharing intelligence; and
 - b. make use of existing communication tools such as INTERPOL's Ecomessage (a reporting system that systematically accepts environmental crime data and enters the figures into a computerized data collection facility at the General Secretariat (http://www.interpol.int/public/environmentalcrime/pollution/Eco_message.pdf); Customs Risk Information Forms; and, for monitoring seizures, the EU-TWIX database;
6. Wildlife management and scientific authorities should liaise with enforcement agencies to ensure that management plans take into account offtake from illegal activities. Management plans for migratory species (e.g. European Turtle-dove) should involve all geographical areas where the species migrate.

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EFFORTS TO SCALE-UP ENFORCEMENT TO COMBAT THE ILLEGAL PANGOLIN TRADE IN SOUTH-EAST ASIA



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WCS INDONESIA PROGRAM

Recent seizures highlight the fact that pangolins *Manis*, despite being protected by national and international laws and conventions, are still heavily traded in East and South-east Asia for their meat and for use in traditional medicines.

All pangolin species are included in CITES Appendix II. To help countries further in their efforts to stop the illegal trade, and to ensure that the trade will not cause the species to become extinct, the Conference of the Parties adopted a zero export quota for the four Asian pangolin species (Indian Pangolin *Manis crassicaudata*, Philippine Pangolin *M. culionensis*, Chinese Pangolin *M. pentadactyla* and Malayan Pangolin *M. javanica*) for trade in wild specimens for commercial purposes. Earlier this year, two seizures carried out in Viet Nam resulted in the confiscation of a total of 23 t of pangolins (see page 38). Both shipments originated in Indonesia and were en route to China. More recently, Indonesian police raided the warehouse of a suspected wildlife trader in Palembang, south Sumatra, and confiscated nearly 14 t of frozen pangolins and about 50 kg of scales, awaiting export—Indonesia's largest pangolin seizure to date; 14 suspects were arrested (see page 37). These are just two examples of the significant and regular pangolin seizures taking place in this region.

In the face of this problem, TRAFFIC, together with Wildlife Reserves Singapore—which manages the Singapore Zoo, the Night Safari and Jurong Bird Park—held a workshop in Singapore from 30 June to 2 July 2008 on the trade and conservation of pangolins native to South and South-east Asia. The aim of the workshop was to bring together government, academics, conservationists and veterinarians from East and South-east Asia to share information and knowledge on pangolins and the pangolin trade, and to identify priority actions to

reduce this illegal trade significantly. The workshop brought together 75 participants from 15 countries, from government agencies, universities, zoos and rescue centres and non-governmental organizations (NGOs). This provided an excellent opportunity for sharing experiences and networking. During the first session, government agencies described the illegal wildlife trade situation in their respective countries, highlighting the successes and outlining the obstacles they face in combating this trade. Other institutions provided technical inputs on specific aspects related to the trade and conservation of Asian pangolins. This included, for example, information on feeding habits and behaviour, genetic research in support of forensic studies, population assessments in selected provinces of China, the rehabilitation of confiscated pangolins, trade dynamics, etc. During the final session, participants were divided into working groups and identified top priorities for future research and action in the field of biology and ecology, trade and law enforcement, husbandry and rehabilitation and education and awareness raising.

Recommendations drafted by the workshop participants included:

- carrying out studies on population status and habitat use, starting with the development of a standardized survey methodology to assess wild population density;
- determination of the source of confiscated animals and the monitoring of trade dynamics using genetics research and morphometrics, starting with the development of non-invasive, easy to carry out, sample collection protocols;
- further research on husbandry and rehabilitation requirements;

PHOTOS ABOVE, CLOCKWISE FROM LEFT: MALAYAN PANGOLIN AND KEEPER, SINGAPORE ZOO; 14 TONNES SEIZURE IN INDONESIA, SHOWING FROZEN PANGOLIN FOETUSES, PANGOLIN SCALES AND SACKS CONTAINING PANGOLIN PRODUCTS.



JAMES COMPTON / TRAFFIC

PANGOLIN SKIN BOOTS

MALAYAN PANGOLIN



MARK ALLIYA

- improvement of information sharing using the internet (e.g. list server, website) but also existing structures such as the ASEAN-WEN Network resulting in increased communication between rescue centres, scientists, NGOs and governments;
- development of a trade monitoring network and a centralized reporting system;
- capacity building for law enforcement officers including specific training courses and study tours;
- development of a pangolin enforcement handbook, including tips on identification, immediate care, sources of advice and relevant legislation;
- development of education kits for children and the media.

The proceedings of the workshop will be published by the end of the year. The participants also agreed to create a Pangolin Working Group, which is presently co-ordinating follow-up action and finding ways to improve co-ordination with regard to research, fundraising, information exchange and support to enforcement actions.

TRAFFIC Southeast Asia has been carrying out surveys on the pangolin trade in Indonesia, Malaysia and Viet Nam, as well as a desktop study, since August 2007 in order to improve understanding of the pangolin trade and document the dynamics of the trade. This work would not have been possible without the support of SeaWorld and Busch Gardens and the National Geographic Society. TRAFFIC would also like to thank the Katala Foundation Incorporated (KFI) for their assistance in a preliminary survey of pangolin trade in Palawan, Philippines.

Sandrine Pantel

Projects Officer, TRAFFIC Southeast Asia

The four Asian pangolin species have been classified by IUCN as: *Manis crassicaudata* (Near Threatened), *M. culionensis* (Near Threatened), *M. javanica* (Endangered) and *M. pentadactyla* (Endangered).

IUCN (2008). 2008 IUCN Red List of Threatened Species. <http://www.iucnredlist.org> Viewed 13 October 2008.

ASEAN-WEN MEETING

The third meeting of the ASEAN Wildlife Enforcement Network (ASEAN-WEN—the wildlife law enforcement network) was hosted in Vientiane by the Lao People's Democratic Republic on 27 May 2008. Police, Customs and environmental officers from Brunei Darussalam, Cambodia, Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand and Viet Nam attended the meeting to review ASEAN-WEN implementation at national and regional levels, and to progress the strategic action and sustainability plans that underpin the Network. The meeting concluded successfully with the region's national Anti-Wildlife Crime Task Forces agreeing to form a joint Special Investigations Group to bolster cross-border wildlife crime suppression. The group will link up with INTERPOL and local law enforcement agencies throughout the region to ensure seizures are followed by more arrests and prosecutions. The USA, New Zealand, INTERPOL and the CITES Secretariat also sent delegates to Vientiane, underlining the broad international support behind ASEAN-WEN's mission to protect South-east Asia's biodiversity.

<http://www.asean-wen.org/uplodimg/new/actu/Jul08%20newsletter.html>

TRAFFIC FACTSHEETS

TRAFFIC has compiled a number of factsheets designed to guide hoteliers in the sustainable use of biological resources in the day-to-day operations of hotels. They form part of a guide developed by IUCN and Accor (a major global hotel group) which aims to help owners and managers of hotels around the world to conserve nature. The purchase of wild animal and plant products—whether for food, tonics, medicine, timber, clothing, ornaments or pets—can have a significant conservation impact. While legal trade in many species exists, reliable tracking systems often do not. Thus, illegally sourced products from protected wild populations can filter into the market and become indistinguishable from legal ones. Hotel buyers can have a major influence, both positive and negative, on the supply and demand of wildlife products. The information in these factsheets will help buyers to think carefully before buying and therefore avoid contributing to illegal or detrimental trade in wildlife. See: www.traffic.org/home/2008/10/2/how-to-help-your-hotel-help-nature.html.

WILDLIFE IN THE WILDERNESS:

Illegal trade jeopardizes unique biodiversity in Russian Far East

This article summarizes information contained in *Wildlife Trade in the Russian Far East: An Overview*, published by TRAFFIC in 2007 and based on material collected over many years by officials of the Far Eastern Customs Directorate of the Russian Federation, WWF-Russia's Far Eastern branch, and TRAFFIC. Additional, new information obtained by the authors and from officials in the Russian Far Eastern Customs Directorate, is also included here.

In the next issue of the *TRAFFIC Bulletin*, the authors will describe what is being done both by agencies and NGOs to halt the illegal trade in wild species.

Introduction

The Far East of Russia is probably the most problematic region in the Russian Federation with respect to illegal hunting, collection and trade in wild animals and plants. Many factors contribute to this situation. The region is rich in species diversity and is in close proximity to China and other East Asian countries which are traditional consumers of goods of animal and plant origin. There has been significant growth in the economic well-being of these East Asian countries and therefore a rise in consumer demand. At the same time, there has been a corresponding fall in income in Russian households owing to rising unemployment and the collapse of the old "command and control" economy. Where previously commercial hunting of animals for fur played an important part in the region's economy, the sharp decline that occurred in this industry in the 1990s left many hunters struggling to survive. Consequently, most hunters in the Russian Far East now supplement their income through the illegal take and sale to middlemen of products such as ginseng, musk, bear bile, and velvet antlers. Furthermore, the change in the political situation in the Russian Federation in the early 1990s, and the incompatibility of the old legal framework with the new, radically different economic and social conditions, has resulted in insufficient capacity and authority within Customs and environmental authorities to address illegal trade effectively. An inadequate legal framework to enable the authorities to address this problem, further undermined by a number of powerful criminal groups involved in the illegal wildlife trade, and involving representatives of law enforcement and environmental authorities who are influenced by these criminal gangs, is facilitating development of the illegal trade in animals and plants.

As a result of all these factors, a well-organized system of illegal trade in plant and animal commodities has been set up in the region, with well-functioning safe channels in place for the smuggling of goods over the borders into China, North and South Korea, and Japan.

Species involved in illegal trade

The number of cases of wild fauna and flora being smuggled out of the Russian Federation across the border is increasing year on year. Customs data show that more than a hundred species of wild animals and plants, and their parts and derivatives, were subject to smuggling attempts between 1999 and mid-2008. The items most commonly seized were wild ginseng roots, dried sea cucumber *Apostichopus japonicus*; Musk Deer *Moschus* and bear parts and derivatives; velvet deer antlers; sturgeon products; fur; frogs; and suppon (a derivative of Chinese Soft-shell Turtle *Pelodiscus (=Trionyx) sinensis*). Attempts to smuggle Amur Tiger *Panthera tigris altaica* and Amur Leopard *Panthera pardus orientalis* parts were less frequent but instances occur every year. Some of the CITES-listed species involved in the legal and illegal trade across Russia's border during 1999 to 2008 are recorded in Table 1.

Illegal exports

Between 1999 and mid-2008, Customs officials in the Far East stopped 443 attempts to smuggle fauna and flora derivatives of CITES-listed species. For the most part, these were derivatives and parts of animals and plants used in traditional Chinese, Korean, Japanese and Tibetan medicine; skins of fur-bearing animals, sturgeon products, and roots of wild Ginseng *Panax*. Nineteen attempts to smuggle Tiger bones were prevented. All seized specimens were confiscated and violators were fined: some 41 criminal cases were initiated according to Article 188 on "Contraband" in the Russian Criminal Code. For example, Customs authorities brought prosecutions relating to the attempted smuggling of: 21 Asiatic Black Bear *Ursus thibetanus* cubs, 526 pieces of bear gall bladders plus seven kilogrammes of bear bile, 2082 bear paws and six bear skins (Table 1).

When all remaining sturgeon species not already listed in CITES Appendix I were included in Appendix II in 1997, the smuggling to China of sturgeon products of Kaluga Sturgeon *Huso dauricus* and other sturgeon *Acipenser* species increased sharply: between 1999 and mid-2008, more than 34 000 kg of products of Amur River sturgeons were seized.

Illegal imports

Between 1999 and mid-2008, Russian Far East Customs officials stopped more than 30 attempts to smuggle CITES specimens into the Russian Federation (Table 1). However domestic market research undertaken by TRAFFIC in the Russian Far East for this review in 1999, and in 2004 to 2006, shows that the quantity of animals and plants in pet shops and markets that fall within the purview of CITES, and which do not have documents confirming their legal status, far exceeds the number of CITES specimens seized by Customs authorities. For example, Customs information based on responses to a questionnaire given to staff at Vladivostok

SPECIES	PART	SEIZURES
Sturgeon	products	34 000 kg
Cetaceans	live and derivatives	
Asiatic Black Bear <i>Ursus thibetanus</i>	live, parts and derivatives	526 pieces of gall bladders 7 kg bile/2082 paws/6 skins
Brown Bear <i>Ursus arctos</i>	live, parts and derivatives	
Polar Bear <i>U. maritimus</i>	live, parts and derivatives	3 skins
Musk Deer <i>Moschus moschiferus</i>	skins, carcasses and derivatives	2 skins and 587 pods
Saiga Antelope <i>Saiga tatarica</i>	horns	531 horns
River Otter <i>Lutra lutra</i>	parts and skins	810 skins
Wolf <i>Canis lupus</i>	parts and skins	1 skin
Amur Tiger <i>Panthera tigris altaica</i>	live, parts and derivatives	3 skins/6 skeletons/600g bones
Amur Leopard <i>P. pardus orientalis</i>	live, parts and derivatives	
Lynx <i>Felis lynx</i>	live, parts and derivatives	5 skins and 2 sets of bones
Hawksbill Turtle <i>Eretmochelys imbricata</i>	stuffed	16 specimens
Crocodiles (unidentified species)	stuffed	10 specimens
Assorted entomological specimens		
Birds of prey (species not noted)	live	
Parrots (unidentified species)		782 specimens
Orchids (unidentified species)		
Ginseng <i>Panax ginseng</i>	roots	

Table 1. CITES-listed species involved in Russia's cross-border trade and examples of seizures, 1999–mid-2008. Sources: Russian Far East Customs and regional Hunting and Fishing Inspectorates.

- in hermetically sealed boxes placed in vehicles loaded with large and heavy goods transported in bulk (wood, timber, scrap metal, etc.) which makes illicit items difficult to detect;
- in containers with concealed partitions;
- in custom-made recesses masked as vehicle units or fuel tanks, dollies, or other parts of the vehicle specially re-equipped for transportation of goods;
- amongst machinery to which access is hindered, e.g. diesel locomotives and rail engines;
- by motor transport, or by Chinese citizens walking across the Russian state frontier.

Zoo in 2001, 2004 and 2005, shows that many of the animals (monkeys, parrots, reptiles and other tropical animals) were acquired from local people—sailors, fishermen and private entrepreneurs. No valid CITES documents were available from the sellers for the importation of these animals into the Russian Federation and, consequently, the zoo administration has no documentation to prove legal acquisition. Data from the Far Eastern Customs Operative indicate that the same situation exists for zoos in other cities in the region.

Routes and methods of smuggling

During the period 1999 to mid-2008, smuggling routes varied depending on the species concerned. However, most of the smuggling, with some exceptions, was to those countries immediately bordering the Far East: China, South Korea, North Korea, and Japan. Incidences of smuggling to the USA, Viet Nam and Western Europe also occur but are less frequent.

Live wild animals (including primates, amphibians, reptiles and birds) were illegally transported by sea from Viet Nam, Philippines, Indonesia and China and imported through Russia's sea ports. They are less frequently imported by air and rail. However most of the wild animals sold in pet shops in the Russian Far East which have been illegally imported, have travelled via Moscow and St Petersburg.

The illicit transfer of live specimens and animal and plant parts and derivatives, takes place in the following ways: >

Nationality	No. of people	Nationality	No. of people
Chinese	5539	American	2
Russian	167	Vietnamese	9
South Korean	66	Taiwanese	2
North Korean	14	Unidentified	12
Japanese	3		

Table 2. Nationality of persons who committed Customs infractions between 1999 and 2008.

Nationalities of smugglers

An analysis of the nationalities of people smuggling specimens of fauna and flora between 1999 to mid-2008 shows that citizens of the Russian Federation and the People's Republic of China are the most frequent offenders (Table 2).

Conclusion

The volume of illicit trafficking of CITES specimens in the Russian Far East and level of organization contrasts sharply with the lack of resources available to Customs authorities to assist in the control of trans-frontier trade in wild fauna and flora. Despite this challenge, however, Customs officials are starting to see positive results from their determined efforts to minimize illegal wildlife trade in the region. It should be remembered that successful results in the struggle to combat wildlife smuggling cannot be obtained without close trans-border and intergovernmental collaboration. These first steps are being achieved and the outcome of further work in this regard will be reported on in the next issue of the *TRAFFIC Bulletin*.

Acknowledgements

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SADC MINISTERS RESPONSIBLE FOR MARINE FISHERIES ON IUU FISHING AT THE STATEMENT OF COMMITMENT SIGNING CEREMONY, NAMIBIA, JULY 2008.

The total value of global Illegal Unreported and Unregulated (IUU) fishing losses worldwide has recently been estimated to be between USD10–23 billion annually (Agnew *et al.*, 2008), and has been broadly recognized as an international problem with far-reaching impacts on the marine environment, coastal communities and food and income security. International concerns over IUU fishing are reflected in initiatives such as the FAO international and domestic Plans of Action on IUU fishing and the development of an international agreement on port State measures. Recently, the Southern African Development Community (SADC)¹, the European Union (EU) and the USA have all taken steps that build on and enhance these initiatives.

In 2002, the SADC Ministers responsible for marine fisheries resolved to find regional solutions to the growing plague of IUU fishing, and incorporated text to this effect in the SADC Fisheries Protocol.

A scoping study was carried out in 2006 to assess options for assisting the region in tackling IUU fishing and specifically in supporting a ministerial conference on IUU fishing. Emerging from this study and following the involvement of the SADC Secretariat, a programme of action—the SADC Stop Illegal Fishing (SIF) Programme—was developed.

The SIF Programme content was organized around an overarching goal that “African States will benefit from increasing revenues from their fisheries resources through the elimination of illegal fishing in their coastal waters through more effective sector governance”. The purpose of the Programme is more focused, and is to “enable participating African States to engage in concerted policy action that creates disincentives to fish illegally and manage fisheries more effectively for shared growth”, and is in line with the provisions of the SADC Protocol on Fisheries.

A key outcome of the SIF Programme is the Statement of Commitment by SADC Ministers responsible for marine fisheries on IUU fishing, which was signed on 4 July 2008 at a ministerial meeting in Namibia. In the declaration, SADC coastal States commit to tackling IUU fishing through various mechanisms. These include:

- the development of port State measures based on relevant international instruments on port State control and operational mechanisms for their implementation;
- the need for trade-related measures and the development of more effective measures to trace fish and fish products, to enable the identification of fish or fish products derived from IUU fishing;
- effective control by flag States over vessels flying their flags; and
- a commitment to work closely with subsistence, artisanal and small-scale fishers affected by IUU fishing through appropriate co-management, capacity-building, information-sharing and other measures.

A new EU strategy against IUU fishing was proposed by the European Commission (EC) in October 2007². It is intended to be the EU component of what the Commission hopes will become an international measure to address IUU fishing. The strategy became official in the EU through the adoption of the Council Regulation³, which took place at the June 2008 meeting of the Council of the European Union.

