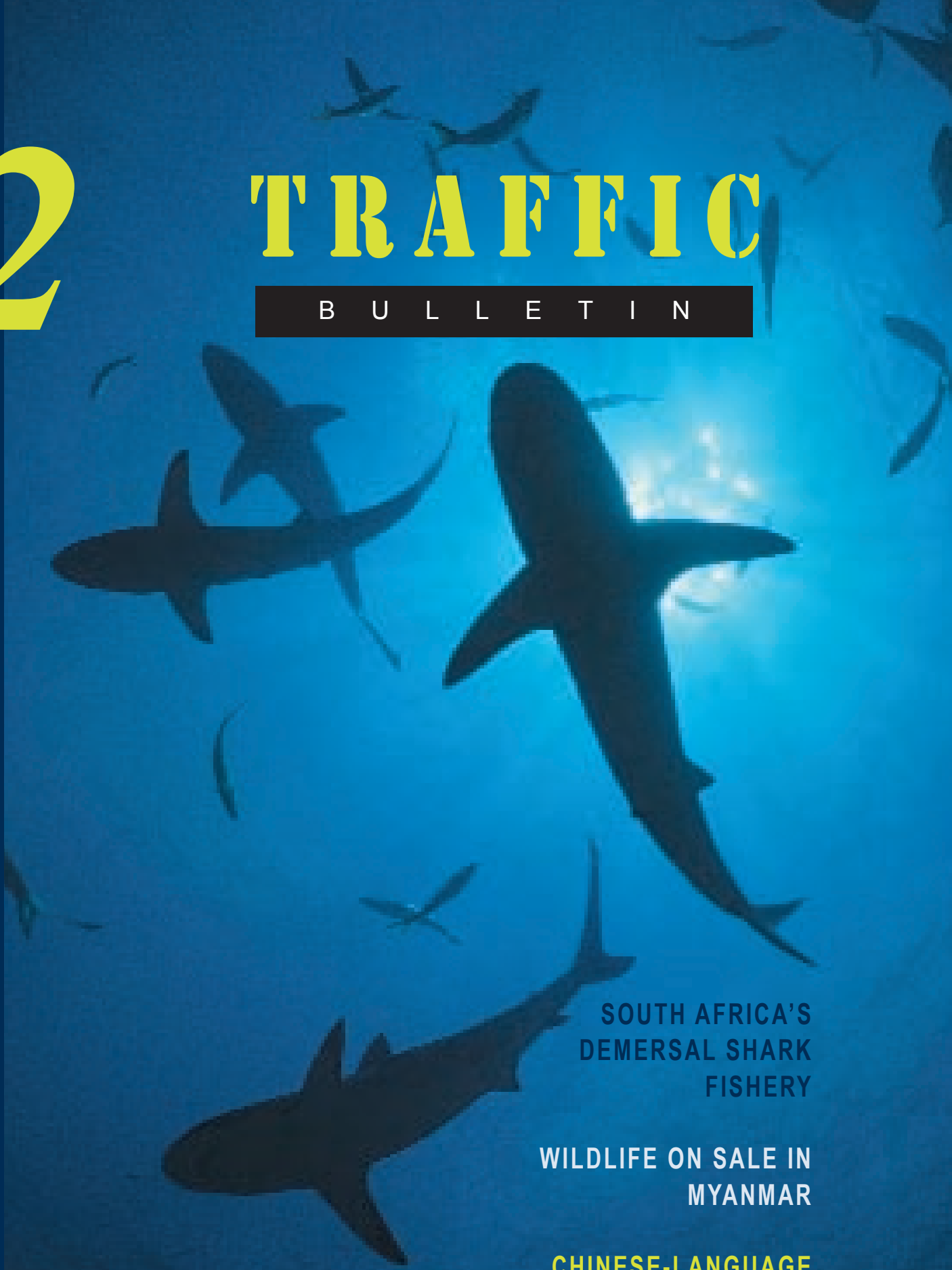
VOL. 21 NO. 2

2 TRAFFIC

BULLETIN



SOUTH AFRICA'S DEMERSAL SHARK FISHERY

WILDLIFE ON SALE IN MYANMAR

CHINESE-LANGUAGE INTERNET TRADE IN WILDLIFE

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

JULY 2007

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 IUCN The World Conservation Union

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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Shark processing factory, Cape Town, South Africa
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Prionodon pardicolor skin, Mong La Market, Myanmar
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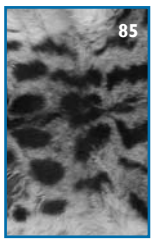

July 2007

EDITORIAL

In November 2002, the editorial of this journal focused on CITES and marine species, highlighting related topics up for discussion at the 12th meeting of the Conference of the Parties (CoP) to CITES, but also noting the tension between those supportive of the Convention's engagement in marine fisheries and others who feel that CITES trade controls have no place in fisheries management. Five years on and with CoP14 having just finished, has there been any progress?

Certainly this meeting had the potential to take previous developments a step further, with more listing proposals submitted for commercially important marine species than at any previous CoP. They included three shark and ray proposals—Spiny Dogfish *Squalus acanthias,* Porbeagle *Lamna nasus* and sawfish (all species of the family Pristidae)—the Banggai Cardinalfish *Pterapogon kauderni*, all coral species in the genus *Corallium*, the European Eel *Anguilla anguilla*, and the Brazilian populations of two spiny lobsters—*Panulirus argus* and *Panulirus laevicauda*. All of these proposals were for inclusion of the species in CITES Appendix II apart from sawfish which were proposed for inclusion in Appendix I.

A solid platform had been laid at the previous two CoPs, with a number of marine species being listed in Appendix II, including the Whale Shark *Rhincodon typus*, Basking Shark *Cetorhinus maximus*, all seahorses *Hippocampus* spp., Humphead Wrasse *Cheilinus undulatus* and Great White Shark *Carcharodon carcharias*. This was a notable recognition of marine species threatened by unsustainable harvest and trade, but none of those listed could be classified as large-scale commercial fisheries. The CoP14 line-up presented a number of opportunities, in particular through the Spiny Dogfish and Porbeagle proposals, to make the major advance in establishing a role for CITES for marine fisheries that the Appendix II Big-leaf Mahogany *Swietenia macrophylla* listing in 2002 had done for timber species.

As it turned out, those supportive of the listing proposals were to be disappointed, with only sawfish and the European Eel being listed. The Banggai Cardinalfish and spiny lobster proposals were withdrawn before they went to a vote. Corals quite easily obtained a two-thirds majority in Committee I, yet when voting was re-opened in plenary, the proposal was rejected after heavy lobbying by those opposing the listing.

The most intense debate, however, reflected in both interventions from the floor as well as the formal documents submitted by CITES Parties, the CITES Secretariat and the ad hoc Expert Advisory Panel of the Food and Agricultural Organization of the United Nations (FAO), centred on the proposals for Spiny Dogfish and Porbeagle. Both of these are valuable commercial species, which have suffered from stock declines as a result of long-term harvesting for international trade through both directed and incidental catch. The FAO Expert Advisory Panel did not support either of the proposals and the ensuing debate lay primarily in differences of opinion over the application and interpretation of CITES listing criteria.

While neither proposal was adopted, Spiny Dogfish received more than 60% support and the Porbeagle only slightly less. This demonstrates that a majority of CITES members are not, in principal, against the use of trade controls in the fisheries sector. This is borne out by the action of CITES Parties in other fora such as Regional Fisheries Management Organisations (RFMOs), where there has been a notable increase in the use of trade-related measures over the last decade. Apart from the Catch Documentation Scheme used by the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) for tracking trade in Patagonian Toothfish *Dissostichus eleginoides*, other trade measures have been introduced through what are known collectively as the 'Tuna RFMOs' and are currently limited to tuna and tuna-like species. Thus, while it is encouraging that trade measures are considered as effective tools for fisheries management, RFMOs do not currently provide trade mechanisms for many commercially important marine species in trade, such as Spiny Dogfish and Porbeagle. Further, RFMOs would benefit from CITES as a complementary management measure as it has an almost global membership, comprehensive uniform permitting and administrative procedures, and comparatively strict and effective compliance measures.

A good example of this complementary relationship was the plea at CoP14 by CCAMLR for CITES Parties to co-operate with its conservation measures and its highlighting of a number of CITES Parties involved in illegal, unreported and unregulated (IUU) fishing.

While all eyes were on the CoP14 listing proposals, progress on other marine-related issues such as positive CITES Decisions related to sea cucumbers and sharks, as well as the inter-sessional listing by South Africa of its endemic abalone species *Haliotis midae* in CITES Appendix III, went almost completely unnoticed. The South African commercial abalone fishery is in a state of crisis, primarily due to illegal harvesting and trade. Driven by Asian demand for the culinary delicacy, a failure to reduce the illegal trade significantly could result in the species being declared commercially extinct, leading to closure of the legal fishery and the loss of many hundreds of jobs. While the species would almost certainly meet Appendix II-listing criteria, South Africa opted for an Appendix III listing, possibly mindful of the challenge in securing sufficient support at a CoP for inclusion in Appendix II.

The global abalone trade is of significant commercial value and while poaching levels in other parts of the world are not as high, almost all other abalone range States are faced with problems of illegal harvest and trade. It will accordingly be interesting to see how these other countries react to the Appendix III listing.

While it is of concern that timber and marine species of commercial importance have to reach critical levels of overexploitation and unsustainable trade before sufficient numbers of CITES Member States will support their inclusion in the Appendices, of possibly greater concern were the very public disagreements between the FAO and CITES Secretariats. Despite the successful conclusion of the MoU between CITES and FAO, what emerged at CoP14 was almost an ideological debate between the two institutions on the application and interpretation of CITES listing criteria. Such a situation serves only to fuel the divide between fisheries managers and CITES officials, which still appears to exist at a national level in many countries.