The EU IUU Regulation includes action for applying trade measures to control IUU fishing, promoting increased flag State control, increasing compliance with international and EU standards by EU vessels and operators, improving co-operation for investigating IUU activities, and intensifying EU policy against IUU fish-

¹The Member States of SADC are Angola, Botswana, the Democratic Republic of Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe. ²COM(2007) 601; ³COM(2007) 602.

ing on the high seas and in relation to developing countries. Perhaps most relevant for countries that export fisheries products to the EU, under this Regulation the EU will be implementing a catch certification scheme for all imports of marine fishery products into the Community and exports from the Community, excluding aquaculture products. Fishery products will only be allowed to be imported into the Community when accompanied by a catch certificate which conforms to the requirements of this Regulation. On this basis, the Commission notes that the European Community will take into account the capacity constraints of developing countries for the implementation of the certification scheme.

The Commission has noted that the EU can only be seen as a credible actor against IUU fishing in the international arena if it is able to demonstrate that illegal fishing by EU vessels is being adequately tackled. Accordingly, the Regulation includes provisions for taking action against EU vessels engaging in IUU fishing outside EU waters⁴. The Commission points out the following as being some of the main challenges that the EU has to face in its policy against IUU fishing:

- how to identify, prevent and sanction the import of IUU products from third countries into the EU market.
- how to enact more efficient measures to identify and sanction vessels and States engaged in or supporting IUU activities in the high seas or in waters of developing countries.
- how to improve the level of compliance with the rules of the Common Fisheries Policy within EC waters and/or by EC operators.

The EU IUU Regulation is expected to enter into force by the end of 2008 after the Regulation is published in the *Official Journal of the European Union*, and its provisions will apply from 1 January 2010.

In the USA, the *Magnuson-Stevens Fishery Conservation and Management Reauthorization Act* of 2006 was signed into law in early 2007. The Act pays significant attention to international fisheries and to addressing IUU fishing and the bycatch of living marine resources (LMRs). Through the Act, the US National Oceanic and Atmospheric Administration (NOAA) will produce a biennial report in early 2009 (and thereafter every two years) that lists countries which the USA has identified as having vessels engaged in IUU fishing and/or bycatch of protected LMRs. The Act also requires the development of rulemaking to implement certification procedures. The Act requires the USA to work with listed nations to take appropriate corrective action to address IUU fishing, and, in the absence of steps to address the problems of IUU fishing, prohibitions on the importation of certain fisheries products into the USA may occur.

Since the signing of the reauthorization, NOAA has undertaken a number of actions. In April 2007, NOAA defined IUU fishing as:

(A) fishing activities that violate conservation and management measures required under an international fishery management agreement to which the USA is a Party, including catch limits or quotas, capacity restrictions, and bycatch reduction requirements;

(B) overfishing of fish stocks shared by the USA, for which there are no applicable international conservation or management measures or in areas with no applicable international fishery management organization or agreement, that has adverse impacts on such stocks; or

(C) fishing activity that has an adverse impact on seamounts, hydrothermal vents, and cold water corals located beyond national jurisdiction, for which there are no applicable conservation or management measures or in areas with no applicable international fishery management organization or agreement.

In June 2007, NOAA published an advance notice of proposed rulemaking regarding the certification procedures and in April 2008 NOAA solicited public input on information related to vessels engaging in IUU fishing and bycatch of protected LMRs.

For more information on these initiatives, go to:

SADC: <http://www.stopillegalifishing.com/>

EU: http://ec.europa.eu/fisheries/cfp/external_relations/illegal_fishing/a_new_strategy_en.htm

USA: <http://www.nmfs.noaa.gov/msa2007/>

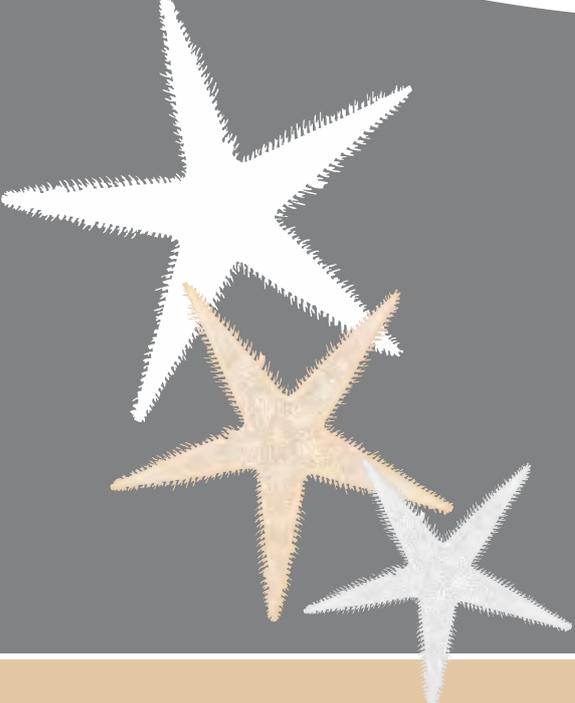
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⁴COM(2007) 601, Section 2.3.



SOUVENIRS FROM THE SEA

AN INVESTIGATION INTO THE CURIO TRADE IN ECHINODERMS FROM MEXICO

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MARINE CURIOSITIES are collected from seas around the world, often with little understanding of the ecological impacts of such harvesting. As Latin America's top destination for foreign tourists, Mexico was chosen for the first case study of the curio trade in echinoderms (any of a variety of invertebrate marine animals belonging to the phylum Echinodermata, which include sea stars, sea urchins and sea cucumbers). Interviews were conducted with fishers, distributors and retailers in Mexico's capital city and along its Pacific and Caribbean coasts, to document the organization, scale, value, and management of the curio trade in echinoderms. The surveys, undertaken in February and March 2004, were designed to supply baseline information for Mexican resource managers and to raise public awareness about the potential conservation implications of the marine curio trade. Mexican curio traders were found to be selling, collectively, specimens of at least 22 echinoderm species, although most retailers focused on Ochre Sea Star *Pisaster ochraceus*, Cushion Sea Star *Oreaster reticulatus*, and Purple Sea Urchin *Echinometra vanbrunti*. Extrapolations from interviews suggested that, together, Mexican fishers hand-collected an estimated 880 000 sea stars and 48 000 sea urchins each year, destined for domestic retail shops and export to the USA and elsewhere. While permits can now be obtained for the commercial exploitation of *Pisaster ochraceus*, the large-scale commercial collection and sale of *Oreaster reticulatus* and *Echinometra vanbrunti* are officially prohibited in Mexico. >

INTRODUCTION

The curio trade in marine species is a large and global industry, involving molluscs, corals, echinoderms, crustaceans, fishes, and marine turtles collected from seas around the world. Specimens in the dried curio trade are marketed individually or combined with specimens of other species to make elaborate craftwork. More than 5000 species of ornamental shells (Wood and Wells, 1995), 40 corals (Wood and Wells, 1988), and 32 marine fishes (Grey *et al.*, 2005) are known to be traded on the international curio market. From their point of collection, curios are either sold directly on the domestic market or exported from the source country, usually through a chain of distributors (Wood and Wells, 1988). In the mid-1980s, a study of the global shell trade revealed that thousands of tonnes of ornamental shells were being traded every year (Wood and Wells, 1988). United States Fish and Wildlife Service (USFWS) records indicate that most dried marine fish and shells arriving in the USA—thought to be among the world's largest importers of marine curio products—come from the Philippines and Taiwan (Wood and Wells, 1995; Grey *et al.*, 2005). Although recent data on global trade volumes are sparse, a review of US import records revealed that roughly one million marine fish and 360 000 kg of fish parts were imported as curios each year between 1997 and 2001 (Grey *et al.*, 2005).

Limited information about the magnitude of the global curio trade has resulted in a poor understanding of its conservation implications. “Large, sedentary, and easily accessible species with comparatively restricted ranges” are considered most at risk from the curio trade (Wells, 1989: 447). Shallow-dwelling echinoids and asteroids are, for example, easy targets for even the smallest-scale

fishers because they have relatively low mobility and some species aggregate for feeding and/or spawning (e.g. *Oreaster reticulatus*, Scheibling, 1980c, 1982). Local depletions have already been observed in many ornamental shell species (e.g. Maui Cowry *Cypraea mauiensis*), although none has apparently been threatened with global extinction as a result (see reviews in Wood and Wells, 1988; Wood and Wells, 1995). Half of the 32 marine fish species known to be traded as curiosities in the USA are included on the 2003 IUCN Red List of Threatened Species as Near Threatened, Vulnerable, or Endangered (Grey *et al.*, 2005). Assessing the conservation impacts of the curio trade will require further information about the number of animals being collected and the status of exploited populations.

Management of the trade in marine curios tends to vary among nations and among taxa. Trade documentation is required for species protected under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Several marine taxa sold as curios are regulated under CITES; all six marine turtle species Cheloniidae are listed in Appendix I¹, while nine giant clam Tridacnidae species, Queen Conch *Strombus gigas*, Great White Shark *Carcharodon carcharias*, all seahorse *Hippocampus* species, and all hard corals are monitored under Appendix II² (CITES, 2004b). While CITES requires the collation of export data for listed species (CITES, 2004a), the Convention is not designed to document domestic consumption, which makes it impossible to gauge total exploitation from CITES records alone. National Customs offices can serve as useful sources of information on the exploitation of marine species, provided that data are gathered at a scale that is appropriate to the enquiry—for instance, at the species or genus level for investigations into the

¹Appendix I of CITES includes species threatened with extinction. Trade is permitted only in exceptional circumstances. ²Appendix II includes species not necessarily threatened with extinction, but in which trade must be controlled in order to avoid utilization not compatible with their survival (CITES, 2004a).



Figure 1. Map of Mexico showing the directions of trade routes for *Pisaster ochraceus* (dark arrow), *Oreaster reticulatus* (clear arrow), and *Echinometra vanbrunti* (hatched arrow) in the Mexican curio trade, based on interviews with fishers and retailers.

Also shown are some of the locations where interviews were conducted in February and March 2004.

impacts on individual species. Government records that do exist, however, often aggregate large numbers of species into single categories (Wood, 2001). Domestic retail sales are generally only monitored through time-consuming, expensive field studies that have, as a result, only been conducted for a small portion of species in the curio trade (e.g. syngnathid fishes, Vincent, 1996).

The international curio trade in echinoderms has been relatively little studied when compared with that in corals and shells. Large quantities of echinoderms are, however, sold internationally for both food and non-food purposes. Global echinoderm landings were estimated at 105 876 t in 2001, thus comprising approximately 0.1% of the world's total marine fishery production for that year (FAOSTAT, 2004). Sea cucumbers and sea urchins, both taken for the speciality food market, made up the majority of landings (Sloan, 1984). Sea stars Asteroidea, as well as some sea urchins Echinoidea, are taken for purposes other than human consumption, specifically for poultry feed, scientific study in teaching laboratories, and curios (Sloan, 1984). Data on the curio trade in echinoderms are, however, so sparse that the topic has essentially been ignored in the literature (see Sloan, 1984; Conand and Sloan, 1989; Wells and Wood, 1991). Although the impact of the curio trade on echinoderm populations has gone virtually unstudied (Wells and Wood, 1991), target collection for the food industry has led to observed declines in several species, including *Strongylocentrotus franciscanus* (Pfister and Bradbury, 1996; Carter and Van Blaricom, 2002) and *Isostichopus fuscus* (Bremner and Perez, 2002; Shepherd *et al.*, 2004; Terney Pradeep Kumara *et al.*, 2005), potentially influencing the structure of nearshore communities (e.g. urchin extraction leading to increased algal growth, see McClanahan *et al.*, 1996; McClanahan, 1999; Carreiro-Silva and McClanahan, 2001).

Given the lack of species-specific export data for many species in the curio trade, and the dearth of information on retail sales, the authors carried out the first field survey of the Mexican fisheries and trades of echinoderms taken as curios. Mexico was chosen as the focus of this case study because of its prosperous tourism industry and its close trade relationship with the USA, two factors that were expected to create a large market for curios. This paper describes the organization, scale, value, and management of the echinoderm curio trade in Mexico, based on the results of interviews with trade participants throughout the country. This survey, focusing on the collection and retail ends of the trade, was designed to provide baseline information for Mexican resource managers and to raise public awareness about the potential conservation implications of the marine curio trade.

EUROPEAN EDIBLE SEA URCHIN
Echinus esculentus

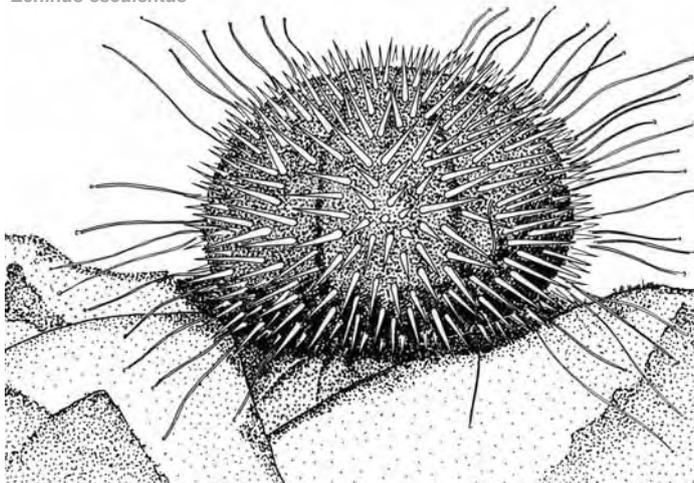


ILLUSTRATION: SARAH ANNE HUGHES

METHODS

Field data were collected during February and March 2004. Interviews were conducted with fishers, distributors, and retailers involved in the curio trade in echinoderms in 16 coastal locations: Acapulco, Cancún, Ensenada, Isla Cozumel, Isla Mujeres, Ixtapa, Manzanillo, Mazatlán, Playa del Carmen, Poptla, Puerto Juarez, Puerto Vallarta, Rosarito, San Quintin, Tijuana, and Zihuatanejo (Figure 1). Interviews followed a semi-structured format based on the methodology used by Vincent (1996). Contacts were identified using the snowball sampling approach, whereby previous interviewees were asked to suggest additional contacts (see description in Miles and Huberman, 1994). When selecting interview respondents, small-, medium-, and large-sized fishing and retail operations were haphazardly sampled in order to deduce average behaviour and involvement in the trade. To gauge the number of participants at each level of the trade, the number of retailers in each trade centre were counted and the numbers of fishers and distributors estimated based on interview responses by other trade participants.

Questions were adjusted to respondents' positions within the trade, varying among fishers, distributors, and retailers. Fishers were asked about:

- (i) their fishing equipment (e.g. boat, gear);
- (ii) their fishing effort (e.g. length/frequency of trips);
- (iii) their catches per unit time;
- (iv) seasonal variations in catches and/or effort;
- (v) the locations of fishing grounds (e.g. habitat types, depths);
- (vi) destinations of catches (e.g. identities of buyers, trade routes);
- (vii) sale prices, and
- (viii) any changes in these factors over time.

Distributors and retailers were asked questions about:

- (i) the size of their business;
- (ii) their years of experience;
- (iii) the types of products traded;
- (iv) the identity of echinoderm species in the curio trade;
- (v) the importance of these species to their businesses;
- (vi) the popularity of echinoderms compared to other curio products;
- (vii) the source of echinoderms (e.g. identities of distributors and/or fishers, locations of fishing grounds);

Location	Retailers interviewed	Retailers observed	Distributors	Fishers	Government officials	NGO staff	Academics
Mexico City					1	3	1
Pacific coast	52	1	4	4	3		2
Caribbean coast	15	6		7	1		
Baja Peninsula	3		3	3	1		1
TOTAL	70	7	7	14	6	3	4

Table 1. The roles and locations of interview respondents and the locations of retail shops where echinoderm curios were observed without full interviews being conducted. A total of 96 people were interviewed during the course of this study, but many had more than one role within the trade; respondents were, as a result, included under all relevant headings.

- (viii) the amounts bought/sold per unit of time;
- (ix) the buying and selling prices;
- (x) seasonal variations in supply and/or demand;
- (xi) the types of retail customers (e.g. age, nationality); and
- (xii) any changes in these factors over time.

Information about trade regulations and legislation was collected from the fisheries and natural resource divisions of the federal government. Species' identities were determined by consulting Brusca (1980), Colin and Arneson (1995), and Humann (1992) and were later confirmed by sending photographs to specialists in echinoderm taxonomy.

All interviews were conducted in Spanish. Since the lengths of interviews varied with respondents' willingness to provide information (almost always less than 30 minutes and typically less than half that time), the sample size (presented throughout the text as "n") varied among questions. Rather than writing notes during the interviews, the interviewers recorded their responses and cross-validated their recollections immediately following each interview in order to make the process less formal and to help put respondents at ease. In some cases, certain pieces of information were noted before the start of interviews—for instance, species for sale and display prices in retail shops. Where percentages of respondents are reported, "n" refers to the total sample size of respondents, rather than the number of respondents providing a particular answer. Monetary values given during the interviews were converted from Mexican pesos (MXP) to US dollars (USD) using the average exchange rate 0.091 for the period 1 February to 31 March 2004 (UBC, 2004).

Descriptive statistics, including medians and ranges, are provided to describe the central tendency and variability in the interview data. Median reported values were used as the basis for extrapolating the total volume of echinoderms caught and/or sold in each trade centre. Total trade volumes were only calculated for the collection and retail ends of the trade, as all of the distributors interviewed also operated within one of these trade levels.

Estimated trade volumes were then compared with the USFWS records of dried echinoderm specimens being imported from Mexico between 1997 and 2002, made available under the *Freedom of Information Act*. Relevant Customs codes were species, genera, or class

specific, and included: 'PIOH' (*Pisaster ochraceus*), 'PIOC' (*Pisaster ochraceus*) [sic], 'ENCG' (*Encope grandis*), 'ECO?' (*Encope* sp.), 'HNR?' (*Henricia* sp.), 'MLA?' (*Mellita* sp.), 'OTR?' (*Oreaster* sp.), 'PIR?' (*Pisaster* sp.), 'SGC?' (*Strongylocentrotus* sp.), and 'AS00' (Asteroidea). Since some of the echinoderm shipments were recorded as dried weight (in kg), weights were converted to numbers of individuals using various rates. For *Pisaster* sea stars, a conversion rate of 10 individuals/kg—the average weight of an unknown number of medium-sized samples collected in Ensenada (J. Palleiro, Centro Regional de Investigación Pesquera, *in litt.* 2004)—was used to convert dried weights to numbers of individuals. Records for *Encope grandis* were converted using a rate of 34 individuals/kg, based on the average weight of 20 market specimens in Puerto Peñasco (K. Larson, CEDO Intercultural, *in litt.* 2004). USFWS data are presented as mean \pm standard deviation.

The authors were told by a government official that Mexican Customs data would not be meaningful for this analysis of the trade in echinoderms, as the codes were too general to allow an estimation of the number or weight of echinoderm species being imported to or exported from Mexico (A. Peralta Delgado, CONA-PESCA, *in litt.* 2004).

RESULTS

Ninety-six people were interviewed in Mexico's capital city—Mexico City—and along its Pacific and Caribbean coasts (Table 1). Respondents included echinoderm fishers, marine curio distributors and retailers, staff from international and local non-governmental organizations (NGOs), federal government officials from the Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación (SAGARPA) and the Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT), and professors from three Mexican universities and trade schools. The types and sale prices of echinoderm curios were recorded in an additional seven retail shops (not included in the above total), without conducting full interviews with their owners, and six boat owners were consulted about the catches of their other 20 crew members.

Common Name	Species Name	Range	Habitat Type	Source
SEA STARS				
Ochre Sea Star	<i>Pisaster ochraceus</i>	Pacific Northwest (Alaska) to Pacific Eastern Central (Baja California)	rocky shores, low intertidal zones, subtidal on rocks up to 90 m	Paine, R.T. (1980). Food Webs: Linkage, interaction strength and community infrastructure. <i>The Journal of Animal Ecology</i> 49(3):666–685.
Cushion Sea Star	<i>Oreaster reticulatus</i>	Atlantic Western Central (North Carolina) to Atlantic Eastern Central (Cape Verde Is)	shallow (<5 m) sand bottoms and sparse seagrass beds	Scheibling, R.E. (1980). Abundance, spatial distribution and size structure of populations of <i>Oreaster reticulatus</i> (Echinodermata: Asteroidea) in seagrass beds. <i>Marine Biology</i> 57:95–105. Hendler, G., Miller, J.E., Pawson, D.L., and Keir, P.M. (1995). Echinoderms of Florida and the Caribbean. <i>Sea Stars, Sea Urchins, and Allies</i> . Smithsonian Institution Press, Washington, DC.
—	<i>Astropecten</i> sp.	<i>Astropecten</i> spp. are generally found in the western Atlantic Ocean, although at least one species is found in the eastern Pacific Ocean. <i>Astropecten articulatus</i> , <i>A. cingulatus</i> , and <i>A. duplicatus</i> are found as far south as northern Brazil and <i>A. verrilli</i> is found in the Pacific in the waters of southern California		Clark, A.M. and Downey, M.E. (1992). Starfishes of the Atlantic. Chapman and Hall, New York, New York. xxvi+794 pp. Maluf, L.Y. (1988). Composition and distribution of the Central Eastern Pacific Echinoderms. Los Angeles Co. Mus. Technical Report No. 2. 242 pp.
—	<i>Heliaster</i> sp.	All species in the genera range from Pacific Eastern Central (Baja California), to Pacific Southwest (Galapagos Is)		Clark, A.M. and Downey, M.E. (1992). Starfishes of the Atlantic. Chapman and Hall, New York, New York. xxvi+794 pp.
—	<i>Linckia</i> sp.	Most <i>Linckia</i> spp. are found in the Indo-Pacific. One species (<i>L. columbiae</i>) is found off the coast of California and two other species (<i>L. guildingii</i> and <i>L. bouvieri</i>) are found in the Atlantic Ocean	coral reefs	Williams, S.T. (2000). Species boundaries in the starfish genus <i>Linckia</i> . <i>Marine Biology</i> 136:137–148.
Chocolate Chip Sea Star	<i>Nidorella armata</i>	Pacific Eastern Central (Baja California, Panama) to Pacific Southwest (Galapagos Is)	coral reefs	Edgar, G.J., Banks, S., Farina, J.M., Calvopiña, M. and Martínez, C. (2004). Regional biogeography of shallow reef fish and macro-invertebrate communities in the Galapagos archipelago. <i>Journal of Biogeography</i> 31:1107–1124. Solis-Marin, F.A., Reyes-Bonilla, H., Herrero-Pérezru, M.D., Arizpe-Covarrubias, O., and Laguarda-Figueroa, A. (1997). Sistemática y distribución de los equinodermos de la Bahía de La Paz. <i>Cienc. Mars</i> 23:249–263.

Table 2. Range and habitat types of echinoderm species seen in the Mexican curio trade.

Common Name	Species Name	Range	Habitat Type	Source
Gulf Star	<i>Oreaster occidentalis</i>	USA, Mexico, Panama	coral rubble	Caso, M.E. (1994). Morphologic, Taxonomic, Ecologic Study and Geographic Distribution of <i>Astrozoa</i> Collected During Cortez 1, 2, and 3 Cruises. Inst. Cienc. del Mar y Limnol. Univ. Nat. Auton. México, Publ. Esp. (12):1-111. Lessios, H.A. (1990). Adaptation and phylogeny as determinants of egg size in echinoderms from the two sides of the Isthmus of Panama. The American Naturalist 135(1):1-13.
Tan Star	<i>Phartaria unifascialis</i>	Pacific East Central (Gulf of California) to Pacific Southeast (Galapagos Is to Peru)	shallow subtidal, rocky reefs	Maluf, L.Y. (1988). Composition and distribution of the Central Eastern Pacific Echinoderms. Los Angeles Co. Mus. Technical Rept. No. 2. 242 pp.
Giant Spined Sea Star	<i>Pisaster giganteus</i>	Pacific Northwest (British Columbia) to Pacific Eastern Central (Baja California)	rocky and sandy bottoms; kelp, low intertidal often shallow but also to 100 m	Hopkins, T.S. and Crozier, G.F. (1966). Observations on the asteroid echinoderm fauna occurring in the shallow water of southern California. Bulletin of the South California Academy of Science 65:125-145.
Sunflower Star	<i>Pycnopodia helianthoides</i>	Pacific Northwest (Alaska) to Pacific Eastern Central (Baja California)	rock sand or mud in subtidal zone to 435 m (often no deeper than 120 m)	Fisher, W.K. (1928). Asteroidea of the northern Pacific and adjacent waters; Part 2. Forcipulata Bull. US Nat. Mus. 76:11-24581.
One unidentified species				
SEA URCHINS				
Purple Sea Urchin	<i>Echinometra vanbrunti</i>	Pacific Eastern Central	intertidal; rocky shores	Lessios, H.A., and Cunningham, C.W. (1990). Gametic incompatibility between species of the sea urchin <i>Echinometra</i> on the two sides of the Isthmus of Panama. Evolution 44(4):933-941.
European Edible Sea Urchin	<i>Echinus esculentus</i>	Atlantic Northeast	rocky substrata from sublittoral fringe to 40 m, may be found at depths of 100 m or more	Reid, D.M. (1935). The range of the Sea-Urchin <i>Echinus esculentus</i> . The Journal of Animal Ecology 4(1):7-16.
Pencil Urchin	<i>Heterocentrotus mammillatus</i>	Pacific Eastern Central (Hawaiian Is) to IndoPacific, to Indian Western (Northern Red Sea)	reef fringes with strong water movement	Dotlan, A. (1990). Population structure of the echinoid <i>Heterocentrotus mammillatus</i> along the littoral zone of south-eastern Sinai. Coral Reefs 9:75-80. Ebert, T.A. (1982). Longevity, life history, and relative body wall size in sea urchins. Ecological Monographs 52(4):353-394.

Table 2 (ctd). Range and habitat types of echinoderm species seen in the Mexican curio trade.

Common Name	Species Name	Range	Habitat Type	Source
Purple Sea Urchin	<i>Strongylocentrotus purpuratus</i>	Pacific Northwest (Alaska) to Pacific Eastern Central (Baja California)	rocky reefs low intertidal to shallow subtidal	Ricketts, E.F. and Calvin, J. (1939). <i>Between Pacific Tides</i> (3rd Rev. Ed. 1962 by J.W. Hedgepeth. Stanford University Press XII+516).
White Sea Urchin	<i>Triploneustes depressus</i>	Pacific Eastern Central (Panama) and genetically indistinguishable from congener in West Indo-Pacific	seagrass beds, coral rubble, hard substrates, reefs to a depth of 75 m	Lessios, H.A. (1990). Adaptation and phylogeny as determinants of egg size in echinoderms from the two sides of the Isthmus of Panama. <i>The American Naturalist</i> 135(1):1–13. Lessios, H.A., Kane, J., Robertson, D.R. (2003). Phylogeography of the pantropical sea urchin <i>Triploneustes</i> : contrasting patterns of population structure between oceans. <i>Evolution</i> 57(9):2026–2036.
Two unidentified species				
SAND DOLLARS Western Sand Dollar	<i>Dendraster excentricus</i>	Pacific Northwest (British Columbia) to Pacific Eastern Central (Baja California)	sand; low intertidal to about 90 m	Merrill, R.J. and Hobson, E.S. (1970). Field observations of <i>Dendraster excentricus</i> , a sand dollar of western North America. <i>American Midland Naturalist</i> 83(2):595–624. Mooi, R. (1997). Sand Dollars of the genus <i>Dendraster</i> (Echinoidea: Clypeasteroidea): phylogenetic systematics, heterochrony, and distribution of extant species. <i>Bulletin of Marine Science</i> 61(2):343–375.
—	<i>Encope grandis</i>	Pacific West Central (Gulf of California)	lower intertidal and subtidal	Ebert, T.A. and Dexter, D.M. (1975). A natural history study of <i>Encope grandis</i> and <i>Mellita grantii</i> , two sand dollars in the northern gulf of California, Mexico. <i>Marine Biology</i> 32(4):397–407.
Silted Sand Dollar	<i>Mellita longifissa</i>	Atlantic Western Central to Pacific Southeast (Galapagos Islands)	intertidal	Harold, A.S. and Telford, M. (1990). Systematics, phylogeny and biogeography of the genus <i>Mellita</i> (Echinoidea: Clypeasteroidea). <i>Journal of Natural History</i> 24:987–1026.
HEART URCHINS Sea Porcupine	<i>Lovenia cordiformis</i>	Pacific Western Central (to Panama)	sand; reported depths of 0–201 m but found only at 29 m in Panama	Lessios, H.A. (2005). Echinoids of the Pacific waters of Panama: status of knowledge and new records. <i>Rev. Biol. Tropical</i> 53 (sup. 3):147–170.

Table 2 (ctd). Range and habitat types of echinoderm species seen in the Mexican curio trade. Regional descriptions follow FAO.

Species and Products in the Curio Trade

Sea stars and sea urchins dominated the curio trade in echinoderms in Mexico's main tourist centres, while sand dollars and heart urchins were less frequently on sale. A total of 22 echinoderm species, described in Table 2, were seen in the Mexican curio trade, although most participants focused on Ochre Sea Stars *Pisaster ochraceus*, Purple Sea Urchins *Echinometra vanbrunti*, and Cushion Sea Stars *Oreaster reticulatus*. Fifty-nine per cent of retailers interviewed sold *P. ochraceus*, 31% stocked *O. reticulatus*, and 23% carried *E. vanbrunti* (n=75). Seventy-six per cent of surveyed retail shops sold only one or two echinoderm species, while 24% traded more than two species (n=75). Echinoderm species were sold either individually or as part of other shellcrafts in Mexican souvenir shops (e.g. shell mobiles, necklaces, religious icons, and candle holders).

Fishery

Fishers participating in the curio trade either targeted echinoderms and other curio species specifically (n=11), or acted opportunistically when local demand for echinoderms increased, such that echinoderm prices outweighed their usual earnings from other fisheries (e.g. lobster, oyster, octopus) (n=3). Fishers and distributors reported that year-round target fisheries for sea star curios existed only along the northwestern Baja and Caribbean coasts and for sea urchin curios around Manzanillo, Mazatlán, Zihuatanejo, and Acapulco (n=16). Fishing respondents stated that Mexican echinoderms in the curio trade were taken from rocky intertidal, shallow seagrass, and/or sandy-bottom habitats, depending on the species (n=12). Only one respondent—a retailer from Playa del Carmen—reported that some *Oreaster* sea stars in the curio trade were taken as bycatch in shrimp trawl nets, while an American researcher reported “piles of sand dollars five feet high that [shrimp trawlers] dumped on the shore to dry out” (R. Brusca, Arizona-Sonora Desert Museum, *in litt.* 2004).

Trade Structure

After capture, dried echinoderms typically passed through at least one intermediary before reaching their destinations in Mexican and foreign retail shops (Figure 1). Eighty per cent of fishing respondents sold only to domestic buyers and retailers, while the remaining 20% of fishers directly exported a portion of their catches to at least two import companies in the USA and one in Italy (n=14). Mexican retailers said they always purchased at least part of their echinoderm stock from Mexican fishers and/or distributors, although 14% of retail respondents stated that they imported some of their stock from South-east Asia and Africa, either directly or through curio dealers in the USA (n=58).

Retailers were frequently unaware of, or gave incorrect information about, the origins of their curio products. Forty-one per cent of retailers provided plausible source information for the species sold in their shops, while 38% were unable to report the origin of their stock and 21% gave obviously incorrect information about the collection sites of retail species (n=39). For instance, one retailer said that he imported *Pisaster ochraceus* sea stars from South-east Asia, despite the fact that this species has only been recorded in the eastern Pacific (Lambert, 2000). Given that species endemic to European and Indo-Pacific waters (e.g. *Echinus esculentus*, *Heterocentrotus mammillatus*) were observed in Mexican retail shops, some intercontinental trading certainly exists.

Both domestic and international tourists purchased echinoderm curios from Mexican retail shops; 44% of retail respondents reported that domestic tourists purchased the majority of marine curios, 40% said that foreign and domestic tourists bought equal amounts, and only 16% reported that foreign tourists were the main consumers (n=25).



CUSHION SEA STARS *Oreaster reticulatus* DRYING IN THE OPEN AIR, NEAR CANCUN, MEXICO.

K. LUNN / PROJECT SEAHORSE

Catch Volumes

Fishers reported catching large quantities of sea stars and sea urchins from Mexico’s coastal waters (Table 3). The total annual catch of echinoderm curios, determined for the three main species in the trade, was extrapolated from the median of fishing respondents’ reported average catches and the total number of fishers that respondents stated were active (Table 3). Together, these estimates place sea star catches at approximately 880 000 individuals/year and sea urchins at circa 48 000 individuals/year for sale as curios. Ninety per cent of the sea stars thought to be collected for the curio trade were of the genus *Pisaster*. Supply was apparently constant year-round, with 71% of retailers (n=7) and all fishers (n=9) reporting that echinoderms were collected for the curio trade on a consistent, year-round basis. Only two retail shop owners reported seasonal differences in supply, with one claiming that supply peaked in December and January and the other reporting that supply was low between August and November. None of the fishers interviewed collected sand dollars or heart urchins, and thus no information could be gathered about the volumes of these species being caught in Mexico.

Trade Volumes

Mexican retail shops stocking echinoderms were calculated to be selling approximately 40 000 sea stars and 8600 sea urchins per year at the time of the study. This total would account for only five per cent of the sea stars and 18% of the sea urchins apparently being collected from Mexican coastlines. Calculations of trade volumes for domestic souvenirs were based on respondents’ estimates of annual retail sales and the total number of shops observed to be selling each class of echinoderm. In counting the number of retail shops, however, the species that each stocked was not recorded, and thus the average sales of different species were combined for each class. Individual retailers reported yearly sales of between 11 and 1500 sea stars per shop (median=200 sea stars/shop; n=36) and 50 and 1067 sea urchin tests (the dried body of the urchin without the spines) per shop (median=288 tests/shop; n=6), with most responses being based on the sales of *Pisaster*, *Oreaster*, and *Echinometra* spp. (Table 4). Observations of the number of retail shops revealed that at least 201 shops were trading sea stars and 30 selling sea urchins in the cities visited, putting the total sale of echinoderms at an estimated 40 200 sea stars and 8640

Species	Hourly catch #/fisher/hr fisher/day	Daily effort #hours/ #/fisher/day	Daily catch #days/ fisher/year	Annual effort #/fisher/year	Annual catch	Minimum #fishers	Estimated total catch #/year
SEA STARS							
<i>Oreaster</i> spp.							
Median	9	2.5	25	144	3650	24	87 600
Range	6–250	2–4	18–750	12–57	2592–9000		
Sample (n)	11	11	11	11	11		
<i>Pisaster</i> spp.							
Median	53	3.5	244	120	26 400	30	792 000
Range	13–70	2.5–5	33–267	108–144	3943–38 400		
Sample (n)	17	17	17	17	17		
Other sea star species							
Median	22	4.5	75	?	?	8	?
Range	22	4.5	50–100	?	?		
Sample (n)	1	1	2	0	0		
SEA URCHINS							
<i>Echinometra</i> sp.							
Median	507	2.8	778	6	6805	7	47 635
Range	14–1000	1.5–4	55–1500	2–9	110–13 500		
Sample (n)	2	2	2	2	2		
Other urchin species							
Median	?	?	?	?	?	2	?
Sample (n)	0	0	0	0	0		

Table 3. Volumes of echinoderm species being caught for the curio trade in surveyed areas of Mexico, based on interviews with Mexican fishers (n). The range of responses, sample size, and median values are provided for each of the following columns: hourly catch, daily effort, daily catch, annual effort, and annual catch. Estimated total catch was calculated as the median annual catch x minimum # fishers.

SPECIES	SALES		n
	Range (#/shop/year)	Median (#/shop/year)	
<i>Astropecten</i> sp.	600		1
<i>Linckia</i> sp.	720		1
<i>Nidorellia</i> sp.	11		1
<i>Oreaster</i> spp.	66–960	332	10
<i>Phataria</i> sp.	182		1
<i>Pisaster</i> spp.	15–1500	132	19
TOTAL SEA STARS	11–1500	200	36
<i>Echinometra</i> sp.	55–1067	430	4
<i>Tripneustes</i> sp.	120–315	218	2
TOTAL SEA URCHINS	55–1067	288	6

Table 4. Range and median of echinoderm sales in Mexican retail shops, based on respondents' accounts (n).