The meeting closed with the Secretariat being tasked with initiating discussions with FAO on enhancing co-operation between the two organizations. If we are to see CITES playing a positive role in the future in the management of unsustainable large-scale commercial fisheries, it is essential that these discussions lead to a relationship of trust, collaboration and mutual respect.

Markus Bürgener Senior Programme Officer
TRAFFIC East/Southern Africa

TIMOTHY FUNG NGAI LAM has been appointed TRAFFIC's new Senior Programme Officer in the East Asia regional office. Timothy will lead TRAFFIC's work in Hong Kong, in particular concentrating on monitoring of trade flows in Hong Kong, a key regional trade hub. Timothy has worked the past several years with Hong Kong's Agriculture, Fisheries, and Conservation Department.

bulletin board

ROLAND MELISCH, TRAFFIC's national representative in Germany since 1996, while acting as WWF Germany's Head of Species Programme and, in recent years, simultaneously acting as WWF Germany's Deputy Director of Conservation Programme, has taken up the post, on secondment, of Global Programme Co-ordinator for TRAFFIC International as of 1 March 2007. This is a critical new role within TRAFFIC's global team, aimed at boosting guidance and support to TRAFFIC's programme implementation. The role will also focus on providing scientific guidance and leadership to TRAFFIC's programme and policy work. Roland will remain based in Frankfurt at the WWF Germany office.

CAROLINE RAYMAKERS has left TRAFFIC after almost a decade leading some of TRAFFIC's most prominent projects in the European region and beyond, most notably her work on trade in sturgeon, a subject in which she is among a handful of leading experts in the world. In recent years Caroline combined her technical expertise with the challenging task of maximizing the impact of TRAFFIC's European team and partnerships as regional Director of TRAFFIC Europe.

SAMIR SINHA has been appointed Head of TRAFFIC India, which was re-established in August 2006. Mr Sinha, an officer of the Indian Forest Service, has a post-graduate diploma in wildlife management and has worked on projects for the governments of Uttar Pradesh and Uttaranchal, and most recently as Director of the Nandadevi Biosphere Reserve.

RICHARD THOMAS has been appointed TRAFFIC's Global Communications Co-ordinator. Richard joins TRAFFIC after eight years as Communications Manager at BirdLife International. He will be based in the Cambridge office. Richard takes over from **MAIJA SIROLA**, Communications Co-ordinator, who left in September 2006 after almost eight years with TRAFFIC.

ANNA WILLOCK left her position as TRAFFIC's Senior Fisheries Advisor, based in Sydney, in November 2006, after almost eight years leading TRAFFIC's work on marine trade issues. She joins the Australian Fisheries Management Authority in a policy role. **GLENN SANT**, formerly Director of TRAFFIC Oceania, has taken on the role of TRAFFIC's Global Marine Programme Leader, based at the TRAFFIC office in Australia.

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)*

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

ANDREA GASKI

It is with deep regret that TRAFFIC reports the death, on 7 January 2007, of our friend and colleague Andrea Gaski, following a severe bout of bronchitis. A biologist by training, Andrea worked for TRAFFIC North America from 1986 to 1999 and had an enormous influence on TRAFFIC's development during those years. She led much of our early work on fisheries trade issues and was a great champion of methodical research and its importance as a foundation for effective policy advocacy throughout our programme. Andrea was much missed when she left TRAFFIC to work for the US Fish & Wildlife Service in the Division of Management Authority, International Affairs. She adapted quickly to a role within government and earned strong international recognition for her expertise and wisdom. Her promotion to Chief of that Division was to be announced the week of 8 January.

It is very clear that TRAFFIC and its role in addressing wildlife trade issues would not be what they are today without the immense contribution Andrea made over so many years.

Steven Broad, Executive Director,
TRAFFIC International

TRAFFIC East/Southern Africa Award

TRAFFIC East/Southern Africa has been acknowledged at an awards ceremony as one of South Africa's top conservation organizations for the work they are doing to monitor wildlife trade. The ceremony took place at Dikololo Game Reserve in South Africa's North West Province. TRAFFIC East/Southern Africa, which was awarded a Mazda Wildlife Fund trophy, was accorded this honour in the company of four other conservation organizations who were recognized for their work on species conservation and programmes involving community-based environmental awareness.

The New UK National Wildlife Crime Unit

A specialist Unit was officially launched on 18 October 2006 to assist in the prevention and detection of wildlife crime across Scotland, England, Wales and Northern Ireland, as well as at a regional and international level. Initially based at the National Criminal Intelligence Service in London, the National Wildlife Crime Unit (NWCU) is now a standalone Unit based in North Berwick, within the Lothian and Borders Police Force area in Scotland. It is a police-led, multi-agency Unit with the direct involvement of key government departments across the UK. The NWCU aims to gather, analyse and co-ordinate intelligence on national wildlife crime and additionally supports the enforcement activities of police and Customs officers in the UK. The NWCU has investigative support officers who are available to assist officers investigating wildlife crimes across the UK. Having a national Unit ensures that law enforcement personnel can liaise closely and share intelligence, improving crime-fighting techniques and making the best use of available resources.

The NWCU maintains a UK-wide remit and the skills and expertise of the staff are available to any law enforcement officer requiring assistance to tackle wildlife crime up to the highest levels. It focuses on nationally agreed priorities as part of a strategy overseen by the Association of Chief Police Officers representing the whole of the UK, the Department for Environment, Food and Rural Affairs, Animal Health, the Scottish Executive, HM Revenue and Customs and the Home Office.

Chris Kerr, head of the Unit, leads a team of fifteen, with the core of the intelligence Unit housed in North Berwick. The rest of the team are based throughout the UK and include individuals from the police, HMRC, Animal Health and TRAFFIC International, as well as dedicated project officers running Operation ARTEMIS (a national police strategy aimed at targeting those involved in Hen Harrier persecution) and Operation BAT (a police initiative aimed at tackling crime against bats in the UK).

The NWCU acts as a conduit between all agencies, domestically and internationally, that have a legal obligation or interest in dealing with wildlife crime. Since its establishment in October 2006, the NWCU has provided assistance with intelligence interviews, intelligence reports, search warrants, operation debriefs and covert operations in 16 different police force areas in the UK, along with assisting with a variety of internationally generated enquiries. Many of these operations are ongoing and, as well as those aimed at preventing damage to Hen Harriers and bats, are concerned with, for example, the illegal use of poisons and offences against other native species of birds and mammals as well as their habitat, illegal trade in freshwater pearl mussels, firearms offences associated with wildlife offences, the illegal import/export and sale of CITES species and internet wildlife crime.

Anyone who has information about wildlife crime is encouraged to contact the officers in the NWCU at ukwildlife-crime@nwcu.pnn.police.uk or telephone +44 (0)1620 893607. Incidents of UK wildlife crime should always be reported to the local police force or Customs in the first instance. A dedicated website is at *www.nwcu.police.uk*.

Stephanie Pendry, UK Enforcement Support Officer, TRAFFIC International

briefly

- The Chinese pharmaceuticals company Chi-Med, which focuses on traditional Chinese medicine, has signed a deal with the German pharmaceuticals firm Merck that will see both companies collaborate on research into new anti-cancer drugs derived from natural products. The Chinese company has a large research facility in Shanghai as well as a library of botanical compounds which Merck will use. At a time when there is a dearth of new medicines coming onto the market, placing the global drugs industry under pressure to come up with winning compounds, Merck joins a growing list of pharmaceutical firms rushing to tap into Chinese traditional medicine, which they believe has a huge, under-exploited potential for new drugs.

  The Guardian (UK), 20 November 2006

- TRAFFIC East Asia has produced a 'Buyer Beware' leaflet and a 60-second film related to illegal wildlife trade, with the support of the Council of Agriculture, Taiwan. Some 1000 CDs will be distributed to schools together with 100 000 copies of the leaflet. Talks are also under way with Taiwanese airline EVA Air, with a view to the film being broadcast on flights arriving in and leaving Taiwan, to alert those travelling overseas to the regulations governing trade in wildlife and identifying the species and related products that should not be purchased as souvenirs. Other airlines will be approached in due course as more funding becomes available.

  TRAFFIC East Asia

- South Africa's supermarket chain Pick 'n Pay has become the first major South African retailer to engage with the Southern African Sustainable Seafood Initiative (SASSI) set up last year to improve the sustainability of seafood businesses. As a result, the most endangered species will be kept off its shelves and it will promote those that are best managed, like hake, calamari, butterfish, mussels, dorado, gurnard, snoek, yellow-fin tuna and yellowtail. TRAFFIC is an implementing partner in SASSI and WWF South Africa one of its primary founding partners.

  Pretoria News (South Africa): www.pretorianews.co.za, 19 April 2007; TRAFFIC East/Southern Africa

- The EU has placed a permanent ban on the importation of wild-caught birds. The ban will come into effect on 1 July 2007, the date the temporary ban, introduced in October 2005 after birds at a quarantine centre in the UK were found to have avian influenza, expires. The ban was made permanent on disease prevention grounds following an assessment by the European Food Standards Agency that imports of wild-caught birds risked the introduction of diseases such as avian influenza and Newcastle disease. The new regulation contains exemptions that allow, for example, the importation of wild birds for zoos and scientific research and for approved conservation projects subject to certain quarantine restrictions. Only captive-bred birds from certain approved breeding centres in a limited number of certified countries will be allowed in.