SPECIES	RETAIL PRICES		n
	MXP	USD equivalent	
SEA STARS			
<i>Astropecten</i> sp.	6.0–15.0	0.55–1.37	3
<i>Heliaster</i> sp.	40.0	3.64	1
<i>Linckia</i> sp.	15.0–80.0	1.37–7.28	3
<i>Nidorellia</i> sp.	10.0	0.91	1
<i>Oreaster</i> spp.	20.0–660.0	1.82–60.00	21
<i>Phataria</i> sp.	10.0–35.0	0.91–3.19	3
<i>Pisaster</i> spp.	10.0–95.0	0.91–8.65	53
SEA URCHINS			
<i>Echinometra</i> sp.	4.0–30.0	0.36–2.73	17
<i>Echinus</i> sp.	50.0–180.0	4.55–16.38	2
<i>Heterocentrotus</i> sp. ¹	4.0	0.36	1
<i>Tripneustes</i> sp.	15.0	1.37	2
SAND DOLLARS			
<i>Dendraster</i> sp.	9.5–22.0	0.86–2.00	4
<i>Encope</i> sp.	16.0–36.0	1.46–3.28	3
<i>Mellita</i> sp.	12.5	1.14	1
HEART URCHINS			
<i>Lovenia</i> sp.	7.5–44.0	0.68–4.00	4

Table 5. Range of retail prices for echinoderm species in Mexico. (n = specimens observed). ¹The price given for this species refers to one individual spine, rather than the urchin test (the urchin shell minus the spines).

sea urchins per year in the areas surveyed. Retailers reported that echinoderm sales peaked around Easter (n=23), Christmas (n=11), summer holidays (n=10), American schools' spring break (n=2), and other long weekends (n=1), when the numbers of domestic and international tourists were at their highest. Only eight per cent of respondents said that demand was constant year-round (n=26). Respondents were not able to provide information about the number of sand dollars, heart urchins, or pencil urchin spines being sold over any unit of time.

The USA imported large quantities of Mexican sea stars and sand dollars between 1997 and 2002, according to USFWS records. US curio companies showed imports of an estimated 352 302±157 801 dried *Pisaster* sea stars annually from Mexico during this period; approximately 3% were later reportedly re-exported to Australia, Japan, and Spain. Average annual imports of roughly 52 383±24 824 Mexican sand dollars (*Encope grandis*) were documented in US statistics during the same timeframe. The same US data showed only one re-export of *Oreaster* sea stars of Mexican origin during this period, when 200 kg were shipped back to Mexico in 2001, possibly after being processed in the USA. Small numbers of *Henricia* sea stars, *Strongylocentrotus* sea urchins, and *Mellita* sand dollars were also reportedly imported from Mexico between 1997 and 2002; *Echinometra* urchins were, however, not recorded during this time.

Value and Economic Importance of the Fishery and Trade

Echinoderm curio fishers were often involved in additional livelihoods activities. Sixty-four per cent of fishers interviewed participated in inshore fisheries on a full-time basis, while the remaining part-time fishers also worked in retail and marine product distribution (n=14). Only three of the nine full-time fishers surveyed focused solely on echinoderm curios, with all of these respondents working in the Baja region of Mexico. Full-time divers surveyed informally in other areas of the country generally reported that they could earn a better income from food fisheries; one fisher in Puerto Vallarta stated, for example, that he could find 10 oysters in the time it would take to find one sea star and that the former were therefore more lucrative for him.

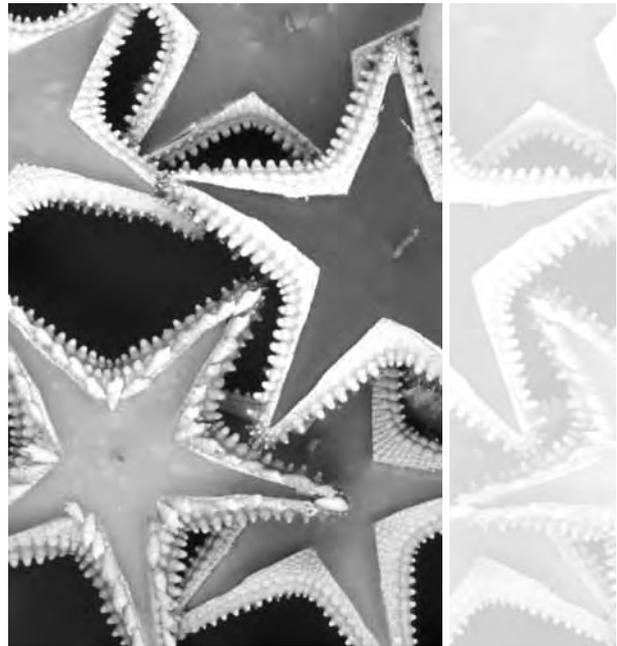
Curio retailers, like fishers, often traded several different types of products, rarely engaging only in the echinoderm trade. Eighteen per cent of retail respondents traded exclusively in marine curios, while only one per cent sold solely echinoderm curios (n=73). Other retailers also sold clothes, jewellery, ceramics, plastic trinkets, leather products, and woven materials; field observations indicated that echinoderm curios usually made up less than five per cent of shops' total stock. Retailers' marine curio selections consisted primarily of gastropod and bivalve shells (e.g. conch, abalone, oyster) and occasionally of dried fish (e.g. porcupinefish, sea-horses).

The prices of echinoderm curios varied with the trade level, location of trade centres, species, size of individuals, and types of products. Although supply chains were short, prices increased dramatically as products moved up trade levels; individual retailers reported average mark-ups of 32–900% (n=12) between their buying and selling prices. Few fishers were, however, willing to provide information on the prices of their catches, unless they were also involved in the retail end of the trade, making it difficult to investigate the changes in price

between collection and retail. The retail location further affected the prices of echinoderm curios; prices were generally higher along the Caribbean coast of Mexico than on the Pacific side. Prices also varied among species, possibly as a function of the location where particular species were most frequently sold. *Oreaster* sea stars, sold almost exclusively along the Caribbean coast, tended to yield the highest retail prices (Table 5). Smaller-sized individuals of each species typically sold for lower prices than larger specimens; for example, “small” *Pisaster* sea stars were priced at an average MXP15.0 (USD1.37) (n=10) in Mexican retail shops, whereas “large” specimens of the same species averaged MXP46.5 (USD4.23) (n=12). Although most of the echinoderm products were sold separately, some were worked into larger pieces and marketed at higher prices. For instance, Pencil Urchin *Heterocentrotus mammillatus* spines were hung from shell mobiles that sold for MXP25–235 (USD2.28–21.39), depending on their size; large mobiles typically incorporated 10 to 15 spines, while small mobiles had only four to five spines. Individual spines sold for only MXP4 (USD0.36) in one Mazatlán shop.

Trade Regulation

The Comisión Nacional de Acuacultura y Pesca (CONAPESCA), a department of SAGARPA, manages Mexico’s marine fisheries. Large-scale commercial collection is permitted only for species listed on the Carta Nacional Pesquera (CNP), which has included nine sea star species (*Henricia leviuscula*, *Leptasterias hexactis*, *Linckia columbiae*, *Patiria miniata*, *Plastasterias latiradiata*, *Pisaster brevispinus*, *Pisaster giganteus*, *Pisaster ochraceus*, and *Pycnopodia helianthoides*) and *Strongylocentrotus* sea urchins since 15 March 2004 and 28 August 2000, respectively. Species on the CNP can be collected and traded commercially, provided that fishers obtain the appropriate permits from CONAPESCA. No specific regulations are in place for the sea stars listed on the CNP. However, *NOM-007-PESC-1993* (Diario Oficial de la Federación, 21 December 1993) specifies permitted fishing gear, minimum size limit, and approved areas for collection of sea urchins *Strongylocentrotus purpuratus* and *S. franciscanus*. In addition, *NOM-009-PESC-1993* (Diario Oficial de la Federación, 4 March 1994) provides prohibited zones and closed fishing seasons for these species. To collect species that are not listed on the CNP, prospective fishers are required to obtain exploratory research (or *fomento*) permits, which allow fishers to take small numbers of these species as long as they report back about their productivity rates. CONAPESCA, in conjunction with the National Fisheries Institute, uses the catch and effort data from the *fomento* permitting system to determine whether or not particular species should be listed on the CNP. All sand dollars and heart urchins remain unlisted, making the large-scale commercial collection of these species illegal and violators officially subject to imprisonment and/or fines.



K. LUNN / PROJECT SEAHORSE

SEA STARS AND SEA URCHINS

WERE SEEN TO DOMINATE THE CURIO TRADE IN ECHINODERMS IN MEXICO’S MAINTOURIST CENTRES DURING THE COURSE OF THE STUDY, WHILE SAND DOLLARS AND HEART URCHINS WERE LESS FREQUENTLY AVAILABLE FOR SALE. OCHRE SEA STARS *PISASTER OCHRACEUS*, PURPLE SEA URCHINS *ECHINOMETRA VANBRUNTI*, AND CUSHION SEA STARS *OREASTER RETICULATUS* WERE THE SPECIES MOST FREQUENTLY COLLECTED. ECHINODERM SPECIES WERE SOLD EITHER INDIVIDUALLY OR AS PART OF OTHER SHELL-CRAFTS IN MEXICAN SOUVENIR STORES (E.G. SHELL MOBILES, NECKLACES, RELIGIOUS ICONS, AND CANDLE HOLDERS (AS ILLUSTRATED)). NINETY PER CENT OF THE SEA STARS THOUGHT TO BE COLLECTED FOR THE CURIO TRADE WERE OF THE GENUS *PISASTER*.

The nation's environmental protection agency, Procuraduría Federal de Protección al Ambiente (PROFEPA), further enforces restrictions that affect the trade in certain Mexican echinoderms. Under the authority of SEMARNAT, PROFEPA is charged with regulating the trade in species included in Mexico's *Red List of Threatened Species* (NOM-059) and enforcing fisheries restrictions inside the country's national parks. None of the echinoderm species exploited for the curio trade were included on Mexico's *Red List*; among echinoderms, only one sea urchin *Strongylocentrotus franciscanus* and one sea cucumber *Isostichopus fuscus* have been listed. Retailers in Acapulco, Cancún, Isla Cozumel, Ixtapa, Playa del Carmen, and Zihuatanejo reported that PROFEPA or perhaps other municipal-level officers had confiscated echinoderm curios from their shops, although it was not clear from CONAPESCA whether this was justifiable based on the current legislation. Retailers north of Zihuatanejo never mentioned the existence of trade restrictions for sea stars, despite officially needing *fomento* permits at the time data for this study were being collected in the area. Sea urchin, sand dollar, and heart urchin curios were traded freely in every area visited, in spite of fishing restrictions.

DISCUSSION

Large numbers of echinoderms—mainly sea stars and sea urchins—are collected from Mexico's coastal waters to be sold as curios on the domestic and foreign markets. In this study, carried out in 2004, 22 echinoderm species were found in the Mexican curio trade, although some identified species (e.g. *Echinus esculentus*, *Heterocentrotus mammillatus*) and likely the three unidentified species, were gathered from foreign waters. Mexican echinoderms taken for the curio trade appeared to be collected mainly by hand from nearshore, shallow-water habitats, rather than taken as bycatch by non-selective fishing gear (e.g. shrimp trawls). Trawl nets are unlikely to collect *Echinometra vanbrunti* (see Brusca, 1980; Kerstitch, 1989) and *Pisaster ochraceus* (see Lambert, 2000) as these species are restricted to rocky intertidal areas that would damage the gear. *Oreaster reticulatus*, commonly found in seagrass and sandy bottom areas (Scheibling, 1980a, b; Guzmán and Guevara, 2002), could, however, have been collected incidentally by trawlers operating among these habitat types, as was reported by one retail respondent in Playa del Carmen. Sand dollars and heart urchins were less frequently observed in the Mexican curio trade and respondents provided minimal information about their collection or trade.

Fishers' estimates of echinoderm landings were as much as 20 times greater than retailers' estimates of curio trade volumes for echinoderms in the areas surveyed. Together, Mexican fishers are estimated to have collected 880 000 sea stars and 48 000 sea urchins from the country's coastal zones. Retailers in the survey area reported selling approximately 40 000 sea stars and 8600 sea urchins in their shops. These discrepancies between fish-

ers' and retailers' estimates of the magnitude of the trade can likely be attributed to substantial exports, although could also stem (in part) from the limited spatial area covered in this study and/or uncertainty in respondents' estimates of trade volumes. US curio companies' imports of dried Mexican sea stars were estimated at over 350 000 individuals/year between 1997 and 2002. Mexican exports to other countries could also have contributed to the difference between these two estimates, although Customs records were not specific enough to gauge the importance of other such trade routes. Sea star fishers reported selling curios to buyers in 10 Mexican and two foreign cities. During this preliminary study, retailers in only five of the 10 trade nodes described by Mexican fishers were surveyed, so retail sales could have, in fact, been double the volumes estimated in this study. In addition, fishers' and retail respondents' estimates of trade volumes undoubtedly included some degree of error and uncertainty, particularly as it was only possible to estimate the total annual collection and sale from small numbers of interviews.

Assessing the impact of the curio trade will require further investigation into the current size, productivity, resilience, and density dependence of wild populations and the spatial patterns of their exploitation. Although few population assessments of Mexican echinoderms have been published in the primary literature, field studies throughout central America have shown species used as curios living at high densities: (1) *Pisaster ochraceus* sea stars live at average densities of 15–25 individuals/100 m² in the rocky intertidal zones (5–20 m deep) of Mexico's Baja California (E. Sanchez, Centro Regional de Investigación Pesquera, unpublished data); (2) *Oreaster reticulatus* at 0.57–20.00 individuals/100 m² in the Grenadines (Scheibling, 1980a), the US Virgin Islands (Scheibling, 1980b), Panama (Guzmán and Guevara, 2002), and Venezuela (Martin *et al.*, 2001); and (3) *Echinometra vanbrunti* at 25 individuals/100 m² in Bahía de Loreto, Mexico (Quinones *et al.*, 2000). In the absence of detailed habitat maps, these density data are insufficient for estimating the total numbers of these species in Mexican waters. It has, however, been reported that *Oreaster reticulatus* might be under threat from the curio trade in certain parts of the Caribbean; for example, "*Oreaster reticulatus* populations in the Caribbean have been devastated" as a result of curio fisheries (R.E. Scheibling, Dalhousie University, pers. comm. in Sloan, 1984). Trade participants were, unfortunately, unable to clarify the effects of exploitation on source populations, often giving inconsistent information about the changes in echinoderm supply and demand through time.

Sea stars and sea urchins play critical ecological roles within many nearshore communities, so their over-exploitation could have negative implications for associated species. In temperate intertidal areas, *Pisaster ochraceus* sea stars are considered keystone predators, influencing the structure of mussel and other prey communities (see Navarrete and Menge, 1996; Palumbi and Freed,



CURIO SHOP IN MANZANILLO. THE TOTAL NUMBER OF SEA STARS AND SEA URCHINS ON SALE PER YEAR IN THE WHOLE SURVEY AREA IN MEXICO WAS ESTIMATED AT SOME 40 000 AND 8600, RESPECTIVELY.

PHOTOGRAPHS: K. LUNN / PROJECT SEAHORSE

SHELLS AND ECHINODERMS FASHIONED INTO ORNAMENTS, CURIO SHOP IN MAZATLÁN (LEFT); SELECTION OF ECHINODERMS AND SHELLS (RIGHT).



2004). Throughout the tropical Caribbean, *Oreaster reticulatus* sea stars function as deposit-feeders, involved in the bioturbation of sandy-bottom, subtidal habitats (Scheibling, 1982). Sea urchins are considered “enormously important” herbivores (Sloan, 1984), with their extraction leading to increases in the growth of coralline turf and, in some cases, macroalgae (e.g. Ayling, 1981; Andrew and Choat, 1982; Leinaas and Christie, 1996; Shears and Babcock, 2002). Unmonitored collection of sea stars and sea urchins for the curio trade could have community- as well as species- and population-level impacts.

RECOMMENDATIONS

At present, the authors see no reason for resource managers to intervene further in the Mexican echinoderm trade. As is so often the case with conservation assessments of resource exploitation, inferences are having to be drawn, and recommendations based, on a single sampling period and with minimal data on effort. In this case study, no concrete evidence has been found for or against a conservation crisis. The trade’s apparent lack of economic importance, however, means both that direct pressures will probably remain low and few resources will likely be available for active fisheries or trade control. It therefore serves no great purpose to propose complicated monitoring or management measures at this time. However, CONAPESCA should be encouraged to continue to review the data gathered for species listed on the country’s CNP and being monitored through *fomento* permits, and to enforce existing bans against the commercial exploitation of unlisted echinoderm species. Ongoing *de facto* tolerance of illegal trade sends a mixed message to those involved in such fisheries and trades.

This paper is meant to serve as an alert to researchers, resource managers, and stakeholders about the overall scale of exploitation in Mexican echinoderms. Interested and knowledgeable parties are encouraged to contact CONAPESCA with information as it is collected. The authors’ intention with such feedback and dialogue is to engage stakeholders as partners in resource monitoring rather than provoking an adversarial response. It would also be useful if the trade were reassessed for comparative purposes in a few years’ time, in order to begin developing a temporal map of this exploitation. In the meantime, CONAPESCA and PROFEPA may want to consider what changes in trade dynamics might trigger a more energetic conservation response from management agencies.

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THE TRAFFIC BULLETIN SEIZURES AND PROSECUTIONS SECTION IS SPONSORED BY THE FORESTRY BUREAU, COUNCIL OF AGRICULTURE, TAIWAN: COMMITTED TO SUPPORTING CITES ENFORCEMENT

The cases reported below represent a selection of recent seizures and prosecutions that have taken place around the world. The sources of this information are cited at the end of each country section. The CITES Appendix-listing for each species is placed in parentheses, where appropriate.

EUROPE

FRANCE

On 12 March 2008, 215 hunting trophies of protected animals were seized from a taxidermist's premises on the outskirts of Paris by Customs agents of the Blanc-Mesnil internal surveillance squad, in close collaboration with the Office National de la Chasse et de la Faune Sauvage (French Environmental Inspectorate). Items seized included teeth, skins, feet and tusks of elephant (CITES I); skins of Cheetah *Acinonyx jubatus* (I) Leopard *Panthera pardus* (I) Brown Bear *Ursus arctos* (I/II) and Polar Bear *U. maritimus* (II); stuffed Tigers *Panthera tigris* (I) and Lions *P. leo* (I) (two of each); a whole Leopard; 33 baboon *Papio* skulls; 68 Hippopotamus *Hippopotamus amphibius* (II) teeth; two skins each of Nile Monitor *Varanus niloticus* (II) and Hartmann's Mountain Zebra *Equus zebra hartmannae* (II).

On 21 March, the same officials discovered 137 hunting trophies of protected animals at the premises of another taxidermist, including some rare bird species which were being kept in freezers.

The taxidermists were either unable to produce the requisite CITES permits or produced inapplicable or false documents. Both individuals faced fines.

Customs, France

GERMANY

In early May 2008, Customs officers in Cologne seized two live Chinese Alligators *Alligator sinensis* (CITES I) (60 cm in length), following information received from officials at Frankfurt Airport. An import permit could not be supplied and two people were arrested.

The Chinese Alligator is classified by IUCN as Critically Endangered. It is distributed in the lower reaches of the Yangtze River in the southern part of Anhui Province and in some parts of the neighbouring provinces of Zhejiang and Jiangsu.

Pressemitteilung Zollfahndungsamt Essen, No. 9, 13 May 2008; Crocodile Specialist Group 1996. Alligator sinensis. In: IUCN 2008. 2008 IUCN Red List of Threatened Species. www.iucnredlist.org. Viewed 14 October 2008.

RUSSIA

In May 2008, at Primorsky regional court, Alexei Razumenko and Ji Wenbin were each sentenced to eight years in gaol and fined RUB200 000 (USD8500) after being found guilty of attempting to smuggle some 900 bear

CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora)

establishes international controls over trade in wild plants and animals, or related products, of species that have been, or may be, threatened due to excessive commercial exploitation. Parties have their own legislative vehicle by which to meet their obligations under CITES. The species covered by CITES are listed in three Appendices, according to the degree of protection they need:

APPENDIX I

includes species threatened with extinction which are or may be threatened by trade. Trade in specimens of these species is permitted only in exceptional circumstances. An export permit from the country of origin (or a re-export certificate from other exporting countries) and an import permit from the country of importation are required.

APPENDIX II includes species not necessarily yet threatened, but which could become so if trade is not strictly controlled. Species are also included in Appendix II if they are difficult to distinguish from other species in Appendix II, in order to make it more difficult for illegal trade to take place through misidentification or mislabelling. An export permit from the country of origin (or a re-export certificate from other exporting countries) is required, but not an import permit.

APPENDIX III includes species that any Party identifies as being subject to regulation within its jurisdiction for the purpose of preventing or restricting exploitation and as needing the co-operation of other Parties in the control of trade. Imports require a certificate of origin and, if the importation is from the State that has included the species in Appendix III, an export permit is required.

paws and other wildlife from the Russian Far East to China during 2007, in what has been described as the biggest wildlife seizure ever made in Primorsky Province in the Russian Far East (see *TRAFFIC Bulletin* 21(3):115). Two Chinese accomplices each received gaol sentences of seven years and six months, whilst two Russian accomplices were each sentenced to four years and six months.

Arrests were made in August 2007 following a six-month operation by Customs and the Frontier Service in Primorsky Province which uncovered the entire smuggling chain, from source to destination. The haul consisted of around 900 paws of Brown Bear *Ursus arctos* (CITES I/II) and Asiatic Black Bear *Ursus thibetanus* (I), four Amur Tiger *Panthera tigris* (I) skins, more than 60 kg of Tiger bones and 531 Saiga *Saiga tatarica* (II) horns.

"This latest prosecution marks the start of wildlife crime being treated with the seriousness it deserves" commented Natalia Pervushina, co-ordinator of TRAFFIC's Russian Far East programme, adding that the trial had created a great deal of public interest because of the exceptionally high number of threatened wildlife parts involved.

"Unfortunately there was no follow-up to prosecute those responsible for the illegal killing of Tigers and bears to supply the smugglers," commented Gennady Zhrebkin, a law enforcement advisor from the Amur branch of WWF Russia.

The case first came to light in January 2007 when a car containing eight bags of bear paws, three Tiger skins, several horns and other animal parts was stopped by police on the road to Khorol village, Russia. The car was being driven by the person said to be managing logistics from the Russian side. After close monitoring of a second individual by police, in March 2007, sledges with a cargo of 120 bear paws were intercepted as they were being transported across the frozen Khanka Lake into China, but the smugglers escaped on snow mobiles.

Following the two seizures, Ji assembled a large shipment of Tiger skin and bones, and bear paws, and bribed local policemen to ensure the shipment's smooth passage to Khanka Lake where Razumenko had paid a villager to turn off the border tracking system.

However, enforcement authorities were ready, and the smugglers were arrested.

The sentences were handed out as punishment for the August shipment only.

On 3 August 2008, Customs officials at Vladivostok airport seized eight plastic containers containing roots (510 g) of wild ginseng *Panax* (CITES II) from the luggage of six South Korean citizens. The roots were sliced and dried, and some had been preserved in honey. The suspects were passing through Customs, bound for Seoul. The person who sold the ginseng to the South Koreans was identified following interrogation of the suspects and more than 100 wild ginseng roots, 16 musk *Moschus* (I/II) pods and one bear (I/II) gall bladder were subsequently confiscated from his house. This individual is now under investigation.

WWF Russia and TRAFFIC Europe-Russia have worked closely with Customs officials and over the last four years have assisted in the training of Customs officers on CITES issues and capacity building with regard to the control of wildlife trade, an arrangement that is being developed on a permanent basis. This training and increased collaboration has resulted in a growing number of seizures in recent years.

WWF Russia 30 May 2008; www.traffic.org/home/2008/5/30/tough-penalties-for-organized-smuggling-gang.html; Vladivostok (Russia), 12 February 2008; www.vladnews.ru/2288/Zakon/Medvezhja_tropa_perekryta; TRAFFIC Europe-Russia press release, 11 August 2008

SWITZERLAND

Investigators have seized about 300 wildlife items, including rhinoceros teeth, tortoise shells, snake skins and a crocodile [species not reported] from a collector in what is described as the biggest haul of illegal wild animal trophies in western Switzerland.

The collector is said to have acquired about 600 trophies; about 200 items were apparently imported illegally and 350 were later sold over the internet and by post.

www.swissinfo.ch/eng/news_digest/Record_number_of_nimal_trophies_confiscated.html?siteSect=104&sid=8888787&cKey=1206295606000&ty=nd, 23 March 2008

UK

In January 2008, at the port of Felixstowe, a detailed examination by UK Border Agency officers of a sea container holding traditional medicinal products from China revealed 19 180 items containing *Dendrobium* orchids (CITES I/II). No valid CITES export permit accompanied the shipment and the goods were seized.

In March 2008, a container of traditional medicinal products from Pakistan was seized after it was found to hold 396 items containing ingredients from the following species: Costus root *Saussurea costus* (I), orchid spp. (I/II), musk *Moschus* (I/II) and spiny-tailed lizards *Uromastix* spp. (II). No CITES export permit accompanied the shipment.

In June 2008, UK Border Agency CITES Team officers at Heathrow Airport seized a shipment of 110 live Leopard Tortoises *Geochelone pardalis* (CITES II) from Zambia because they did not match the size stated on the CITES export permit.

In the same month, a shipment of 98 live Sahara Mastigure *Uromastix geyri* (II) hatchlings imported into Heathrow from Ghana was seized as the CITES export permit stated that the specimens were a minimum of 18 months old. In addition, 100 Bell's Hinged Tortoises *Kinixys belliana* (II) were seized as the specimens displayed the characteristics of being wild taken and not ranches as shown on the CITES export permit.

On 5 August 2008, at Snaresbrook Crown Court, Heng Low, of Ilford, Essex, pleaded guilty to two charges of selling Asian Arowana *Scleropages formosus* (CITES I). He was fined UKP2000 (USD3680) and ordered to pay UKP800 costs. Mr Low had licences permitting importation of the fish but these did not allow sale.

These offences were uncovered after enquiries by HM Revenue and Customs officers showed that Low had imported a large number of fish from Singapore over two years, which amounted to a commercial operation. In October 2007 police officers from Redbridge Borough, assisted by the Metropolitan Police Wildlife Crime Unit, and the national Wildlife Crime Unit, executed a search warrant at Low's home address where they found tanks holding some 20 fish. Examination of computers that were seized, revealed over 600 e-mails between Low and customers; there were also advertisements offering the fish for sale.

In August 2008, at the port of Felixstowe, examination of a container of wooden items from Taiwan by UK Border Agency officers revealed 39 998 wooden tassels thought to be Ramin *Gonystylus* spp. (CITES II). Scientific comparisons were undertaken in the laboratory of the UK CITES Scientific Authority for flora at the Royal Botanic Gardens, Kew, which confirmed the initial identification. No valid CITES export permit accompanied the shipment and the items were seized.

www.operationcharm.org/news/20080811.jsp,
11 August 2008; UK Border Agency CITES Team

AFRICA

CAMEROON

In April 2008, two wildlife dealers were arrested in Douala, Littoral Province, after being found trying to sell Leopard *Panthera pardus* (CITES I) skins, and trophies derived from other species. The arrest was carried out by the Provincial Delegation of Forestry and Wildlife in collaboration with the Forces of Law and Order, the Judiciary and The Last Great Ape Organization (LAGA), and was part of a nationwide programme launched in 2003 by the Government of Cameroon, with technical assistance from LAGA, which aims at the effective enforcement of the country's 1994 wildlife law. The enforcement programme targets wealthy dealers rather than villagers.

Game rangers in Yokadouma, East Province, recently confiscated 13 African Elephant *Loxodonta africana* (CITES I) tusks concealed in bags on a lorry carrying timber. The tusks had originated from elephants in Lobeke National Park. The driver of the lorry, who was detained, gave information that led to the arrest of another suspect who was waiting to collect the tusks in Bertoua, East Province. A third person is being sought.

On 5 September 2008, a Douala-based businessman was fined USD4989 and sentenced to 45 days in gaol for poaching and trafficking in 22 ivory tusks and 11 elephant tails. Mahama Sani was found guilty on charges pressed by Cameroon's Forestry and Wildlife Ministry at Yokadouma. Sani confessed during interrogation that he bought the tusks from poachers in Libongo, on the outskirts of Lobeke National Park. He had spent more than two months in the town gathering tusks, which he intended to supply to a Nigerian businessman in Douala. The tusks were then to be transported to other West African countries. The whereabouts of the Nigerian is not known.

Rangers have been trained and reinforced, and regular joint patrols are being organized with rangers from the Central African Republic and Congo Brazzaville under the auspices of a trans-boundary conservation initiative. Agreements have also been reached with logging companies and sport hunting outfits in a concerted move to fight poaching.

Cameroon Tribune, 17 April 2008: www.cameroon-tribune.net/article.php?lang=Fr&oled=j28072008&idart=10327&olarch=j17042008; *The Post (Buea)*, 18 April 2008, cited in <http://allafrica.com/stories/200804180663.html>; www.africanews.com/site/list_messages/20378, 8 September 2008

KENYA

Ivory seizures at Jomo Kenyatta International Airport (January to July 2008):

24 January: Customs officials seized an assortment of ivory products weighing 83.5 kg destined for Asian markets.

14 May: police arrested two persons who were in possession of elephant tusk pieces weighing 110.5 kg, destined for China.

13 July: Kenya Airports Authority officers recovered two pieces of raw ivory weighing 0.5 kg. The suspect was attempting to smuggle the ivory to China through Doha.

16 July: three Chinese nationals travelling to Harare, Zimbabwe, via Nairobi, were arraigned in court following their arrest by Kenya Wildlife Service officials, in collaboration with the Kenya Airport Authority. They had been found in possession of 2.2 kg of processed ivory without CITES permits.

Kenya Wildlife Service, 16 July 2008: www.kws.org/ivory-seizure.html

SUDAN

In August 2008, the Interior Ministry of the Sudanese Government is reported to have announced the discovery of a major illicit ivory trade, following the seizure in the country of 470 ivory pieces and the arrest of a number of suspects. Items seized included 309 ivory sculptures and 147 bracelets.

www.afrol.com/printable_article/30180, 7 August 2008

ZAMBIA

In March 2008, the Drug Enforcement Commission (DEC) arrested a businesswoman from Matero Township in Lusaka for illegally selling ivory belonging to the equivalent of eight elephants. She was handed over to the Zambia Wildlife Authority for prosecution.

The Times of Zambia, 17 March 2008

ZIMBABWE

On 30 April 2008, Emmerson Buruvuru of Harare was convicted of illegally possessing 1.2 kg of ivory in contravention of the *Parks and Wildlife Act* and was fined ZWD25 billion. Buruvuru, who was convicted on his own guilty plea, was initially sentenced to six months in gaol; this was later changed to three months, suspended for three years, on condition of payment of the fine.

Buruvuru was arrested on 10 April after a policeman on patrol in Harare found him acting suspiciously while carrying a small bag which was found to contain the ivory.

The Herald (Harare), 2 May 2008, cited in <http://allafrica.com/stories/200805020070.html>

ASIA

EAST ASIA
CHINA

On 29 December 2007, officials from Manzhouli Inspection and Quarantine Bureau, on the border with Russia, seized 100 g of musk *Moschus* (CITES I/II) and five Sables *Martes zibellina* from a Russian driver while undertaking a routine inspection.

On 1 February 2008, anti-smuggling officers searching a vessel in Shantou, Guangdong

Province, seized 5776 monitor lizards *Varanus* (CITES I/II), 260 Malaysian Box Turtles *Cuora amboinensis*, and 370 Giant Asian Pond Turtles *Heosemys grandis* (the latter two both CITES II species and all nationally protected), as well as 1170 cobras. The animals were reported to have been smuggled from South-east Asia. Three suspects were detained and several are being sought. Most of the animals had perished.

In March 2008, Customs officials at Dalian Airport seized 37 raw musk *Moschus* (CITES I/II) pods from the luggage of a suspect from South Korea.

In March 2008, Xinjiang police apprehended six people involved in the poaching of and dealing in Snow Leopards *Uncia uncia* (CITES I). From November 2007 to January 2008, the suspects used wire loops to poach four Snow Leopards, five Sables *Martes zibellina* and two red deer.

On 3 March 2008, the Ruili Customs of Yunnan Province seized 19 Burmese Eyed Turtles *Morenia ocellata* (CITES I), one Elongated Tortoise *Indotestudo elongata* (II) and 177 Indian Flapshell Turtles *Lissemys punctata* (II), which had been smuggled from Myanmar. Two suspects were detained.

On 19 March 2008, Guangxi forestry police seized 790 kg of elephant ivory (CITES I), including 139 whole tusks, from a lorry on the road between Pingxiang to Nanning. The longest tusk was 1.83 m and the diameter of the thickest one was 20 cm. The confiscated ivory was transferred to the provincial wildlife rescue centre and the case is under investigation.

Two people were recently sentenced to 10 years in gaol and fined CNY6000 (USD880) at Xin'an Court, Guangxi Province, for illegally transporting 64 bear paws from Xin'an to Quanzhou, Fujian Province. Sixty two paws were from Asiatic Black Bear *Ursus thibetanus* (CITES I and on China's second-class protection list) and the remaining two were from Malayan Sun Bears *Helarctos malayanus* (CITES I and on China's first-class protection list).

In April 2008, a sailor was sentenced in Hongkou Court, Shanghai, to eight months' imprisonment and fined CNY10 000 (USD1466) for illegally trading in a Clouded Leopard *Neofelis nebulosa* (CITES I) skin. He had purchased the skin in Bengal, India, and brought it back to China where, in January 2008, he sold it to a citizen of Hong Kong. The item was seized by Shanghai police.

On 2 April 2008, 20 Rhesus Macaques *Macaca mulatta* (CITES II) were seized by police in Rongshui county, Guangxi Province. The suspect claimed that the macaques were purchased in areas of Rongshui and that he planned to sell them in Guilin city, Guangxi Province.

The Rhesus Macaque is on China's second-class protected wild animal list which means that collection and trade in this species is prohibited unless accompanied by a permit.

On 9 May 2008, Customs officials at Kunming Airport, Yunnan Province, discovered 57 elephant ivory (CITES I) items (carved figures, necklaces, rings, chopsticks) during examination of belongings of a Chinese national arriving from Bangkok. The items (3.4 kg) had been purchased in Africa [country not reported].

On 13 May 2008, officers at Erlian frontier checkpoint, on the border with Mongolia, seized the pelt of a Tiger *Panthera tigris* (CITES I) from under the seat of a car they were searching. The case was transferred to the Customs anti-smuggling department for investigation.

On 23 May 2008, border soldiers in Xishuangbanna, Yunnan Province, seized 19 wildlife products, including Tiger *Panthera tigris* (CITES I) bone, red deer heart and horn, Gaur *Bos gaurus* (I) horn, and bear (I/II) gall bladder. Two suspects from Myanmar claimed that they had purchased the products from an agriculture market east of Danbang, Myanmar.

On 4 July 2008, forest police of Manzhouli, Inner Mongolia, seized 190 bear (CITES I/II) paws and 14 Moose *Alces alces* noses, which were to be sent to Harbin, Heilongjiang Province, by train. The case is under investigation.

On 13 July 2008, a Chinese passenger returning from Ethiopia via Hong Kong, attempted to carry 2.255 kg of ivory carvings into Baiyun Airport, Guangzhou Province. The ivory was wrapped in cloth and hidden in three wood-carvings and was revealed during X-ray examination.

On 14 August, Luohu Customs officials at the immigration control point between Hong Kong and mainland China, in Shenzhen City, Guangdong Province, seized 129 Saiga *Saiga tatarica* (CITES II) horn cores (7.6 kg), which were being smuggled by a Hong Kong passenger arriving from Hong Kong.

www.nmg.xinhuanet.com/xwzx/2008-01/07/content_12147011.htm, *Xinhuanet-Inner Mongolia Channel*, 7 January 2008; *China Daily*, 22 March 2008; www.china.org.cn/environment/news/2008-03/22/content_13290738.htm; www.ln.xinhuanet.com/dalian/2008-03/20/content_12743560.htm; <http://news.sina.com.cn/c/2008-03-11/180415125275.shtml>, *Xinhua*, 11 March 2008; www.yndaily.com.cn/html/20080314/news_98_142841.html; <http://news.sina.com.cn/lp/2008-03-20/021815184096.shtml>; <http://news.gxnews.com.cn/static-pages/20080320/newgx47e1ac56-1421248.shtml>; www.gx.xinhuanet.com/newscenter/2008-03/20/content_12743719.htm; <http://news.sohu.com/20080319/n255795243.shtml>; www.chinanews.com.cn/sh/news/2008/04-03/1211183.shtml; www.cwca.org.cn/Article/ShowArticle.asp?ArticleID=9996; *The Southern Daily*; <http://news.nmrb.com/hynews/ShowArticle.asp?ArticleID=85717>; www.cwca.org.cn/Article/ShowArticle.asp?ArticleID=10604; www.cwca.org.cn/Article/ShowArticle.asp?ArticleID=11586; *The Southern Daily*; <http://news.sohu.com/20080723/n258313098.shtml>; http://news.sznews.com/content/2008-08/15/content_3187372.htm

85717; www.cwca.org.cn/Article/ShowArticle.asp?ArticleID=10604; www.cwca.org.cn/Article/ShowArticle.asp?ArticleID=11586; *The Southern Daily*; <http://news.sohu.com/20080723/n258313098.shtml>; http://news.sznews.com/content/2008-08/15/content_3187372.htm

Seizures in China involving pangolins:

All pangolin *Manis* species are included in CITES Appendix II. To help countries further in their efforts to stop the illegal trade, and to ensure that the trade will not cause the species to become extinct, the Conference of the Parties have adopted a zero export quota for the four Asian pangolin species (Indian Pangolin *Manis crassicaudata*, Philippine Pangolin *M. culionensis*, Chinese Pangolin *M. pentadactyla* and Malayan Pangolin *M. javanica*) for trade in wild specimens for commercial purposes (see pages 13–14).