  Legal Eagle (RSPB newsletter), No. 52, April 2007

wildlife forensics
A NEW APPROACH

One of the main difficulties associated with the enforcement of wildlife trade regulations is the correct identification of the species involved. Although a great deal of money and effort has been put into the production of taxonomic guides for Customs and other enforcement personnel, these visual guides are frequently inadequate to deal with circumstances where the morphology is lost or altered, such as the trade in animal and plant parts and derivatives.

Secondary identification techniques, where scientific laboratories are employed to provide the correct identification, have received relatively little in the way of resources or support. This is unfortunate as scientific techniques are particularly applicable to answering specific questions relevant to the illegal wildlife trade and also, conversely, suitable for monitoring and substantiating the legal trade. Forensic techniques, such as the analysis of DNA and stable isotopes, are available for definitively identifying the presence of a species and its geographical origins. This is possible even from cooked, ground or processed products such as traditional medicines and other parts and derivatives.

Despite their potential, wildlife forensic techniques are seldom used and to date have been relatively ineffective in enforcement and prosecution. The reasons for this are likely due to the lack of general information available as to what tests are possible and for which species such tests are currently available. In addition, the development of scientific tests and the capacity to carry out such tests has typically been lacking in biodiversity-rich developing countries. It is often difficult for researchers to secure funding to develop wildlife forensic tests as these tests are often applied in nature and therefore fall outside the funding requirements of academic funding sources. As research can be expensive and time consuming, it may also not have had the profile generally necessary for charitable or NGO funding.

TRACE

DEVELOPING WILDLIFE FORENSIC TESTS.

To redress this situation, a new non-profit organization, TRACE–the wildlife forensics network, has been established. TRACE (Technologies and Resources for Applied Conservation and Enforcement) is dedicated to the promotion of forensic science in wildlife conservation and law enforcement. Its principle aim is to reduce illegal trafficking of fauna and flora through the co-ordinated application of scientific techniques in support of wildlife crime investigation. To carry out this aim, TRACE has three main goals. The first is to form a worldwide network of people involved in wildlife forensics and link their expertise to Customs and enforcement agencies requiring their services. To enable this, the UK Government's Department for Environment, Food and Rural Affairs (Defra) has funded the development of a website and portal where stakeholders can register for up-to-date information and directly request help for specific problems. The second goal is to develop wildlife forensic capacity in countries where it is currently absent. As well as offering assistance via the TRACE portal, support is also offered in the form of bespoke forensic training courses where expertise on procedures, >

TRACE *training course*

During March 2007 the Veterinary Genetics Laboratory of the Faculty of Veterinary Science, University of Pretoria, South Africa, hosted the first TRACE Wildlife DNA Forensics course. The intensive seven-day course was presented by Dr Jon Wetton of the UK's Forensic Science Service and Drs Rob Ogden and Ross McEwing of TRACE-the wildlife forensics network. It covered a range of subjects from biological sample collection through DNA extraction, species, geographical and individual identification, as well as the presentation of forensic evidence in court. The course was a mixture of formal presentations, laboratory practical demonstrations and fieldwork. Fifteen delegates were present from a variety of universities, veterinary agencies and biological conservation agencies of South Africa.

The training course was also used as an opportunity to gather key stakeholders together from the main South African government, wildlife, police, veterinary and forensic agencies to meet and discuss matters relevant to wildlife forensics in South Africa. The meeting ended with the formation of the Environmental Forensics Working Group of South Africa. This group, chaired by Jonathan Evans (TRAFFIC East/Southern Africa: South Africa) has the support of South Africa's Department of Environmental Affairs and Tourism Director of Enforcement, and will operate in full co-operation with existing bodies such as DEAT's recently formed National Environmental Crime Forum.

For information on this group or its objectives, please contact Jonathan Evans: jonathan.evans@ewt.org.za

> techniques and protocols can be passed directly to government or university laboratory staff, thus increasing the ability to test in-country. For example, a week-long course on the application of wildlife DNA forensics was recently presented by TRACE in South Africa. The last, and of course most difficult, objective for TRACE is to lobby support from governments, agencies and charities to fund novel techniques and approaches to investigate wildlife crime and to direct this funding and support to the countries where the forensic capacity is required. Only by supporting the development of wildlife forensic capacity within biodiversity-rich developing countries can the tool of wildlife forensics truly be realised.

TRAFFIC has entered into a collaborative agreement with TRACE to promote the use of forensic science in biodiversity conservation and the investigation of wildlife crime.

Ross McEwing, TRACE-the wildlife forensics network
E-mail: ross.mcewing@tracenetwork.org
TRACE-the wildlife forensics network: www.tracenetwork.org

Detecting ivory poaching . . .

Sensors that will pick up the presence of poachers are to be installed in a national park in the Democratic Republic of Congo as part of a pilot study being funded by the Wildlife Conservation Society. The devices are small seismic detectors called TrailGuards which are based on military technology designed to detect enemy troop movements. They have been adapted by Wildland Security, a company based in New York City that specializes in sensors to detect wildlife crime.

The devices are buried along forest pathways to pick up the footfalls of people as they pass. To distinguish hunters from other passers-by, the devices also contain magnetometers that can detect iron in guns several metres away. Once triggered, the TrailGuards transmit a radio signal to an antenna at the top of the forest canopy, which relays it to a hub to be sent to forest rangers over a satellite phone link. Ten TrailGuards will be laid out along the park boundary on major access trails used by poachers. The devices are also being used in the Osa Peninsula on the Pacific coast of Costa Rica where poaching is a threat to the region's jaguars and peccaries, as well as in the Altai Republic in southern Russia where poachers arrive by helicopter each winter to hunt Snow Leopards illegally.

Another device being used in the DRC park alongside TrailGuards to alert rangers to poaching activities will provide an additional line of defence. Acoustic sensors developed by Cornell University, New York, to monitor elephants communicating with each other use specialized low-frequency microphones hidden in trees to record the elephants' signals onto computer. Engineers are developing the software to pick out the sound of gunfire from the data stream which can automatically notify rangers as soon as shots are heard.

New Scientist, 9 December 2006

. . . and origin of poached ivory

Policing the illegal ivory trade has been hampered by the inability to determine reliably the geographic origin of contraband ivory. Ivory can be smuggled across international boundaries and along numerous trade routes, making poaching hotspots and potential trade routes difficult to identify. Knowing the origin of ivory in seizures enhances understanding of where elephants are being killed illegally and routes by which the ivory is smuggled. An innovative DNA extraction method was recently employed on sample elephant tusks from a large seizure of ivory in an effort to determine the geographic origin of the consignment.

The seizure was made in June 2002, after a container arriving in Singapore via South Africa and Malawi, was found to contain 532 tusks of diverse size and weights, as well as 42 120 "hankos" (small ivory cylinders used to make personal name seals) (see also *TRAFFIC Bulletin* 19(2):78). Investigations revealed that part of the ivory had been carried from Zambia into Malawi in small lots before shipping. DNA extracted from a selection of the tusks and compared against a reference database of DNA samples of known geographic origin showed that the ivory samples were entirely from savanna elephants, and most probably originating from a narrow band extending from Angola across to Mozambique and centred on Zambia.

While the paper provides a useful and credible assessment of the origins of the tusks in the Singapore ivory seizure, it should be noted that some of the information contained therein, for example data relating to the seizures provided as background to the research findings, and the number of elephants estimated to have been poached to supply the ivory seized in Singapore, has been questioned.

The full report is published in the Proceedings of the National Academy of Sciences of the United States of America and can be downloaded from: *www.pnas.org/cgi/content/full/104/10/4228?maxtoshow=&HITS=10&hits=10&RESULTFORMAT=&fulltext=elephant+tusk&searchid=1&FIRSTINDEX=0&resourcetype=HWCIT.*

WWF-CANON / ROGER LEGUEN

POACHERS CARRYING ELEPHANT TUSKS, SOUTH LUANGWA NATIONAL PARK, ZAMBIA.

SPOTLIGHT ON ELEPHANT

In 2006, at the request of the Belgian Government, TRAFFIC conducted market surveys in Belgium, a country which has historically played an important role in the international ivory trade. The project also involved analysis of Belgian seizures data for elephant ivory and other specimens of CITES-listed species with the aim of assisting Belgian enforcement authorities in targeting their controls effectively.

Ivory for sale in Belgian cities

In order to evaluate the quantity of ivory objects currently for sale in Belgium, 56 shops and markets in three main cities of the country (Brussels, Antwerp and Ghent) were visited over a five-day period. In total, around 350 objects of elephant ivory were recorded, of which almost 80% were found in Brussels. In addition to elephant ivory, a very limited number of products made of ivory from hippopotamus and mammoth, narwhal tusks and some objects made of horn or bone were noted. A great diversity of elephant ivory objects were found on sale, but jewellery and statuettes represented more than half of the objects recorded during the surveys. Nearly all those products were declared by shopkeepers as being antiques[1].

By way of comparison, according to the results of investigations undertaken in 2004 by Martin and Stiles in other European Union (EU) countries[2], the quantity of ivory objects for sale in Belgium reached a level close to that in Italy (461) but substantially lower than in Germany (16 444), the UK (8325), France (1303) or Spain (621). It is worth noting, however, that Martin and Stiles spent more time and visited more locations and therefore the results cannot be directly compared.

Nearly 50 000 CITES-listed specimens seized in Belgium

TRAFFIC also analysed data of seizures of CITES-listed specimens that had taken place in Belgium, with the aim of informing the Belgian authorities about the characteristics of the illegal trade in CITES-listed species. Data were derived from the EU-TWIX (European Union–Trade in Wildlife Information eXchange) database, in which information on seizures made in the EU is being collected.