Recently, forest police from Lianghe County, Yunnan Province, seized 40 kg of pangolin scales and 49 kg of Asian Elephant *Elephas maximus* (CITES I) skins from an agricultural vehicle travelling from Lianghe to Baoshan. The suspect was detained and the case is under investigation.

In March 2008, 91 pangolins were seized in Qujing during a routine check; 62 specimens were dead. A number of suspects were detained. The live pangolins were transferred to Yunnan Wildlife Rescue Centre.

On 3 April 2008, traffic police seized 18 pangolins from a coach travelling from Fangcheng Gang, Guangxi Province, to Jiangxi Province. The pangolins were sent to the police station at Guilin National Forestry Park.

On 2 May 2008, Customs officials at Baiyun Airport, Guangzhou Province, seized 74 kg of ivory (I), 4 kg pangolin scales and two African Dwarf Crocodiles *Osteolaemus tetraspis* (I) from Chinese passengers arriving from Nairobi. One person was carrying 64.5 kg of ivory reported to have been purchased in Kinshasa, Democratic Republic of Congo.

On 12 May 2008, Zhengyi Net, a news website of Jiangxi Province, reported that one person had been sentenced to seven years' imprisonment and fined CNY30 000 (USD4290) for illegally transporting 13 pangolins. The person was arrested by Jiangxi Security policemen on 12 November 2007 en route to Quzhou, Zhejiang Province, with two boxes of pangolins that he had collected in Yushan county, Jiangxi Province.

The following day, the 13 pangolins were sent to Jiangxi Shuguang Farming Development Limited Company for captive breeding purposes, with the approval of Jiangxi Forest Police and Jiangxi Wildlife Conservation Administration.

On 1 June 2008, Baoshan Forest Police in Yunnan Province made the biggest seizure of illegal wildlife products in recent years, confiscating 281 kg of pangolin scales and 734 kg of elephant skins.

On 17 July 2008, Simao Customs and Pu'er police seized 30 kg of pangolin scales from a coach travelling from Jinghong (near the Myanmar border) to Kunming. The case is under investigation.

On 20 July, officials at Tongle checkpoint, Shenzhen Special Economic Zone, Guangdong



IVORY HANKOS CONCEALED INSIDE WOOD CARVINGS THAT WERE SEIZED IN TAIWAN IN APRIL 2008.

TAIWAN CUSTOMS

Province, seized 11 live pangolins from a car arriving from Guangxi Province. The animals were released in the wild.

A total of 39 pangolins have been seized at this checkpoint since June 2008.

Yunnan Daily (China), 24 December 2007: www.yndaily.com/html/20071224/news_97_39210.html; http://news.qq.com/a/20080318/000431.htm; www.gx.xinhuanet.com/newscenter/2008-04/05/content_12882006.htm; www.dsb.gd.gov.cn/ruizheng/Article/ShowArticle.asp?ArticleID=8178; TRAFFIC East Asia: www.jcrb.com/200805/ca707119.htm; http://news.yninfo.com/yn/dzxw/200806/t20080605_654513.htm; http://kunming.customs.gov.cn/publish/portal174/tab20163/module4053/info119779.htm; http://news.sznews.com/content/2008-07/22/content_3125468.htm

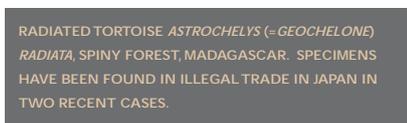
HONG KONG SPECIAL ADMINISTRATIVE REGION

On 5 May 2008, at Hong Kong International Airport, a woman from Kenya was found by Customs in possession of two ivory (CITES I) tusks (16.8 kg) and six bags of processed ivory beads (17.4 kg). She was gaoled for two months.

Hong Kong Daily News, 7 May 2008: http://hk.news.yahoo.com/article/080506/3/6bui.html

JAPAN

On 5 October 2007, at Narita Airport, Tokyo, a pet shop owner who tried to smuggle Common Marmosets *Callithrix jacchus* (CITES II) and banned from import under Japan's *Law Concerning the Prevention of Infections and Medical Care for Patients of Infections*, was gaoled for 10 months and fined JPY800 000 (USD7453).



RADIATED TORTOISE *ASTROCHELYS (=GEOCHELONE) RADIATA*, SPINY FOREST, MADAGASCAR. SPECIMENS HAVE BEEN FOUND IN ILLEGAL TRADE IN JAPAN IN TWO RECENT CASES.

TANYA PETERSEN / WWF-CANON



The suspect, who had previously faced criminal charges for wildlife trade offences, was arrested in September by Tokyo Customs and Narita Police Department officials following his arrival on a flight from Bangkok. Three juvenile marmosets were concealed in clothing in his luggage.

On 5 December 2007, officers of the Consumer and Environmental Protection Division of Tokyo Metropolitan Police Department arrested a former pet shop owner for falsifying registration cards and selling two Radiated Tortoises *Astrochelys (=Geochelone) radiata* (CITES I). The registration card is needed to trade legally in species protected under the *Law for the Conservation of Endangered Species of Wild Fauna and Flora* (LCES). The suspect created the registration cards for the tortoises from a card he already had for trade in Asian Arowana *Scleropages formosus* (CITES I) and sold them to a pet shop.

On 6 February 2008, at Maebashi District Court, the head of a company dealing in billiards products was sentenced to one year in gaol, suspended for three years, and fined JPY1 500 000 (USD14 000) for the illegal trade in ivory (CITES I). The company was fined JPY2 000 000.

Officers of the Consumer and Environmental Protection Division of Gunma Prefectural Police Department and Tomioka police station arrested the man and the head of the company's factory in October 2007 after the investigation was triggered when an advertisement for the company was seen in a magazine. The pair was found guilty of violating the *Customs Law* and *LCES*. They had purchased two kilogrammes of ivory in the USA and brought it into Japan in a suitcase via Narita Airport. They had also ordered a further two kilogrammes of ivory.

Between 2006 and 2007, 14 billiard cues were made using ivory, 12 of which are believed to have been sold. The ivory was used in the grip of the cue and for the small rods (or ferules) which are placed at the tip end.

On 12 June 2008, two people were sentenced at Tokyo District Court to gaol for, respectively, a year and ten months and a year and six months (suspended for three years), and fined JPY800 000 (USD7453) and JPY400 000.

The pair had illegally imported nine Lesser Slow Lorises *Nycticebus pygmaeus* (CITES I) and five Radiated Tortoises *Astrochelys (=Geochelone) radiata* (I) from Bangkok, Thailand, between February 2007 and November 2007. All except two lorises had been sold.

Fuji TV FNN News: www.fnn-news.com, viewed 10 September 2007; Nippon Television Network News 24, 10 September 2007: www.news24.jp/, viewed 10 September 2007; TRAFFIC East Asia; Yomiuri Shimbun, 1 November/6 December 2007; Asahi Shimbun, 6 December 2007; Nikkei Shimbun, 31 October/6 December 2007; Mainichi Shimbun, 1 November 2007; Kyodo Press, 31 October 2007; NHK News, 31 October 2007; Nikkan Sports News, 6 February 2008: www.nikkansports.com/general/fgn-tp0-20080206-317474.html, viewed 6 February 2008; www.yomiuri.co.jp/national/news/20080116i104.htm?from=navr, viewed 16 January 2008; Kyodo News (Japan), 12 June 2008

TAIWAN

On 15 February 2008, at Taoyuan International Airport, Taipei, enforcement officers seized 13 bird eggs from a couple returning from Bangkok. The authorities were acting on information alerting them that a couple was travelling to Thailand to buy eggs of CITES-listed parrots. It was known that 15 eggs were obtained in Thailand, and that two of them had broken. Each egg was carried in an individual box and placed in a specially made belt (provided by sellers) and worn by the couple. The eggs have been identified as Blue-and-yellow Macaws *Ararauna* (eight eggs) (CITES II) and *Cacatua* spp. (five eggs, CITES I or II).

The couple was arrested and the case is under investigation.

On 8 March 2008, enforcers at Taoyuan International Airport, Taipei, seized around 48 000 fertile Chinese Sturgeon *Acipenser sinensis* (CITES II) eggs. The eggs were obtained in China and had been sent to Taiwan via Kinman (an island close to China). The offender said he had sent two similar shipments before, and had sold to fish farms in Taiwan. It is reported that the eggs would need to spend a further six to seven years at a hatchery before they can be consumed.

On 28 April 2008, 102 elephant (CITES I) ivory hankos (small blocks used as seals or stamps) (5.8 kg) were seized at Taoyuan International Airport, Taipei, from a suspect arriving from Malawi via South Africa and Hong Kong. The pieces were concealed in two wood carvings.

www.ettoday.com/2008/02/16/138-2231757.htm; Liberty Times (Taiwan), 10 March 2008; http://news.epochtimes.com/b5/8/4/28/n2097875.htm

SOUTH ASIA INDIA

Emil Kucera, one of two Czech nationals convicted of illegally collecting rare insect species from Singhalila National Park in June, has been sentenced to three years' imprisonment. He was fined INR50 000 (USD1090). Petr Svacha, an entomologist, was fined INR20 000.

Kucera and Svacha were convicted under the *Indian Wildlife (Protection) Act, 1972* (WPA) and the *Biological Diversity Act, 2002* (BDA), the first time anyone has been convicted under the BDA. Svacha has already paid his fine and will be confined to India during the appeal period of four months.

About 500 live and preserved insects were seized from the pair's hotel rooms in Shrikhola, near Darjeeling. Among the collection, which has been sent to the Zoological Survey of India for identification, forest officials identified *Delias sanaca*, a butterfly listed under Schedule I of the *Indian Wildlife (Protection) Act*.

The accused had pleaded that they were collecting the insects for research purposes and that they were unaware of the laws. However, investigations revealed that Kucera, a forester, was involved in the trade of insects. They were also found to have violated other administrative procedures, as required by local laws.

On 21 July 2008, Customs officials at Chennai Airport, Tamil Nadu, conducting a routine inspection, found 231 Asian Arowanas *Scleropages formosus* (CITES I) in the possession of an Indian national returning to the country from Kuala Lumpur. The fish had been intended for a local buyer and it is believed that the suspect was used as a courier by a Chennai-based syndicate. Since no valid documentation to import the live fish could be presented, the shipment was confiscated under the *Customs Act 1962* and the suspect detained for further investigation. All the fish were returned to Malaysia.

On 2 August 2008, Customs officials at Chennai Airport, Tamil Nadu, seized 950 live Indian Star Tortoises *Geochelone elegans* (CITES II) from the baggage of a city resident bound for Bangkok via Colombo.

The suspect admitted that he had been lured by a financial bribe by an unknown person to carry the bag. He was handed over to the authorities and the case is under investigation.

Recent Leopard *Panthera pardus* (CITES I) seizures include:

22 July 2008: One skin, Almora. Two held.
27 July: Eight skins, Saharanpur. Three arrests.
28 July: One skin, Vikasnagar. One arrest.
End July: One skin, Chhattisgarh. Two arrests.
1 August: One skin, Delhi. One held.
6 August: One skin, Vikasnagar, near Dehradun. One arrest.
13 August: three skins, Dehradun, Uttarakhand. Two arrests.

*Wildlife Trust of India, 24 July/September 2008: <http://wildlifetrustofindia.org/news-archives/2008/07/24/czech-insect-collectors-remain-in-jail/>; www.wildlifeextra.com/go/news/india-insects734.html; *The Malaysian Insider*, 6 August 2008: <http://themalaysianinsider.com/index.php/malaysian-news/34-malaysian-news/2092-indian-customs-find-chappati-maker-fishy>; *The Times of India (India)*, 2 August 2008: http://timesofindia.indiatimes.com/Earth/TN_950_star_tortoises_seized/articleshow/3318785.cms; *www.indianexpress.com/story/347207.html*, 11 August 2008; *Sindh Today: www.sindhtoday.net/south-asia/11961.htm*, 14 August 2008*

NEPAL

On 8 and 10 February 2008, the anti-poaching team (APT) of Chitwan National Park arrested six poachers after receiving intelligence that the poachers were planning to hunt Great Indian Rhinoceroses *Rhinoceros unicornis* (CITES I) and Tigers *Panthera tigris* (I) in the park and in the adjoining Parsa Wildlife Reserve (PWR).

WWF Nepal has been actively engaged in efforts to control poaching in Chitwan National Park and surrounding areas by providing technical and financial support to enforcement agencies to mobilize the anti-poaching team, community based anti-poaching groups and informant networks.

Diwakar Chapagain, WWF Nepal: www.wfnepal.org



ROGER LE GUEN / WWF-CANON

EGGS OF BLUE-AND-YELLOW MACAWS *ARA ARARAUNA* WERE SEIZED IN TAIWAN IN FEBRUARY 2008.

SOUTH-EAST ASIA CAMBODIA

On 28 April 2008, authorities seized a cargo (418.5 kg) of live pythons and turtles in Battambang Province that was being smuggled from Thailand to Viet Nam. The animals included 11 Reticulated Pythons *Python reticulatus* (CITES II), 13 Burmese Pythons *Python molurus* (III) and 257 turtles, including Asian box turtles *Cuora* spp., Malayan Snail-eating Turtles *Malayemys subtrijuga*, Black Marsh Turtles *Siebenrockiella crassicollis*, and 12 Yellow-headed Temple Turtles *Hieremys annandalii* (all CITES II).

Most of the animals, which had been illegally collected in Cambodia, were released into their natural habitats, including Tonle Sap lake.

Yellow-headed Temple Turtles, which are depicted on the walls of the Angkor temples, are of special cultural significance in Cambodian folklore and legend.

<http://afp.google.com/article/ALeqM5hF2MtvP6dDNTdR0j-C2779CzIpA>, 1 May 2008

INDONESIA

On 3 March 2008, police intercepted a shipment of 3500 eggs of Green Turtles *Chelonia mydas* (CITES I) which were being smuggled by motorboat on a river in Derawan Island, East Kalimantan.

On 10 March 2008, Customs officials at Soekarno-Hatta International Airport seized a shipment of 23 000 dried seahorses *Hippocampus* (CITES II) destined for South Korea.

On 3 June 2008, police officers on an anti-crime operation, boarded the vessel of fisher-

man Zulkarnain Ajib of Tanjong Balai, and found sacks of pangolin scales and reptile skins.

Zulkarnain pleaded guilty to the illegal possession of 199.9 kg of Malayan Pangolin *Manis javanica* (CITES II and protected by the *Wildlife Protection Act 1972*), 100 pieces of Reticulated Python *Python reticulatus* (CITES II) skins, 37 pieces of Sumatran Short-tailed Python *Python curtus* (CITES II) skins and 100 pieces of Water Monitor *Varanus salvator* (CITES II) skins. He was sentenced to 32 months' imprisonment.

On 30 July 2008, officers from the Indonesian National Police Criminal Investigation Bureau raided the warehouse of a suspected illegal wildlife trader in the city of Palembang in south Sumatra, and uncovered some 14 t of frozen Malayan Pangolins *Manis javanica* (CITES II) and about 50 kg of scales (see page 13), ready for export to China via seaports in Sumatra and Java. Fourteen people were arrested.

This is the largest seizure of pangolins ever made in Indonesia. The species is fully protected by Indonesian law (and listed in CITES Appendix II, but with a zero quota). Police are linking the arrests to two seizures earlier this year by Customs authorities in Viet Nam of more than 23 t of frozen pangolins known to have originated in Indonesia.

In August, police in Palembang destroyed the pangolin meat and scales in the presence of high-ranking police officers and other officials.

South Sumatra police Chief Inspector Gen. Ito Sumardi D.S. said suspects involved in the case would be charged; three had so far been named. Preliminary investigations reveal that foreign financiers were likely involved in the trade. "We are also questioning a number of individuals from the police who are believed to be involved," Sumardi said.

On 26 August 2008, a raid by authorities in Sumatra has resulted in the arrest of four people found to be selling Tiger (CITES I) parts. Officials of the Department of Forestry, Directorate-General for Forest Protection and Nature Conservation (PHKA), working in conjunction with the Wildlife Conservation Society's Wildlife Crime Unit, conducted the raid as part of the recent stepped-up efforts to control illegal wildlife trade in Indonesia. Items seized included Tiger bones, skins, teeth, and claws, along with other protected wildlife. Ten people have now been arrested for trading in Tiger parts in the past three months. All cases are now being prosecuted by the authorities.

In Indonesia, Tigers are now only found on the island of Sumatra, where the species is considered a distinct form *Panthera tigris sumatrae*. The population here is reported to be probably fewer than 1000.

www.bernama.com.my/bernama/state_news/news.php?id=338208; www.bernama.com.my/bernama/state_news/news.php?id=338208&cat=ct>&cat=ct, 9 June 2008; www.asean-wen.org/uplodimg/new/actu/Mar08%20newsletter.html; Joint press release, TRAFFIC and Wildlife Conservation Society, Kuala Lumpur, Malaysia, 4 August 2008: www.thejakartapost.com/news/2008/08/30/police-destroy-138-tons-rare-anteater-meat-south-sumatra.html, 30 August 2008; *Wildlife Conservation Society News Release*, www.wcs.org, 2 September 2008



OVER 100 HAWKSBILL TURTLES PERISHED ON BOARD A VIETNAMESE FISHING VESSEL IN THE SOUTH CHINA SEA IN AUGUST 2008.

MALAYSIA

Pangolin seizures:

On 15 April 2008, Malaysian Wildlife and National Parks Department officers raided a storehouse in Kampung Kubang Menerung and rescued 98 live pangolins *Manis* (CITES II). Three arrests were made.

On 3 June 2008, marine police confiscated six sacks of pangolin scales, 137 python skins and 100 monitor lizard *Varanus* (I/II) skin pieces near Port Klang; there were seven arrests.

On 8 September 2008, marine police officials in Muar seized 16 pangolins on land off Sungai Sarang Buaya and arrested eight men who were waiting for a boat to arrive from the island of Bengkalis, Sumatra. The group's activities had been monitored by police as they are believed to have been involved in the smuggling of pangolins into the country from Bengkalis for several months.

www.asean-wen.org/uplodimg/new/actu/jul08%20news%20letter.html; <http://thestar.com.my/news/story.asp?file=/2008/9/9/nation/20080909115939&sec=nation>

PHILIPPINES

In August 2008, members of the Joint Task Force Malampaya (JTFM) boarded a Vietnamese fishing vessel 80 km off the coast of Palawan Island in the South China Sea, and found 101 dead Hawksbill Turtles *Eretmochelys imbricata* (CITES I) on board. The fishing boat's 13-man crew flooded their vessel as the JTFM boat approached; the turtles were found drowned in the vessel's cargo hold. Resting sea turtles can remain submerged for up to two hours but stressed individuals must resurface every few minutes.

"Again and again, foreign nationals have encroached upon Philippine waters to plunder our nation's dwindling marine resources," said WWF Project Manager R.J. de la Calzada. "It disheartens us to find the animals we work so hard to conserve slaughtered on a wholesale basis."