TRAFFIC conducted both an historical analysis covering over 20 years-worth of seizures data, as well as a more detailed strategic analysis of seizures made in Belgium from 2000 to 2005. The strategic analysis also looked at information such as which CITES-listed species were seized most frequently, the commonly used commercial trade routes, the method of transport, the type of offence, the methods of concealment and of detection of specimens, and the nationality of the persons involved in the illegal activities.

According to EU-TWIX data, approximately 1500 seizures, involving nearly 50 000 specimens of CITES-listed species, were made in Belgium from 1984 to 2006. Over this period, 47% of these seizures took place at the time of importation, 51% were made in transit or during internal trade within the country, and only 2% were made during export or re-export.

A. AFFRE / TRAFFIC

ELEPHANT IVORY PRODUCTS FOR SALE IN A SHOP IN BRUSSELS, AUGUST 2006.

From 2000 to 2005, the country of origin of over a quarter of the seizures was the Democratic Republic of Congo (DRC). Specimens seized in Belgium over that period were most commonly concealed in personal luggage or in mail and, to a lesser extent, in freight. Concealment in freight or mail seemed to indicate the existence of illegal activities with a probable commercial goal. On the other hand, specimens seized in personal luggage were likely to belong to tourists returning from holiday and probably unaware of the regulations on wildlife trade.

Both the historical data and the strategic analysis (2000–2005) revealed that ivory was the CITES product seized by far the most frequently in Belgium, both with respect to the number of seizures (71 out of 405 for 2000–2005) or the number of specimens seized (2691 out of 6475). The other species seized in significant quantities between 2000 and 2005 involved mostly reptiles. Of these, the Nile Crocodile *Crocodylus niloticus* and African Savanna Monitor *Varanus exanthematicus* were the most frequently seized.

Analysis of reported seizures involving elephant ivory products

This project also provided the opportunity to compare, for the first time, ivory seizures data recorded in EU-TWIX and in ETIS, the Elephant Trade Information

IVORY SALES IN BELGIUM

System which CITES Parties approved to track illegal trade in ivory. Although the ETIS and EU-TWIX databases do not contain exactly the same data on elephant products, there is close parity between the two datasets. Both show that the volume of ivory seized and the number of seizures of ivory in Belgium has steadily declined since 1990, when all elephant populations were listed in Appendix I of CITES.

Illegal trade in elephant ivory between Belgium and its former African colonies and protectorates is still significant. Between 1989 and 2005, about half of all ivory seizures in Belgium involved the DRC, and ivory trade from the DRC to, and through, Belgium persisted throughout the period.

Based on data of seizures involving Belgium as a destination market, it appears that most of the seizures involved small worked ivory products that most likely represent tourist curios and other small 'personal effects'. In sharp contrast, a significant number of the seizures that involved ivory transiting through Belgium comprised commercial volumes of raw or semi-worked ivory moving through Belgium to ivory manufacturers in other locations, mainly in Asia. Such trade is most likely transiting Belgium because of advantageous air routes linking African ivory-producing countries with Asian ivory manufacturing and consuming markets.

Next steps

Based on the findings of the study, the authors make a number of recommendations to improve implementation and enforcement of wildlife trade controls in Belgium. These include the need for enforcement officers to increase controls of mail and freight, and to pay particular attention to travellers, personal luggage and shipments which are entering or transiting through Belgium from the DRC. Specifically, with regard to the trade in ivory, the report recommends: that the feasibility of forensic analysis of ivory be explored in order to verify the age of ivory objects for sale, in view of the difficulty of verifying claims that an object is antique and in determining its age; organizing a training course on the identification of ivory in order to reinforce the capacity of enforcement authorities in Belgium; and, monitoring two shops, for which the surveyors had reasons to doubt the legality of the ivory for sale.

The full TRAFFIC report, available in French, with an English Executive Summary, can be downloaded from www.traffic.org: *Le commerce illegal et la vente d'espèces CITES en Belgique : ivoire d'éléphant et autres spécimens* (Illegal trade and the sale of CITES-listed specimens in Belgium : elephant ivory and other specimens).

Amélie Knapp and Alexandre Affre, TRAFFIC Europe

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[1] *European Community legislation on wildlife trade defines an antique as a worked specimen that was acquired before 1 June 1947; trade and sale of these objects is less strictly regulated.*

[2] *Martin, E. and Stiles, D. (2005).* The Ivory Markets of Europe. *Save the Elephants, London, UK.*

What's New in the EU?

In 2003, the European Commission contracted TRAFFIC Europe to launch the first website dedicated to wildlife trade in the European Union (EU). The site—*www.eu-wildlifetrade.org*—provides up-to-date and tailor-made information for the commercial wildlife trade sector and general public in the EU, and in non-EU countries, on various aspects relating to wildlife trade in the Union. To make it accessible to as many people as possible, the website was developed with information available in the 10 official languages of the 15 EU Member States.

The website contains information about important aspects of CITES and the European Community (EC) Wildlife Trade Regulations which implement CITES in the EU. In addition, it provides details of the national CITES-related legislation of the EU Member States, and clearly outlines the legal obligations with regard to trade in species of wild fauna and flora for aspects such as permit requirements, marking of specimens, captive-breeding and artificial propagation, trade in personal effects and holiday souvenirs. The website also contains information about provisions in place in the EU which may be stricter than CITES, such as existing import restrictions.

Since the website was launched, the EU has almost doubled in size. In May 2004, 10 new countries joined the EU and in January 2007, Bulgaria and Romania followed suit, bringing the total number of Member States to 27. TRAFFIC Europe updated the website last year and expanded it to include the official languages of the 10 Member States which joined the EU in 2004. The website also contains new features including detailed information on the new caviar-labelling legislation in the EU and a list of Frequently Asked Questions.

To become an informed and responsible wildlife trader, or to find answers to your questions about wildlife trade, visit *www.eu-wildlifetrade.org*.

Amélie Knapp, TRAFFIC Europe

PHOTO CREDITS (L. TO R.): WWF-CANON / MARTIN HARVEY; KIM LOCHEN / TRAFFIC; WWF CANON / EDWARD PARKER; BIRDLIFE INTERNATIONAL

CALL FOR SOUTH AFRICAN PORCUPINE STUDY

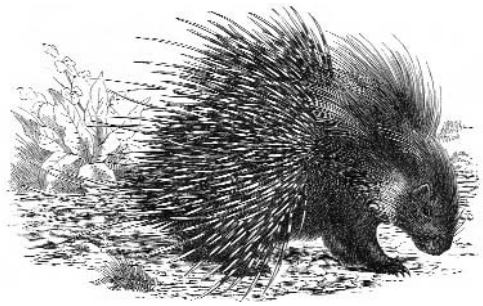
There has been a marked increase in recent years in the number of retail outlets in South Africa stocking Cape Porcupine *Hystrix africaeaustralis* quills and quill products, according to a study by the International Fund for Animal Welfare (IFAW). The quills are used to make jewellery, lampshades, picture frames, table mats and coasters, for example, and can range in price from between R2.00 (USD0.28) per quill in a retail outlet, to around R6.00 (USD0.85) for a bundle of 12 quills through dealers, who usually sell them in large quantities, ranging from 15 000 to 20 000 quills.

In South Africa, it is generally thought that the porcupine is relatively common and the core population is stable. There is no enforced permitting structure in place to regulate the hunting of, or trade in, porcupines. However, the IFAW report states that no studies appear to have been conducted to determine the impact of unregulated hunting on porcupine populations over the last few years. Nevertheless, many farmers regard them as problem animals or vermin because they eat crops, dig up irrigation piping and bite through fencing, helping predators to prey on livestock. As a consequence they are regularly trapped and shot, or killed with a single blow to the head. Once the porcupine has been killed, the farm labourers eat the meat and the quills are either burned or discarded or cleaned and sorted into bundles to be collected by quill dealers. Owing to the growing aesthetic appreciation of quills, the dealers are reported to be encouraging farm labourers to hunt porcupines specifically for the trade by offering them money or commodities and thereby providing an incentive to hunt them.

IFAW strongly urges the relevant conservation authorities to initiate a study of porcupines within a designated study area to determine the impact and effects localized hunting practices are having on these animals, as well as provide a regional estimate for the species.

The results of the IFAW study were published in *Africa Geographic* (April 2007). Details available from: *www.africa-geographic.com/magazines/africa-geographic/index.asp?date=2007/04/01*. The Executive Summary of the report can be downloaded from: *www.ifaw.org/ifaw/dimages/custom/think%20Twice/porcupineQuills.pdf.*

www.ifaw.org/ifaw/dimages/custom/think%20Twice/porcupineQuills.pdf; The Mail & Guardian (South Africa), 23 October 2006