The Vietnamese crewmen will be charged with violating the *Wildlife Conservation and*

Protection Act and may also be charged with illegal incursion and breaking the *Fisheries Code of 1998*.

www.wwf.org.ph/main.php; www.panda.org/news_facts/newsroom/news/index.cfm?uNewsID=144741

THAILAND

On 20 March 2008, Customs officials seized 113 pangolins *Manis* (CITES II) and other contraband from the vehicle of a person travelling on the Phet Kasem Road in Songkhla's Rattaphum district. The individual was arrested.

The Nation, 20 March 2008

VIET NAM

On 14 February 2008, border guards in rural Binh Son district's Binh Hai commune in the central province of Quang Ngai seized 143 kg of live black coral Antipathidae (CITES II) which was being illegally transported across the border to China.

In January 2008, Customs officials at Ha Noi Airport seized about one tonne of live Common Rat Snakes *Ptyas mucosus* (CITES II) that had been hidden in 60 ice boxes marked "fresh fish" and concealed on board a flight from Bangkok. Many of the snakes, destined for the restaurant trade in China or Viet Nam, had perished; surviving specimens were sent to the Wild Animal Rescue Centre near Ha Noi.

On 7 June 2008, police in Lao Cai arrested a man for illegally transporting five White Rhinoceros *Ceratotherium simum* (CITES I/II) (18 kg) horns into the country. The horns had been obtained during a hunting expedition in South Africa and were to be used in traditional medicine.

According to reports in the *Earth Times*, Customs police originally seized the horns at Tan Son Nhat Airport in Ho Chi Minh City, but did not arrest the suspect until the horns had been positively identified.

Viet Nam's *Decree 32* prohibits the commercial exploitation and use of the rhinoceros, but under law, horns can be kept as trophies with proper documentation. The suspect produced documentation for four of the five horns. Police, however, are currently questioning the validity of the documents.

Sulma Warne, Co-ordinator of TRAFFIC Southeast Asia's Greater Mekong Programme, commented: "The police should be applauded for their excellent work, and no doubt current efforts to improve co-ordination between key enforcement agencies will only serve to strengthen Viet Nam's commitment to combating illegal and unsustainable wildlife trade."

According to Warne, Viet Nam is increasingly being recognised as a hub for illegal wildlife trade, playing the roles of source, transit, as well as consumer and the two smuggling incidents highlight a need for greater public awareness and increased government capacity to address the illegal and unsustainable wildlife trade.

In July 2008, environment police and Customs officers acting on information seized more than two tonnes of live snakes and 770 kg of tortoises being transported by lorry in Quang Ninh Province, destined for China. It was reported that the animals, all in good condition, had been illegally imported from Lao PDR and may have been bound for Chinese restaurants. The specific species involved was not reported but the tortoises were said to consist of six species listed in CITES. All animals have been transferred to the Soc Son Wild Animal Rescue Center in Ha Noi.

In February and March 2008, Customs authorities in Hai Phong Port discovered two shipments containing a total of some 23 t of dead pangolins *Manis* (CITES II, with a zero quota) and pangolin scales, as they were being offloaded from a ship originating in Indonesia. The consignments were reportedly to be smuggled to China (see page 13).

www.vnagency.com.vn/Home/EN/tabid/119/Itemid/236062/Default.aspx, 16 February 2008; www.telegraph.co.uk/news/main.jhtml?xml=/news/2008/01/18/wsnake118.xml, 18 January 2008; www.traffic.org/home/2008/6/13/vietnam-police-arrest-two-suspects-in-separate-smuggling-in.html; www.topnews.in/law/vietnam-seizes-tons-live-wild-animals-bound-china, 29 July 2008; *Wildlife Crime Vietnam newsletter, Education for Nature-Vietnam (ENV)*, March 2008; www.envietnam.org/TRAFFIC_International

OCEANIA

AUSTRALIA

Investigations are under way in four Australian cities and overseas in an effort to identify and prosecute those responsible for attempting to smuggle Northern Leaf-tailed Geckos *Saltuarius cornutus* and Southern Leaf-tailed Geckos *Saltuarius swaini* to Europe using the international postal system. All attempts appear to be linked, with each package intended for delivery in the Czech Republic.

PACKAGES CONTAINING LEAF-TAILED GECKOS INTENDED FOR EXPORT TO THE CZECH REPUBLIC HAVE BEEN SEIZED AT VARIOUS MAIL CENTRES IN AUSTRALIA.



ABOVE: NATIVE AUSTRALIAN BEETLES CONCEALED IN YOGHURT POTS WERE SEIZED AT PERTH INTERNATIONAL AIRPORT IN APRIL 2008.

PHOTOGRAPHS: AUSTRALIAN CUSTOMS SERVICE

Between December 2007 and March 2008, Customs and Australia Post detected six packages. Most recently, on 17 March, a package containing a hollowed-out book enclosed one adult Southern Leaf-tailed Gecko, 27 dead beetles and several other insects and egg cases; on 14 March, a similar package containing a hollowed-out book was found to contain two adult and two baby Southern Leaf-tailed Geckos. Both packages appeared to be from the same source.

The six parcels were posted in Cairns, Brisbane, Sydney and Melbourne and contained a total of 15 specimens concealed inside books or picture frames. Many of the reptiles were already dead when the packages were opened. Those that survived are being looked after by registered wildlife carers.

Customs investigators are working within Australia and with their Czech counterparts in an effort to disrupt and dismantle the smuggling network.

On 3 April 2008, at the Downing Centre District Court, Sydney, Antonius Duindam was sentenced to a gaol term of four months and 25 days after attempting to smuggle eggs of 10 Senegal Parrots *Poicephalus senegalus* (CITES II) into Australia at Sydney Airport, from the Netherlands, via Hong Kong. The eggs had been concealed in a purpose-made body vest. Duindam had already served the sentence following his arrest in 2007.

On 8 April 2008, Customs officers at Perth International Airport foiled an attempt to smuggle more than 1300 native beetles to the USA after acting on information given to a Customs hotline; two US citizens were arrested. During a search of one of the men's luggage, officers allegedly found up to 1000 beetles concealed inside six plastic containers; luggage belonging to the second suspect was found to contain some 350 beetles in glass vials which had been concealed inside five empty yoghurt containers.

Some of the seized beetles have been identified as *Megacephala blackburni*.

An export permit is needed to export native beetles. Both men were charged with exporting a regulated native species without a permit, under section 303DD of the *Environment Protection and Biodiversity Conservation Act 1999*.

On 15 May 2008, at Melbourne Magistrates' Court, Meyndert Jacobus Bornman was fined AUD3000 (USD2600) following his attempts to smuggle four live Green Tree Pythons *Morelia viridis* (CITES II) into the country from South Africa in separate parcels in March. He was also ordered to pay court costs of AUD300. Customs officers at the Sydney International Mail Centre intercepted the parcels after x-ray revealed their contents.

In April, Customs investigators had executed search and seizure warrants in Melbourne's suburbs which led to Mr Bornman's arrest and charge. Officers of the Department of Sustainability and the Environment in Victoria also provided assistance.

In April 2008, Alex Bendikov and Jay Justin Hoklas, both from Adelaide, pleaded guilty to catching 184 abalones *Haliotis* illegally. The men were fined more than AUD15 000 (USD13 300) each.

Fisheries officers caught the men taking the specimens from the Little Dip Conservation Park near Robe, South Australia. They were convicted of exceeding the abalone bag limit, taking undersized abalones and failing to bring abalones above the high water mark before shucking.

Australian Customs media releases, 3 April/10 April/11 April/16 May/20 May 2008; www.abc.net.au/news/stories/2008/04/30/2231903.htm?site=southeastasa, 30 April 2008; Department of the Environment, Water, Heritage and the Arts, Australian Government

NEW ZEALAND

In October 2007, Customs officials at Auckland Airport arrested a South African national arriving from Johannesburg via Sydney after he was found to be wearing a vest containing 44 psittacine eggs. Some of the eggs have been identified as belonging to *Amazona* spp. but DNA analysis is ongoing.

The courier, Phillipus François Fourie, pleaded guilty to charges laid pursuant to section 44(1)(B) *Trade in Endangered Species Act* and S154 *Biosecurity Act*, and was convicted and fined a total of NZD20 000 (USD14 000). He spent one month in custody before being deported to South Africa.

New Zealand Customs

AMERICAS

CANADA

On 24 April 2008, at Richmond Provincial Court, British Columbia, Loan Thi Dinh of Vancouver, BC, was convicted of illegal possession of 32 Northern Abalones *Haliotis kamtschatkana*, a species listed as Threatened under the *Species at Risk Act* and as Endangered by IUCN. She was fined CAD7000 (USD6500), to be paid within one year, and ordered to forfeit the illegally harvested molluscs to the Crown.

Investigation into the case began on 29 April 2006 after Fisheries and Oceans Canada (DFO) was informed by Air Canada staff in Prince Rupert (BC) that a woman was believed to be transporting abalones on a flight from Prince Rupert to Vancouver International Airport. When the plane arrived in Vancouver, DFO fishery officers, aided by an officer of the Royal Canadian Mounted Police, conducted an inspection of Dinh's luggage which was found to contain the specimens (see *TRAFFIC Bulletin* 21(1):40).

Fisheries and Oceans Canada news release: www.dfo-mpo.gc.ca/media/npres-communique/2008/pr22-eng.htm, 11 August 2008; IUCN (2008). 2008 IUCN Red List of Threatened Species. www.iucnredlist.org. Viewed 21 October 2008

USA

On 20 December 2007, in federal District Court, West Palm Beach, Florida, Lawrence W. Beckman of Florida, was sentenced to three months in custody followed by a two-year term of supervised release, and fined USD2000.

Beckman pleaded guilty in October to the illegal importation of approximately 227 kg of live rock and coral, and 500 sea fans *Gorgonia* illegally harvested from Bahamian waters in 2002. He had failed to obtain written permission from Bahamian authorities, as required by Bahamian conservation laws, to harvest hard and soft coral. Such activity contravenes the US *Lacey Act* which prohibits the possession, importation, and transport of wildlife which has been taken or possessed in violation of a conservation law of a foreign country.

Although eligible for a probationary sentence, a period of incarceration was warranted in light of Beckman's history of repeated violations despite being charged and paying fines under State law over the past 10 years.

On 1 April 2008, Wai Ho Gin of Diamond Bar, California, was sentenced to 6.5 months' imprisonment and a further 6.5 months of home detention for participating in the smuggling of Asian tortoises into the country.

Gin had earlier pleaded guilty to smuggling and conspiracy charges and in his plea agreement admitted to receiving Radiated Tortoises *Astrochelys (= Geochelone) radiata* (CITES I) and Indian Star Tortoises *G. elegans* (CITES II) from an accomplice in Singapore and smuggling the specimens into the country. The accomplice has been charged with conspiracy, smuggling and money laundering but remains at large.

On 2 June 2008, in Miami federal court, George A. Townsend III, of St Petersburg, Florida, was sentenced to two years' probation and fined USD3000 after pleading guilty to the illegal importation of more than 4990 kg of Yellowfin Tuna *Thunnus albacares* from Trinidad and Tobago, contrary to the US *Lacey Act*. He was also ordered to forfeit some USD23 000 in funds derived from the criminal conduct and was placed under a special condition that his finances, employment information, and all travel be fully disclosed to the Court's Probation Office over the term of his supervision.

On 14 July 2008, at a federal court in Los Angeles, Jereme Lee James of Long Beach, California, was ordered to perform 2500 hours of community service, pay a USD2000 fine and USD125 special assessment fee and serve five years' probation for illegally importing Fiji Island Banded Iguanas *Brachylophus fasciatus* (CITES I) into the USA (see *TRAFFIC Bulletin* 21(3):122).

On 6 August 2008, in Denver, Colorado, two men from South Dakota were indicted on charges of smuggling two Leopard *Panthera pardus* (CITES I) hides and a Leopard skull into the country. One of the men is charged with smuggling a Leopard hide and skull, and the other with smuggling a hide.

The pair travelled to South Africa in 2002 and killed the Leopards illegally. Since they would therefore have been unable to obtain valid CITES export permits in South Africa, the hides were smuggled to Zimbabwe, where fraudulent export permits were purchased. Applications were made to the US Fish and Wildlife Service, claiming falsely that the animals had been hunted and killed in Zimbabwe. Jan Groenewald Swart, a South African outfitter who helped the pair bring the hides back to the USA, pleaded guilty to smuggling charges in May 2007 and was gaoled for 18 months.

The items were seized by USFWS inspectors at Denver International Airport in 2004.

On 6 August 2008, in Akron, Ohio, Tania Siyam, a Canadian citizen, was sentenced to five years' imprisonment and fined USD100 000 for illegally importing ivory from Cameroon. The sentence is the result of an international investigation by special agents of the US Fish and Wildlife Service, wildlife officials from Environment Canada and the US Attorney's Office in Cleveland, Ohio.

Siyam was indicted in Cleveland, Ohio, in 2004 on two felony *Lacey Act* violations and two felony smuggling counts for activities relating to the illegal trade in raw African Elephant *Loxodonta africana* (CITES I) ivory from Cameroon to the USA. At the time of the indictment, Siyam was being held by Canadian officials for extradition to the USA. Pursuant to treaties established between the USA and Canada, and following numerous Canadian hearings over nearly four years, Siyam was extradited to the USA to face criminal charges in December 2007. On 21 March 2008, she pleaded guilty to the four federal felony charges.

Siyam originally operated art import and export businesses in Canada and Cameroon that were fronts for smuggling wildlife products, including raw elephant ivory. She moved her base of operation from Canada to Cameroon in 2002 where she orchestrated a scheme to smuggle items by soliciting local artists, operatives within international commercial shipping companies, and contacts in the illegal ivory trade. In 2002, USFWS special agents and Environment Canada wildlife officials were alerted that raw elephant ivory and other wildlife items were being advertised for sale on the internet. Siyam was identified as the central person involved in the scheme. With the assistance of a local Ohio business owner, USFWS special agents purchased an illegal shipment of raw elephant ivory from Siyam that had been concealed inside pottery, labelled as art, and sent by courier from Cameroon to Montreal. Once in Canada, the goods were repackaged and posted by Siyam's Canadian partner to the Ohio business address.

In December 2003, the co-operating Ohio business owner, working with USFWS special agents, made a second purchase of 56 kg of illegal raw elephant ivory. Siyam shipped the raw ivory by courier from Cameroon concealed inside terracotta pots, directly to the business owner's address. Additional shipments of raw elephant tusks and ivory carvings were sent to other customers in 2003, including USFWS special agents in New York. By the end of 2003,

sufficient evidence had been obtained to charge Siyam with multiple felony *Lacey Act* and smuggling violations.

On 8 August 2008, Nicki Phung of Hercules, California, was sentenced to six months' home confinement and three years' probation for her role in illegally importing a mounted and stuffed Tiger *Panthera tigris* (CITES I) from Viet Nam, which she had listed as a "stuffed toy". She was also ordered to pay USD5000 in restitution to a non-profit organization that protects big cats throughout the world.

Phung admitted that she imported the tiger from Ho Chi Minh City, into San Francisco International Airport in December 2007 without obtaining an export permit from Viet Nam or an import permit from the USA. Her prosecution resulted from a three-month investigation by the US Fish & Wildlife Service and US Customs and Border Protection.

On 8 October 2008, at US District Court, Denver, Colorado, Martin Villegas Terrones, a Mexican national, was sentenced to 24 months in prison and three years' supervised release for his role in the illegal smuggling of marine turtle species (CITES I).

Villegas pleaded guilty on 11 March 2008 to federal smuggling charges in connection with the sale and shipment of marine turtle skins and skin products from Mexico to the USA. He and ten others were indicted in August 2007 following a multi-year undercover investigation named Operation Central. Four of those indicted remain at large. Six were sentenced earlier in the year. These persons include Fu Yiner (138 days' imprisonment (time served)/three years' supervised release); Wang Hong (167 days' imprisonment (time served)/three years' supervised release); Carlos Leal Barragan (16 months' imprisonment/three years' supervised release); Esteban Lopez Estrada (24 months' imprisonment/three years' supervised release/ fined US1700); Oscar Cueva (16 months' imprisonment/three years' supervised release with the option of paying USD5000 to a specific marine turtle awareness programme, performing 350 hours of community service for the benefit of a marine turtle conservation programme, or participating in a public service announcement about the dangers and consequences of marine turtle smuggling); and Jorge Caraveo (18 months' imprisonment/three years' supervised release).

This prosecution is the result of an investigation by the US Fish and Wildlife Service Branch of Special Operations. The Court's conclusions regarding fair market retail value of the wildlife smuggled in the Operation Central cases was informed by an economic evaluation performed by TRAFFIC.

The United States Attorney's Office Southern District of Florida press releases, 20 December 2007/2 June 2008/ 15 July 2008/9 October 2008: www.usdoj.gov; www.sun-times.com/news/nation/873095,turtle040208.article, 2 April 2008: US Fish & Wildlife Service news releases, 15 July/7 August 2008: www.fws.gov; http://ap.google.com/article/ALeqM5jHZKEKJ5fcOZOR5QSaJ-MvQf14LQD92CTS900: http://cbs5.com/localwire/22.0.html?type=bcn&item=TIGER-IMPORTER-SENTENCED-baglm, 11 August 2008

A Survey of the Trade in Wildlife as Pets in the United Arab Emirates

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and K. Al Suwaidi*



COMMON IGUANA IGUANA IGUANA. CHRIS MARTIN BAHR / WWF-CANON

INTRODUCTION

The United Arab Emirates (UAE) has an active pet trade market which, owing to the extreme weather conditions experienced in the country, is mainly limited to species that can be kept indoors, such as birds, reptiles and freshwater and marine aquarium species. In order to assess the status of the trade in wildlife as pets in the UAE, the CITES Scientific Authority in the country conducted a survey of pet shops. The following information was collected:

- the identity of the wildlife species (CITES and non-CITES) being sold in pet shops in the UAE;
- information on the general condition of species and pet shops;
- the awareness of CITES amongst pet-shop staff;
- the prices of various species in trade.

It was considered that the information gathered would also provide important baseline data which can be used as a benchmark for future surveys.

BACKGROUND

The UAE is a federation of seven emirates (Abu Dhabi, Dubai, Sharjah, Ajman, Umm Al Quwain, Ras Al Khaimah and Fujairah) which, together, cover an area of approximately 89 000 km² (including offshore islands). The country is situated in the northern Arabian Peninsula border-

ing Oman to the east, Saudi Arabia to the west and south, and the Arabian Gulf to the north (see Figure 1). In the early 19th and 20th centuries, one of the UAE's main economic activities was the harvesting of pearls in the warm waters of the Arabian Gulf. This industry collapsed with the development of cultured pearls (US Library of Congress, 2007) in other parts of the world. After the discovery of massive oil deposits, crude oil started to be exported during the 1960s and exports now stand at over two million barrels of oil a day. The revenues from oil have led to tremendous economic growth within the UAE. Abu Dhabi and Dubai are also major airline hubs and support a thriving regional and international tourism industry. The UAE's population is over four million, with UAE citizens comprising approximately 20% of the total population, and the rest composed of a large expatriate population (National Media Council, 2007).