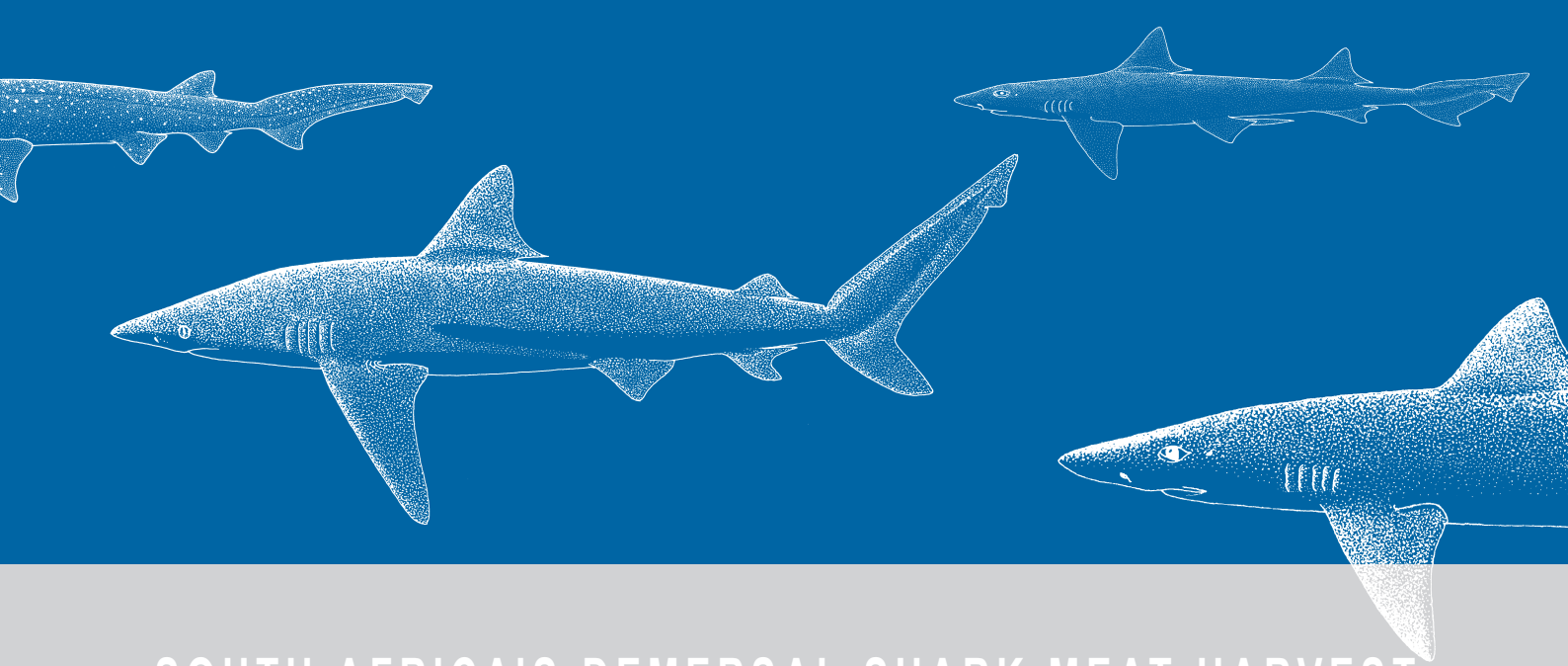
MEXICO REGULATES SHARK FISHING

Mexico has one of the largest shark fisheries in the world and the sustainability of this fishery has been seriously questioned owing to declines in stock abundance. Following more than 10 years of efforts to establish quotas and a management plan for sharks and rays, new legislation to regulate the fishery, including a ban on shark finning, was introduced earlier this year.

NORM 029 was officially published on 14 February 2007, and includes provisions for the sustainable use of sharks and rays, in addition to that of various marine mammals and marine turtles. Among the many elements contained in the regulation, the following can be highlighted:

- a ban on shark finning;
- protection of certain sharks and rays whose status is of conservation concern (such as the Great White Shark *Carcharodon carcharias*, Whale Shark *Rhincodon typus*, Basking Shark *Cetorhinus maximus*, and Giant Manta *Manta birostris*);
- control of fishing effort and specifications for fishing gears, including a fishing ban in the following areas:
  - around coral reefs;
  - during closed seasons;
  - in waters facing marine turtle nesting beaches;
  - around sea lion colonies;
  - in zones declared as sanctuaries so as to protect breeding sharks and rays;
- a ban on the use of gill nets in ships, driftnets and trawls;
- procedures have been set up to establish regional, temporary or seasonal closed periods;
- establish an information system based on fishing log books, landings, on board observers and identification guides for rays and sharks;
- set up a National Action Plan for shark and ray conservation within the framework of the UN Food and Agriculture Organization (FAO)'s International Plan of Action; and,
- establish a restricted coastal zone for shark fisheries (10, 15, 20 or 50 nautical miles), depending on the type of ship.

La Jornada Ecológica: www.jornada.unam.mx/2007/03/26/eco-d.html, from an article written by Raul Villasenor Talavera, Technical Secretary of the Consultative Committee of Responsible Fisheries Standardization; TRAFFIC North America: www.traffic.org/news/TNAM_Spring_2006_Newsletter.pdf.



LINE DRAWINGS COURTESY OF FAO

SOUTH AFRICA'S DEMERSAL SHARK MEAT HARVEST

C. Da Silva and M. Bürgener

A number of demersal shark species are processed in South Africa for export to Australia, where there is high consumer demand for shark fillets that cannot be met by Australia's shark fishing industry. Most of these sharks are caught as by-catch but some are targeted in a number of South African fisheries. This paper examines the harvest of demersal sharks in South Africa, and the processing of demersal shark meat destined for export to Australia. Trade statistics for demersal shark products traded between the two countries during the period 1998 to 2005 were reviewed. The study shows that there is limited management and monitoring of the catch and trade in these species and related products; these inadequate regulatory controls, coupled with the increased targeting of demersal sharks in the South African traditional linefishery, could make certain species vulnerable to over-harvesting. Further, there are discrepancies in the import and export datasets for the two countries, and both the catch figures and trade data lack the necessary detail for effective monitoring and regulation of the catch and trade. Capacity building of compliance officers to improve identification of demersal shark products in trade is required and trade data discrepancies should be resolved. A review of trade categories used by Australia and South Africa for shark products in trade would assist in monitoring the trade.

Introduction

Historically, the shark fishery in South Africa has been inadequately managed. This lack of control also affects sharks caught as by-catch in a number of other South African fisheries. While there is a paucity of accurate biological and fisheries knowledge, recent preliminary stock assessments of two demersal shark species (i.e. sharks living or occurring in deep water or on the bottom of the sea) indicate that these species are overexploited.

Demersal sharks are primarily caught as by-catch in South African waters, with the bottom-trawl hake-directed fisheries posing potentially the greatest threat to sharks and other chondrichthyans.[1] Although catch data are available, there is doubt as to the validity of some of these figures, and there is inadequate monitoring of catches and landings. Furthermore, the pre-processing preparation of shark carcasses (headed and gutted) occurring on vessels at sea severely inhibits accurate species identification at the point of landing. Customs data in both South Africa and Australia, the major importing country, are inconsistent with known processed volumes. These aspects, coupled with anecdotal evidence of increased demand in shark fillets from Australia, make certain demersal shark species harvested in South Africa susceptible to overexploitation.

The first review of the trade in sharks and shark products in South Africa was conducted in 1996 (Smale, 1996). This was followed by an economic and sectoral study of the South African shark fishing industry (Sauer *et al.*, 2003). Unfortunately neither study paid particular attention to the trade in demersal shark products, and, in particular, the trade in demersal shark fillets to Australia. There is very little consumption of shark meat in South Africa, and Australia is the principal market for products derived from demersal shark landings in South Africa. Spiny Dogfish *Squalus acanthias* and Shortnose Spurdog *Squalus megalops*—two demersal shark species for which there is a market in Europe—are caught in South African trawl and Shallow-water Cape Hake *Merluccius capensis* longline fisheries, but are almost all discarded.

Although other products are derived from demersal sharks, the trade in the meat to Australia is perceived as the principal driver of harvest and trade within certain South African fisheries. This paper focuses on the trade in demersal shark meat, and specifically on trade in species destined for the Australian market.

[1] *Chondrichthyans or cartilaginous fishes are divided into two subclasses: Elasmobranchii (elasmobranches: sharks, rays and skates) and Holocephali (chimaera, sometimes called ghost sharks).*

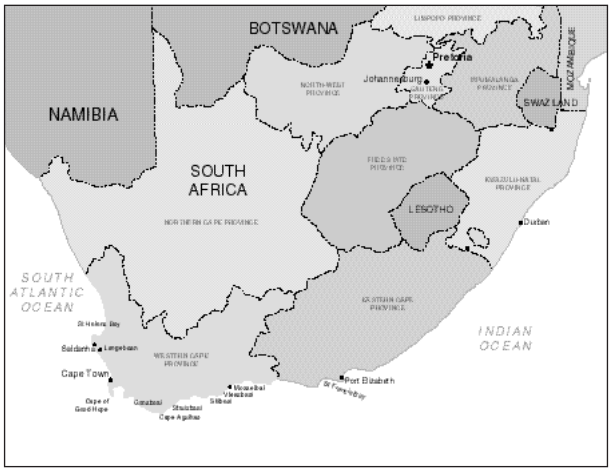


Figure 1. Principal fishery operations, landing and processing sites in South Africa for demersal sharks.

Background

Since the arrival of the early European settlers in South Africa in the mid-seventeenth century, there has been interest in shark fishing. The first documented account of gill net shark fishing is from the 1930s off the Kwa-Zulu Natal coastline (Sauer *et al*., 2003). Annual landings in 1931 were 136 t rising to over 1000 t by 1940 as the demand for shark liver oil as a source of vitamin A led to an increase in shark catches during World War II. In 1941, a directed shark fishery was initiated primarily targeting the Tope Shark *Galeorhinus galeus*.

DOUG PERRINE / SEAPICS.COM

Smooth-hound *Mustelus mustelus*—the most commercially important demersal shark species in South Africa.

Despite the continued interest in shark fishing, this fishing sector had a low profile, competing in South Africa with an abundance of other marine resources, particularly the large commercial trawl operations that focused on the whitefish market for both local and export markets. Over the past decade, however, shark exports from South Africa have started to increase. A new directed shark fishery has since expanded into the fin trade and recently into the shark fillet industry for Australia (Da Silva, in prep.).

The demersal shark trade in southern Africa is primarily concentrated on five species. In order of commercial importance they are: Smooth-hound *Mustelus mustelus*, Tope Shark *Galeorhinus galeus*, Copper Shark *Carcharhinus brachyurus*, Dusky Shark *Carcharhinus obscurus* and Whitespotted Smooth-hound *Mustelus palumbes*. Copper Shark, Smooth-hound, Dusky Shark and Tope Shark are cosmopolitan species. Whitespotted Smooth-hound is endemic between Namibia and KwaZulu-Natal (Compagno *et al*., 1984). The Spotted Gully Shark *Triakis megalopterus*, Blacktip Shark *Carcharhinus limbatus*, Smooth Hammerhead Shark *Sphyrna zygaena* and Broadnose Sevengill Shark *Notorynchus cepedianus* are also used in the demersal shark trade to a limited degree. Table 1 lists the common and scientific names of all shark species mentioned in this report.

The 1991 collapse in the Australian Tope Shark industry (McGregor, 1991) led to increased importation from New Zealand to sustain high Australian consumer demand for shark fillets. According to Brand (pers. comm., 2005), the New Zealand shark fisheries were unable to sustain the Australian demand. As a result, demand for fillets of demersal sharks from South Africa has increased. This has led to larger catches of Tope Shark, both smooth-hound species, Copper Shark, Dusky Shark and to some degree Spotted Gully Sharks. As there is limited consumption of shark meat in South Africa, the vast majority of processed demersal shark meat is exported to Australia principally for consumption in the fish-and-chips trade.

Methods

In the period between April and July 2006, interviews were conducted with fishermen, traders and processors in areas of the Western Cape, Eastern Cape and KwaZulu-Natal provinces of South Africa. The purpose of the interviews was to obtain information on the trade in teleosts (fish with bony skeletons) and demersal sharks. Three South African demersal shark processing factories were visited between October 2005 and September 2006: the factory in Port Elizabeth was visited bi-monthly and the factories in Cape Town were visited quarterly over this period. All animals processed during a particular sampling day were identified, sexed, measured, and maturity assessed. Catch data for various South African fisheries were sourced from the South African Department of Environmental Affairs and Tourism: Branch Marine and Coastal Management

Common English name	Common name used in South Africa	Scientific name
Cape Elephantfish	St Joseph	*Callorhinchus capensis*
Copper Shark	Bronze Whaler	*Carcharhinus brachyurus*
Dusky Shark	Dusky Shark	*Carcharhinus obscurus*
Blacktip Shark	Blacktip Shark	*Carcharhinus limbatus*
Tope Shark	Soupfin Shark	*Galeorhinus galeus*
Shortfin Mako Shark	Shortfinned Mako Shark	*Isurus oxyrinchus*
Smooth-hound	Smooth-hound	*Mustelus mustelus*
Whitespotted Smooth-hound	Smooth-hound	*Mustelus palumbes*
Broadnose Sevengill Shark	Spotted Sevengill Shark	*Notorhynchus cepedianus*
Blue Shark	Blue Shark	*Prionace glauca*
Lesser Sandshark	Sandshark	*Rhinobatos annulatus*
Smooth Hammerhead Shark	Smooth Hammerhead Shark	*Sphyrna zygaena*
Spiny Dogfish	Spiny Dogfish	*Squalus acanthias*
Shortnose Spurdog	Shortnose Spiny Dogfish	*Squalus megalops*
Spotted Gully Shark	Spotted Gully Shark	*Triakis megalopterus*

Table 1. A list of all shark species referred to in this study, including their common names in English (used in this report) and South Africa.

(MCM) and from annual volumes of the Fishing Industry Handbook for South Africa, Namibia and Mozambique, and analysed. Catch records reflect only fish landed and do not include fish discarded at sea. International trade data between South Africa and Australia were obtained from annual volumes of the Fishing Industry Handbook for South Africa, Namibia and Mozambique, and from the Australian Bureau of Statistics, respectively, and analysed. Some of the information presented in this paper by Da Silva is developed in more detail in Da Silva (in prep.).

Little research has been conducted on investigating the status of demersal sharks exploited in southern Africa. Preliminary results suggest that the populations of Smooth-hounds and Tope Sharks are overexploited and threatened (Da Silva, in prep.; McCord, in prep.). To date, no stock assessment has been completed for Copper Shark, Dusky Shark or Whitespotted Smooth-hound. A rapid assessment indicator table (RAIT) was modified by McCord (in prep.) from Walker (2004). This method is a simple scoring system that rates biological, fisheries and stock assessment data, by assigning an arbitrary scoring system regarding data quality and certainty of biological and fisheries parameters, based on a scale of zero to three. A total score of 66 is possible. This method enables easy prioritization of species with regard to establishing the research and management required.

The RAIT method was initially used for an assessment of Tope Sharks (McCord, in prep.) and a score of 20 was obtained. The method was then used for Smooth-hounds, Whitespotted Smooth-hounds, Copper Sharks and Dusky Sharks, where respective scores of 16, 7, 27 and 27 were obtained. Scores of 0 to 30 indicate an immediate necessity for scientific and management intervention within the fishery (McCord, in prep.).

[2]*Reg. 30(3)(b);* [3]*Section 1;* [4]*Regulation 74(d);* [5]*Regulation 74(g)*

Regulation and Management

All fisheries in South Africa, as well as the processing, sale in and trade of almost all marine resources, are regulated under the *Marine Living Resources Act 18* of 1998 (MLRA). Under the terms of the regulations, sharks may not be landed, transported, transshipped or disposed of with their fins removed[2], without the authority of a permit. There are no commercial catch restrictions in place with regards to any demersal shark species caught in South African waters.

The Act also states that no person may operate a fish processing establishment unless authorized.[3] Fish processing establishments are defined in the MLRA as follows: " '*fish processing establishment*': means any vehicle, vessel, premises or place where any substance or article is produced from fish by any method including the work of cutting up, dismembering, separating parts of, cleaning, sorting, lining [i.e. the lining of packaging and/or the interleaving of plastic sheets between fish products] and preserving of fish, or where fish are canned, packed, dried, gutted, salted, iced, chilled, frozen or otherwise processed for sale in or outside the territory of the Republic' ".[3] A holder of a commercial fishing permit may not deliver any fish or any part thereof to any person for processing purposes without authorization.[4] The MLRA also prohibits a commercial rights holder from marketing any fish or any part thereof, unless it has been packed in accordance with the prescribed specifications of the South African Bureau of Standards.[5]

Landings are monitored in the Eastern, Western and Northern Cape provinces by MCM (Marine and Coastal Management) Fisheries Control Officers as well as monitors under contract to MCM. The latter have no enforcement powers. In KwaZulu-Natal Province, implementation of the MLRA is carried out by the provincial conservation authority, Ezemvelo KwaZulu-Natal Wildlife. The majority of officials in all provinces

Activity	Area	Nature
Offshore trawl	West Coast, Agulhas Bank to shelf edge (600 m depth)	By-catch only
Prawn trawl	Natal East Coast to 600 m	By-catch only
Inshore trawl	South and East Coast to 200 m	By-catch only
Hake longline	West and South Coast to 500 m	By-catch only
Shark longline	West and South Coast	Target
Domestic tuna longline	Offshore to EEZ	By-catch
Foreign tuna longline	Offshore to beyond EEZ	Target/by-catch
Recreational line	Inshore to 200 m	By-catch
Commercial handline	Inshore to 200 m	By-catch/target
Gill net	West Coast	Target
Beach seine	West and South Coast	Target/by-catch

Table 2. Activities impacting sharks in South African waters. *Source: Sauer* et al., *2003*

lack the species identification skills to identify correctly demersal sharks to the species level. Species identification is especially difficult for demersal sharks as they are normally landed having been headed and gutted at sea. Da Silva (2006) has developed a species identification tool for demersal sharks in trade that have been headed and finned.

Results

Harvest

Demersal sharks in South Africa are either targeted directly or caught as by-catch. Most are caught in the traditional linefishery, the inshore trawl fisheries, and the demersal shark longline fishery. While demersal sharks are at times targeted in the traditional linefishery, they are taken only as by-catch in the inshore trawl fishery. The main landing sites for demersal sharks are Port Elizabeth, Mosselbaai, Vleesbaai, Stilbaai, Struisbaai and Gansbaai, the principal species landed being the Smooth-hound and Tope Shark.

All known forms of exploitation of all shark species in South African waters are presented in Table 2.

A small shark longline fishery operates between Cape Agulhas in the Western Cape Province to Port Elizabeth in the Eastern Cape Province, with landing and processing sites based in Port Elizabeth and Mosselbaai; the primary species targeted are the Smooth-hound and Tope Shark. Longline permits for the directed catching of sharks were first issued in 1991 (Crawford *et al*., 1993). Prior to permitting, sharks were mainly caught as by-catch in other fisheries.