Figure 1. Location of the seven emirates which make up the United Arab Emirates.

The majority of pet shops in the UAE have traditionally been located within pet markets which sell both exotic and domesticated species. In more recent times, there has been a trend for individual pet shops to open up in urban areas and also in high-end shopping malls. There are pet shops in most of the large cities within each emirate of the UAE and the main customers are UAE citizens and the country's expatriate community.

LEGISLATION

The UAE is a signatory to CITES, which entered into force in the country in 1990. There are two CITES Management Authorities: one for the emirate of Abu Dhabi and the other for the northern emirates. There is one federally designated Scientific Authority—the Environment Agency-Abu Dhabi—located in the emirate of Abu Dhabi.

The UAE has undertaken many steps to ensure that its national legislation is up to date and capable of implementing CITES at a national level. A brief summary is given below which highlights the development of the legislation process in relation to CITES:

- **2001:** *Ministerial Decree No. (458) of the year 2001 Concerning the International Convention to Prevent Trade in the Fauna and Flora Species Endangered to Extinction* (Ministry of Environment and Water, 2001) is composed of five Articles; in general, it limits the importation of various wildlife species and especially mentions those listed under CITES needing prior official import approval.
- **2002:** *Federal Law No. (11) of the year 2002 Concerning Regulating and Controlling the International Trade in Endangered Species of Wild Fauna and Flora* (Ministry of Environment and Water, 2002), deals specifically with the implementation of CITES within the UAE. The law provides detailed information on the Management and Scientific Authorities and on the penalties for violating this law. As an example, punishment under Article (25) for an individual caught without the proper CITES documentation from the CITES Management Authority for an Appendix I species, or with invalid permits/certificates, can lead to imprisonment for a period not exceeding six months and/or a fine not less than AED10 000 and not exceeding AED50 000 (approximately USD2700 and not exceeding USD13 500).
- **2003:** *Resolution of the Council of Ministries No. (22) of the year 2003, on Issuing the Executive By-law of the Federal Law No. 11 of the year 2002 on Regulating and Controlling the International Trade in Endangered Species of Wild Fauna and Flora* (Ministry of Environment and Water, 2003) provides specific by-laws for the implementation of Federal Law No. 11 (2002).
- **2004:** Text of the Convention giving the species's listings were translated into Arabic and published in the official gazette in order to facilitate effective implementation of Federal Law No. 11 (2002).
- **2005:** At the 53rd meeting of the CITES Standing Committee in Switzerland in July 2005 under the *Interpretation and Implementation of the Convention:*

Taxon	CITES species	Non-CITES species	Total number
Birds (51%)	27	3	30
Reptiles (37%)	17	5	22
Invertebrates (7%)	4	0	4
Mammals (3%)	0	2	2
Fish (2%)	1	0	1

Table 1. The proportion of CITES vs non-CITES wildlife species in trade.

National Laws for Implementation of the Convention, the UAE qualified for Category 1 status in the National Legislation Project. This means that the UAE's legislation meets all the requirements to implement CITES (CITES Secretariat, 2005).

The UAE is also an important centre for the sport of falconry, using mainly captive-bred birds imported principally from European captive-breeding operations—a longstanding tradition strongly rooted in the culture of the Bedouin desert tribes in the country. In 2002, the country introduced a registration scheme for owners of birds of prey, locally known as the Falcon Passport. Due to frequent cross-border movements of birds of prey for falconry purposes, a certificate of ownership was developed in accordance with CITES *Resolution Conf. 10.20 Frequent cross-border movements of personally owned live animals*. This involves an initial registration process to confirm the legality of the individual bird of prey. Once this registration process is completed, a Falcon Passport is issued which allows for multiple cross-border movements of individual birds and removes the burden of issuing CITES permits for each trip. Some countries do not recognize these travel documents and in such cases CITES permits are issued.

METHODS

A survey of commercial businesses selling live animals of wild and domesticated species—herein referred to as 'pet shops'—was conducted between 13 February and 11 March 2007 and covered all of the UAE's seven emirates. The investigation was carried out by staff from the Environment Agency-Abu Dhabi, which represents the UAE CITES Scientific Authority at the federal level. The location of pet shops in each emirate was obtained through information already available in the CITES office records or through other relevant government agencies within each respective emirate, or was already known by the researchers. A questionnaire was also developed and an individual sheet was completed for each establishment. The questionnaire was divided into three main parts: Part 1 captured basic information such as the date, city, emirate, the Global Positioning System (GPS) location (giving the latitude and longitude coordinates of the pet shop locations), name of pet shop, its address and owner's name; Part 2 documented general information on the physical condition of the pet shop,



TRADITIONAL PET SHOPS ARE
GENERALLY FOUND IN AREAS
DESIGNATED BY THE LOCAL
MUNICIPALITIES AND ARE
REFERRED TO AS PET MARKETS,
OR *SOUQ AL HAIWANAT* IN ARABIC.
THESE SHOPS USUALLY SELL BOTH
DOMESTICATED SPECIES AND
WILD/CAPTIVE BRED
ANIMALS OF WILD SPECIES.
THE *SOUQ* ILLUSTRATED HERE IS IN
SHARJAH EMIRATE.

ABDULRAB AL HEMERI

species being sold (CITES and non-CITES), awareness of CITES amongst shop staff; and Part 3 noted the common and scientific names, quantities, prices and condition of specimens, where possible.

The exchange rate for the US dollar to the UAE Dhiram (AED) is approximately USD1=AED3.67 and has been at this rate since the mid-1980s.

RESULTS

The findings of the survey were as follows:

Location of pet shops: A total of 39 pet shops were surveyed in all seven emirates. Pet shops that were specifically selling CITES species, were located as follows: 41% in Abu Dhabi, 46% in Dubai and Sharjah, and 13% in Ajman, Umm Al Quwain, Ras Al Khaimah and Fujairah. In Abu Dhabi, Dubai and Sharjah, the pet shops were found in specially designated areas set aside by the municipality, whilst others were in major shopping centres such as malls and shopping districts.

General condition of pet shops: A visual examination was made regarding space, cleanliness, staff numbers, condition of cages, shop location, etc. In general, it was found that 33% of pet shops were in excellent condition, 51% in average condition, and 16% in poor condition.

General condition of live species: The physical condition of the live animal was assessed, as well as the cage/container/aquarium in which it was housed in relation to size, cleanliness, provision of food and water, etc. Most shops are air-conditioned. For live birds, cage size, perches, and food and water availability were examined. In the case of reptiles, the main focus was on whether the individuals had access to water and external heating. In the case of aquaria, the general cleanliness, overcrowding, functioning air supply and water filter mechanism was observed. In general, 39% were found to be in excellent condition, 50% in good condition and 11% in poor condition.

Proportion of major taxa in trade: The survey showed that the proportion of species from the five major taxa involved in the trade was as follows: birds 51%, reptiles 37%, invertebrates 7%, mammals 3%, and fish 2%. Domesticated species commonly seen were chickens, turkeys, ducks, pigeons and quails. The percentage of CITES species vs non-CITES species is shown in Table 1. The numbers of selected CITES Appendix I and II species viewed during the survey are given in Table 2.

Awareness of CITES: Pet shop staff were asked if they were familiar with CITES and the species covered by the Convention. Sixty per cent expressed awareness compared to 40% who claimed to be unaware of CITES, although there was a general understanding that certain species had to be traded with special permission or permits.

TAXA/SPECIES		CITES Appendix	No. viewed	AED range per specimen	USD range per specimen
INVERTEBRATES					
Torch coral	<i>Euphyllia</i> spp.	II	-	55–202	15–55
Stony Coral	SCLERACTINIA	II	-	55–110/kg	15–30/kg
Crocea Clam	<i>Tridacna crocea</i>	II	-	330	90
FISH					
Seahorse	<i>Hippocampus</i> spp.	II	-	294	80
REPTILES					
Lizards:					
Mt Kilimanjaro Two-horned Chameleon	<i>Bradypodion tavetanum</i>	II	-	-	-
Side-striped Chameleon	<i>Chamaeleo bitaeniatus</i>	II	-	-	-
Flap-necked Chameleon	<i>Chamaeleo dilepis</i>	II	-	-	-
Jackson's Three-horned Chameleon	<i>Chamaeleo jacksonii</i>	II	-	-	-
Giant One-horned Chameleon	<i>Chamaeleo melleri</i>	II	-	-	-
Plated Lizard	<i>Gerrhosaurus major</i>	non-CITES	-	-	-
African Fat-tailed Gecko	<i>Hemitheconyx caudicinctus</i>	non-CITES	-	-	-
Common Iguana	<i>Iguana iguana</i>	II	24	147–2936	70–800
Togo Fire Skink	<i>Riopa fernandi</i>	non-CITES	-	257	70
Blue-tongued Skink	<i>Tiliqua scincoides</i>	non-CITES	-	1498	408
Savanna Monitor	<i>Varanus exanthematicus</i>	II	-	250	68
Snakes:					
Boa Constrictor	<i>Boa constrictor</i>	II	-	4500	1226
Carpet Python	<i>Morelia spilota cheynei</i>	II	2	-	-
Royal Python	<i>Python regius</i>	II	88	250–2999	68–817
Corn Snake	<i>Elaphe guttata</i>	non-CITES	-	-	-
Tortoises:					
Indian Star Tortoise	<i>Geochelone elegans</i>	II	-	602	164
Leopard Tortoise	<i>Geochelone pardalis</i>	II	-	-	-
African Spurred Tortoise	<i>Geochelone sulcata</i>	II	-	-	-
Bell's Hinged Tortoise	<i>Kinixys belliana</i>	II	-	-	-
Spur-thighed Tortoise	<i>Testudo graeca</i>	II	95	52–697	14–190
Crocodile:					
Nile Crocodile	<i>Crocodylus niloticus</i>	II	-	-	-
BIRDS					
Parrots:					
Fischer's Lovebird	<i>Agapornis fischeri</i>	II	37	99–250	27–68
Black-cheeked Lovebird	<i>Agapornis nigrigenis</i>	II	-	-	-
Masked Lovebird	<i>Agapornis personatus</i>	II	-	202	55
Peach-faced Lovebird	<i>Agapornis roseicollis</i>	II	-	-	-
Blue-fronted Parrot	<i>Amazona a. aestiva</i>	II	-	-	-
Blue-and-Gold Macaw	<i>Ara ararauna</i>	II	-	3500	954
Green-winged Macaw	<i>Ara chloroptera</i>	II	-	-	-
Scarlet Macaw	<i>Ara macao</i>	I	1	-	-
Red-shouldered Macaw	<i>Ara nobilis</i>	II	-	-	-
Jandaya Parakeet	<i>Aratinga jandaya</i>	II	-	990	270
Sulphur-crested Cockatoo	<i>Cacatua galerita</i>	II	-	4991–11744	1360–3200
Goffin's Cockatoo	<i>Cacatua goffini</i>	I	1	4500	1225
Moluccan Cockatoo	<i>Cacatua moluccensis</i>	I	1	-	-
Galah	<i>Eolophus roseicapillus</i>	II	-	6496	1770
Black-capped Lory	<i>Lorius lory</i>	II	-	2000	545
Budgerigar	<i>Melopsittacus undulatus</i>	non-CITES	-	-	-
Nanday Parakeet	<i>Nandayus nenday</i>	II	-	-	-
Cockatiel	<i>Nymphicus hollandicus</i>	non-CITES	-	-	-
Eastern Rosella	<i>Platycercus eximius</i>	II	-	2998	817
Senegal Parrot	<i>Poicephalus senegalus</i>	II	1	1193	325
Plum-headed Parakeet	<i>Psittacula cyanocephala</i>	II	-	-	-
Alexandrine Parakeet	<i>Psittacula eupatria</i>	II	5	602–771	164–210
Ring-necked Parakeet	<i>Psittacula krameri</i>	non-CITES	-	-	-
Grey Parrot	<i>Psittacus erithacus</i>	II	35	1395–1798	380–490
Green-cheeked Parakeet	<i>Pyrrhura molinae</i>	II	-	-	-
Falcons:					
Peregrine Falcon	<i>Falco peregrinus</i>	I	1	4037	1100
Peregrine-Saker Falcon	<i>Falco peregrinus</i> x <i>Falco cherrug</i>	I	1	6973	1900
Gyr-Saker Falcon	<i>Falco rusticolus</i> x <i>Falco cherrug</i>	I	1	6973–9909	1900–2700
Other species:					
Hill Mynah	<i>Gracula religiosa</i>	II	-	2998–3997	817–1089
MAMMALS					
Ferret	<i>Mustela putorius fero</i>	non-CITES	-	-	-
Coati	<i>Nasua nasua</i>	non-CITES	-	-	-

Table 2. List of species recorded during the survey. - = information not recorded (USD1.00=AED3.67)

Prices of wildlife species in trade: Prices for different species were collected where possible (see Table 2).

CITES species by Appendix recorded in trade: The survey showed that 88% of CITES species recorded during the survey were listed in Appendix II; 12% were Appendix I species. The majority of trade in CITES species is in birds, followed by reptiles, invertebrates and fish (Figure 1).

DISCUSSION AND CONCLUSIONS

This survey was carried out to provide a snapshot of the current pet trade within the UAE involving species taken from the wild/captive bred and to provide baseline data on which future surveys and trends can be based.

Pet shops in general in the UAE can be divided into two categories: traditional and modern. The traditional pet shops are generally found in areas designated by the local municipalities and are referred to as pet markets, or “*souq al haiwanat*” in Arabic. These shops generally sell both domesticated species and wild/captive bred animals of wild species. The other shops are more specialized and are found in up-market malls and shopping centres and cater to a more Westernized clientele.

In general, the condition of pet shops and species being offered for sale was considered good: the more specialized outlets were in good condition and provided high standards of care; the condition of a few of the traditional pet markets and the care provided could be improved.

It is evident from the survey that birds are the most popular species in the pet trade, followed by reptiles and marine/freshwater species for aquaria. Mammals are not prominent in trade. This trend would also be supported by the harsh climatic conditions within the UAE, which experiences very high summer temperatures (>45°C), so many pets would be kept indoors for most of the year. Furthermore, a lot of people live in apartment-type settings so these choices of pet reflect the type of animals suited to such living conditions.

Awareness of CITES among those interviewed was considered reasonable, at 60%, with 40% being unaware of the Convention. This is an important area in which to target public awareness activities to increase understanding of CITES by pet shop staff who, in turn, can pass this knowledge on to their customers.

The price of some species of snakes and birds was notably higher in some of the more exclusive pet shops. In both traditional and modern pet shops, birds such as parrots and mynahs, which have the ability to mimic the human voice, as well as some of the unique captive-bred colour varieties of parrot species, were fetching much higher prices than those for other bird species. The hybrid falcons, considered to be valuable birds of cultural significance, were also more expensive. A lot of variation was seen in the price of some reptile species e.g. the Common Iguana *Iguana iguana* and Royal Python *Python regius*—from between USD70–800 and USD68–

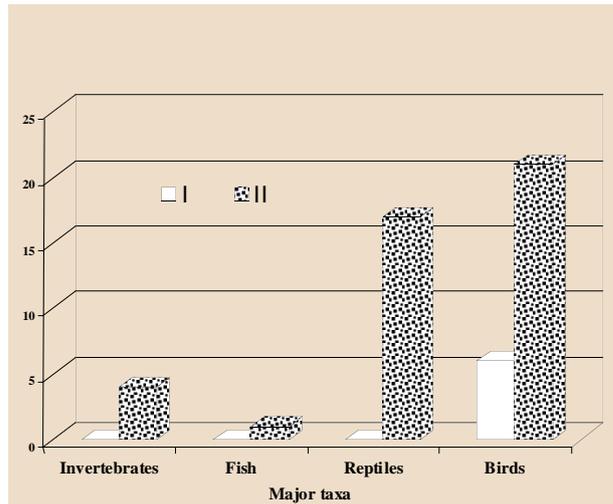


Figure 1. CITES species recorded in trade in the UAE, February to March 2007.

SENEGAL PARROTS *Poicephalus senegalus* on sale in a traditional pet market in Abu Dhabi.



COMMON IGUANAS *Iguana iguana* being offered for sale in an upmarket pet shop in Dubai.



PHOTOGRAPHS: PRITPAL S. SOORAE

817, respectively. This variation can be attributed to the origin of the species, as some animals come from specialized overseas breeders selling higher quality specimens compared to others from less reputable breeders or from ranching quotas, which may be offered at lower prices. Where possible during this survey, attempts were made to check whether the specimens had been legally obtained; in some cases, however, the discreet nature of the investigation meant that this was not always possible.

The UAE has issued several Ministerial Decrees (Ministry of Environment and Water, various years) which prohibit the importation of various birds and their products from different parts of the world due to the risk of the spread of avian influenza. This has resulted in an increase in the importation of reptile species and species for marine aquaria owing to the difficulty in getting importation clearance for bird species, and the growing number of countries from which bird imports are prohibited. Based on previous local surveys and from this emirate-wide study, the authors have observed a gradual shift in the pet trade from birds to reptiles and marine aquaria species.

The trade in captive-bred falcons (pure and hybrid falcons) is carried out mainly via private establishments as they serve a specific clientele and, as the birds are expensive, they need to be kept under strict climatic and hygienic conditions.

RECOMMENDATIONS

This survey has raised many interesting issues and the UAE CITES Scientific and Management Authorities hope to implement the following recommendations in the future:

- In cases where any illegal wildlife trade is suspected, the CITES Scientific Authority will relay information directly to the appropriate CITES Management Authority for action according to Federal Law No. (11) (2002).
- Increase awareness about CITES amongst both pet shop staff and the general public. The CITES Management Authorities have already started on this process by preparing some identification manuals on both CITES and non-CITES species, products and derivatives, which have been distributed widely both in the UAE and regionally within the Gulf Cooperation Council countries (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia (and the UAE)).
- An initiative to improve the general condition of traditional pet shops and standards of welfare should be undertaken with the relevant local government authorities.
- A similar survey will be conducted on an annual basis to study trends and provide information and data on the evolving wildlife pet market, in view of the apparent shift in demand for reptile and marine aquaria species owing to restrictions on bird imports because of the global avian influenza risk. This would be an interesting trend that needs to be monitored further.

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TRAFFIC, the wildlife trade monitoring network, works to ensure that trade in wild plants and animals is not a threat to the conservation of nature. It has offices covering most parts of the world and works in close co-operation with the Secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

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