Vessels use two fishing methods to catch sharks. The first employs a drift longline and targets oceanic species such as Blue Shark *Prionace glauca* and Shortfin Mako Shark *Isurus oxyrinchus*. The second uses a bottom-set longline and targets Tope Sharks. Smooth-hounds are also caught. Crawford *et al*., (1993) suggests that the incentive to gain shark longline fishery permits was to exploit loopholes in the regulations to catch Shallow-water Cape Hake *Merluccius capensis* by longline, which had been banned in 1990. After large quantities exceeding the 1991 Total Allowable Catch (TAC) for hake (using other catch methods, e.g., trawling) had been caught by this method, boats in possession of shark longline permits were given hake and Kingklip *Genypterus capensis* catch limits. A number of the vessels in possession of shark longline permits have tuna permits and will, whenever possible, target fish associated with that fishery as they have a higher commercial value. The shark longline fishery was restructured in 2006 with the decision being made to regulate the catch of pelagic shark species (those living or occurring in the upper waters of open sea) within the existing large pelagic tuna and swordfish fisheries. Demersal shark catches are regulated separately and there are currently six rights-holders licensed to operate within this fishery. This is an effort-controlled fishery (i.e. regulation of fishing effort is used as a mechanism to limit catches. This is done

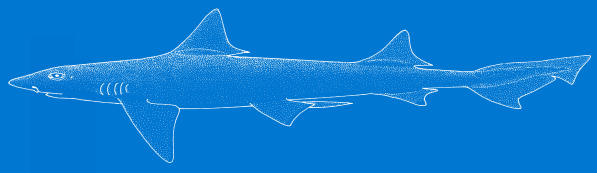
Year	Tope Shark *Galeorhinus galeus*	Smooth-hounds *Mustelus mustelus* *Mustelus palumbes*	Copper Shark *Carcharhinus brachyurus*	Shortnose Spurdog *Squalus megalops*	Total
2001	17 865	4 723	1 771	0	24 359
2002	8 230	1 503	1 870	42	11 645
2003	5 497	0	1 700	0	7 197
2004	9 922	5 210	3 007	0	18 139
2005	2 306	0	3 103	0	5 409
Total	43 820	11 436	11 451	42	66 749

Table 3. Catches (kg) of demersal sharks in the South African shark longline fishery, 2000 to 2005. These figures reflect the weight of the sharks after being headed and gutted.

Source: Department of Environmental Affairs and Tourism: Branch Marine and Coastal Management

Smooth-hound *Mustelus mustelus*

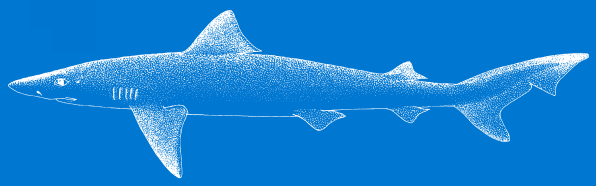
Found in Mediterranean and West Africa to Namibia, and as far east as Durban, South Africa. Benthic species occurring from shore to 350 m, usually over sandy bottom. Feeds mainly on crabs, lobsters, prawns, mantis shrimp, cephalopods and bony fish. Females mature at 1.3–1.4 m (12–15 years); males at 95 cm to 1.3 m (6–9 years). Viviparous. Between 4 and 23 pups per litter.



Smooth-hound *Mustelus mustelus*

Tope Shark *Galeorhinus galeus*

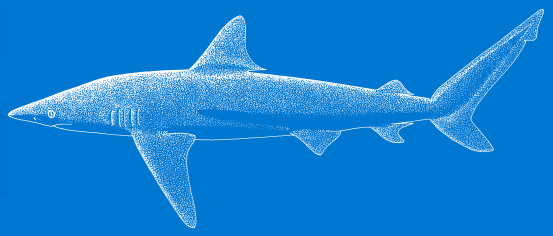
Found in temperate waters of the southern hemisphere, eastern North Atlantic and eastern North Pacific benthic species occurring from shore to 500 m. Feeds on a variety of fish, cephalopods and crustaceans. Females mature at 1.3 m (8–10 years); males at approximately 1.2 m. Ovoviparous. Between 6 and 52 pups per litter. Gestation period approximately 12 months. Females give birth during summer, producing only one litter every three years.



Tope Shark *Galeorhinus galeus*

Copper Shark *Carcharhinus brachyurus*

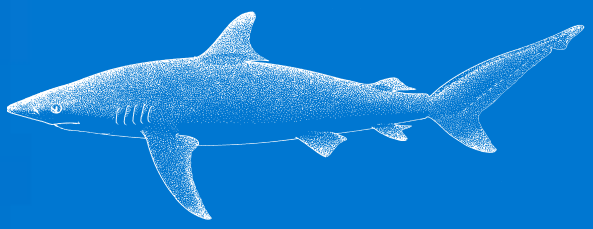
Found in warm temperate waters of all oceans. Common from Namibia to KwaZulu-Natal Province of South Africa. Coastal species usually near bottom from shore to 100 m. Feeds on benthic and pelagic fish as well as cephalopods. Females mature at 2.4 m; males and 2.0 m. Viviparous. Gestation period approximately 12 months. Between 13 and 20 pups per litter.



Copper Shark *Carcharhinus brachyurus*

Dusky Shark *Carcharhinus obscurus*

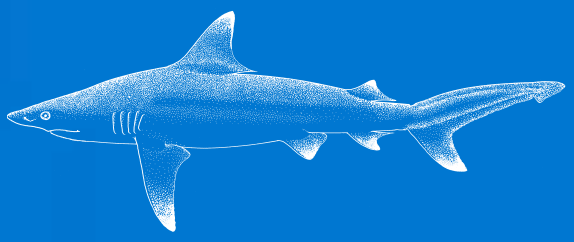
Found along continental coasts in warm temperate and tropical waters of all oceans; in Southern Africa: Western Cape Province of South Africa to Mozambique and Madagascar. Predator/scavenger feeding on a variety of fish (including sharks and rays), crustaceans, molluscs and dead marine mammals. Females mature at 2.6–3.0 m; males at approximately 2.8 m. Viviparous. Gestation period between 8 and 16 months. Between 6 and 14 pups per litter.



Dusky Shark *Carcharhinus obscurus*

Blacktip Shark *Carcharhinus limbatus*

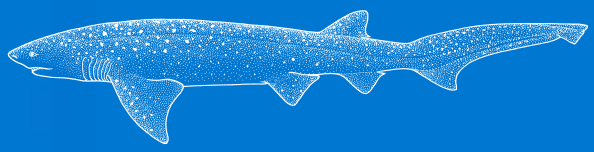
Found in tropical and subtropical waters of all oceans. Found in both inshore and offshore waters, but tends to stay close to the coasts at depths of 30 m or less. Often seen near river mouths, bays, and mangroves, although it does not penetrate far into fresh water. Feeds on elasmobranchs, bony fish, crustaceans and cephalopods. Females mature at approximately 1.2–1.9 m (6–7 years); males at 1.35–1.80 m (4–5 years). Viviparous. Between 1 and 10 pups per litter.



Blacktip Shark *Carcharhinus limbatus*

Broadnose Sevengill Shark *Notorynchus cepedianus*

Found in temperate waters of all oceans. In southern Africa, from Namibia to East London, South Africa. Not found in the Mediterranean or North Atlantic. Benthic species found from shore to 136 m. Generally cruises slowly near bottom, but occasionally seen near the surface of the water. Feeds on elasmobranchs, bony fish, crustaceans, cephalopods, marine mammals and carrion. Females mature at approximately 2 m (11 years); males at 1.5–1.8 m (4–5 years). Ovoviparous. Between 60 and 82 pups per litter.



Broadnose Sevengill Shark *Notorynchus cepedianus*

Ovoviparous: Where embryos develop in membranous egg cases and are retained in the oviducts; the pups (between 10 and 300 per litter) subsist on their own yolk until birth. Viviparous: Where embryos develop in paired oviducts and receive additional nutrients from the mother; pups are born at a relatively large size and litters are small (between two and 20 pups per litter). Sources: Smith and Heemstra (1991); Heemstra and Heemstra (2004); Anon., (2007). Line drawings courtesy of FAO.

through limiting the number of vessels that can fish in the sector) and there are no Total Allowable Catch limits, bag limits or seasonal restrictions applicable to the fishery.

Total shark catches in the shark longline fishery for the period 2000 to 2005 amounted to 2.7 million tonnes, with the total figure for the demersal shark species being 66 t (Table 3). A decline in catches is evident with total catches of demersal sharks dropping from just under 24.5 t in 2000 to 5.4 t in 2005. Catches for all shark species in this fishery declined over the same period. The drop in catch is attributed to the decrease in effort rather than stock depletion.

Trawl fisheries

The inshore and offshore trawl fisheries off the coastline of the Eastern and Western Cape provinces target Deep-water Cape Hake *Merluccius paradoxus* and Shallow-water Cape Hake, Mud Sole *Austroglossus pectoralis* and Horse Mackerel *Trachurus trachurus*. Bottom-trawl hake-directed fisheries are potentially the greatest threat to chondrichthyans (Sauer *et al*., 2003). Sharks are caught as by-catch in these fisheries and include Tope Shark and both smooth-hound species, as well as other chondrichthyan species such as Biscuit Skate *Raja straeleni* and Cape Elephantfish. The most common shark caught in trawl fisheries on the Agulhas Bank is the Shortnose Spurdog. This species is generally considered to have a relatively high biomass but is too small for processing and has a high mercury[6] content (Da Silva, in prep.).

The actual number of chondrichthyans caught in the trawl fisheries is difficult to assess due to the high level of discard. Generally, the annual shark by-catch in waters off the coast of KwaZulu-Natal, for all fisheries including the Tugela banks prawn trawl fishery, is insignificant compared to the shark by-catch from the larger hake-directed trawl fisheries of the Eastern and Western Cape (Sauer *et al.*, 2003).

The trawl catch of sharks landed is a small proportion of the actual total caught in trawls which are then discarded (Sauer *et al.*, 2003). Although elasmobranchs[1] are of little importance to the demersal trawl industry, they contribute a considerable proportion of the sharks processed in factories (Da Silva, in prep.). Overall shark catches within the inshore trawl fisheries were estimated at 606 t in 1990. The Department of Environmental Affairs and Tourism (DEAT), in a draft 2005 policy on the inshore trawl fishery, noted its concerns over the volume of by-catch in the inshore trawl fishery but made no specific reference to sharks, limiting only the by-catch of Kingklip *Genypterus capensis* and Cape Monk *Lophius vomerinus* (Anon., 2005b).

Shark catches in the South African inshore trawl fishery are reflected in Table 4. Data captured for the years 1996 to 2002 reflect catch of all shark species under the term 'sharks', while Tope Sharks are separated from sharks in 2003, and, in 2004, separate figures are also provided for *Mustelus* spp. and Shortnose Spurdog.

The traditional linefishery

The commercial traditional linefishery is a boat-based activity and currently consists of 3450 crew operating from about 450 commercial vessels. The crew use hand line or rod-and-reel to target approximately 200 species of marine fish along the full 3000 km coastline, of which 50 species may be regarded as economically important.

Stock assessments conducted since the mid-1980s have revealed that with the exception of fast-growing species, most commercially exploited fish harvested in this fishery have been depleted to dangerously low levels. Responding to the poor status of most traditional linefish resources, an environmental emergency in the traditional linefishery was declared in South Africa in December 2000 (Anon., 2005c).

The decline in the South African linefish has led to increased exploitation of demersal shark species (Hutton *et al*., 2001; Griffiths, 1997) and there has been a steady increase in catches since 1991 (Sauer *et al*., 2003).

Year	Description	Nominal mass (t)[1]
1996	Sharks	106
1997	Sharks	166
1998	Sharks	214
1999	Sharks	117
2000	Sharks	143
2001	Sharks	132
2002	Sharks	219
Year	**Description**	**Nominal mass (t)[1]**
2003	Tope shark	243
2003	Sharks	280
2003	**Total nominal**	**523**
Year	**Description**	**Nominal mass (t)[1]**
2004	Shortnose Spurdog	9
2004	*Mustelus*	15
2004	Tope shark	180
2004	Sharks	133
2004	**Total nominal**	**337**

Table 4. Shark catches (t) in the South African inshore trawl fishery, 1996 to 2004.

Sources: Stuttaford, 1999; Anon., 2001, 2005; Department of Environmental Affairs and Tourism: Branch Marine and Coastal Management.
[1]Nominal mass figures are developed from the landed (dressed), weight figure, using a conversion factor of 2.59 except for 2000 where the factor is 2,452. The term 'nominal mass' refers to round weight.

[6]Mercury is a naturally occurring heavy metal. At ambient temperature and pressure, mercury is a silver-white liquid that readily vaporizes and may stay in the atmosphere for up to a year. When released into the air, mercury is transported and deposited globally. Mercury ultimately accumulates in lake bottom sediments, where it is transformed into its more toxic organic form, methyl mercury, which accumulates in fish tissue. Mercury is highly toxic, especially when metabolized into methyl mercury. Methyl mercury is avidly accumulated by fish and marine mammals and attains its highest concentrations in large predatory species at the top of the aquatic food-chain. By this means, it enters the human diet. Sources: World Health Organization Policy Paper: Mercury in Health Care August 2005: www.who.int/ifcs/documents/forums/forum5/mercurypolpaper. pdf. Air Quality Guidelines–Second Edition. Chapter 9 Mercury: WHO Regional Office for Europe, Copenhagen, Denmark, 2000: www.euro.who.int/document/aiq/6_9mercury.pdf.

Year	Reported catch (kg)
2000	328 828
2001	182 762
2002	174 348
2003	184 854
2004	301 054
2005	230 747

Table 5. Reported shark catches (kg) in the South African commercial traditional linefishery, 2000 to 2005. These data are treated as reflecting the weight of the sharks after being headed and gutted. There are no established conversion factors.

Source: Department of Environmental Affairs and Tourism: Branch Marine and Coastal Management

Species targeted include Tope Sharks, Smooth-hounds, Dusky Sharks, Copper Sharks, Spotted Gully Sharks, Smooth Hammerhead Sharks and the Broadnose Sevengill Shark (Da Silva, in prep.).

Traditional linefish crews generally target sharks when they are unable to catch sufficient linefish. A rights holder in the traditional linefishery noted that from October to December large quantities of Copper Sharks are caught in Mosselbaai as the south-east winds steer the sharks inshore. Sharks larger than 12 kg are discarded as they have little trade value owing to high mercury content and/or poor quality flesh (Arthur Riordan, pers. comm. to M. Bürgener, June 2006). This practice appears to support other anecdotal reports that shark meat, rather than the shark fin trade, is the key driver of the harvest of and trade in demersal sharks. It appears that the demersal shark catches would be insufficient to support a distinct handline fishery and that fishers in this sector require catches of both teleosts as well as sharks to make participation in the fishery a commercial viability.

It is not known how many sharks are caught in the recreational linefishery. While there is a significant body of anecdotal evidence of the illegal trade in teleosts caught in the recreational linefishery, the same is not true for chondrichthyans. There is no evidence of demersal sharks caught in the subsistence linefishery entering trade.

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Tope Sharks caught in the traditional linefishery.

Shark catches (both demersal and pelagic species) in the South African commercial traditional linefishery for the period 2000 to 2005 are reflected in Table 5. Pelagic species comprise a small proportion of the shark catch for this fishery. Catch data were obtained from catch reports submitted by fishers to MCM and there is broad consensus that these data are inaccurate due to misreporting; the data are accorded some value for broad trend analysis, however.

Gill and beach-seine net fisheries

Gill and beach-seine net fisheries have operated traditionally on the South African west coast since 1652 and a directed gill net fishery for Cape Elephantfish was initiated in 1980. Other elasmobranchs caught in gill nets include Tope Sharks, both smooth-hound species and Lesser Sandsharks *Rhinobatos annulatus*. While beach-seine net fisheries target mostly bony fish species, significant quantities of elasmobranchs are frequently caught, comprising on average 70% skates and rays. These are usually not retained (Sauer *et al.*, 2003).

Recent studies of the in-shore net fisheries of the Western Cape have shown catch returns to be inaccurate, with up to 90% of the catch and effort, particularly of by-catch species, not reported (Hutchings and Lamberth, 2002). Estimates based on observed catch rates in monitored landings and the effort levels claimed by net fishers in a telephone survey show annual estimated catches of approximately 3500 over the period 1998 to 2000 (Hutchings and Lamberth, 2002). Hutchings and Lamberth (2002) note that gill net fishers in the Western Cape land approximately 130 t of by-catch annually, whereas illegal gill net fishers catch approximately 100 t of Smooth-hounds per year between 1978 and 2000.

Hutchings *et al.* (2002) note that other larger fish processors in St Helena Bay, Saldanha and Langebaan also deal in net-caught fish, producing dried or frozen Cape Elephantfish and Smooth-hound fillets for export.

Sourcing of demersal sharks for trade

Sharks processed primarily for the export of frozen fillets are sourced from the trawl, shark longline and traditional linefisheries. There are currently three companies in South Africa that process the vast majority of demersal sharks for export to Australia (another company, in St Helena Bay, was identified that processes and exports very small quantities—less than 12 t per annum—to Australia). Two of the companies are located in Cape Town and the third operates out of Port Elizabeth. The percentage of demersal sharks sourced from the various fisheries differs between the three factories. One of the two Cape Town-based companies noted that almost all of the demersal sharks purchased by this company are obtained from the traditional linefishery, as the crew on these vessels are generally aware of the storage and handling requirements that ensure good quality shark flesh.

Most fish buyers, traders and processors on the south-eastern Cape coast act as holding facilities for demersal sharks in trade and buy sharks from fishermen at a reduced cost to defray fishing costs not met by prime value teleosts. Such establishments process and trade in other commodities such as teleosts, abalone *Haliotis midae* and West Coast Rock Lobster *Jasus lalandii*. The sharks are purchased by these companies from the fishing vessels and are then sent to, or are collected by the companies that process and export the sharks.

Prices paid on landing (known colloquially as 'beach prices') for demersal sharks in Mosselbaai are higher (ZAR3.00–ZAR19.50 (USD0.45–USD2.8) per kg) than those received in St Francis Bay (ZAR3.00–ZAR8.00 (USD0.45–USD1.14) per kg) and Gansbaai (ZAR3–ZAR6.00 (USD0.45–USD0.85) per kg). The main reason for the difference in price is that the purchasing company in Mosselbaai is owned by one of the two Cape Town-based exporting companies and the sharks need not go through a third party (Da Silva, in prep.).

Grading

Sharks purchased from the various South African fisheries fall into three general trade categories with the following colloquial terms being used: 'good', 'bad' and 'big'.

'Good' sharks include the two smooth-hound species, Copper Sharks and Tope Sharks (the latter also referred to in the trade as gummy sharks) due to their high value flesh. 'Bad' sharks are those whose flesh has a lower value and include larger Spotted Gully Sharks, Smooth Hammerhead Sharks, and Blue Sharks. The term 'bad shark' is also used to reflect quality, in respect of which three different grades are given: 1, 2 and 3. Many factors influence the quality of the meat but are mainly concerned with on-board processing and storage of the animals. In order to obtain high quality shark flesh, sharks must be headed, gutted and bled immediately after capture. Following this they should be frozen or stored on ice; small sharks should be refrigerated whole (Da Silva, in prep.).

The term 'big sharks' in the demersal shark trade refers mainly to the mercury content of different species of sharks, rather than the physical size of the animals. Some shark species have a relatively low mercury content and would be of greater value than similar-sized sharks of other species with a high mercury content. Tope Sharks and Copper Sharks have trade value from 1.5 kg to 12 kg (Da Silva, in prep.), but specimens above 12 kg contain mercury that exceeds permissible limits. A higher price is paid for both smooth-hound species weighing below 12 kg, although animals above 12 kg are also bought but at lower prices. The pricing structure for smooth-hounds is not directly linked to mercury levels in different-sized animals but is affected, rather, by flesh quality. The flesh from large smooth-hounds shrinks when filleted and portioned, and flakes when defrosted. This lowers the quality of such specimens to grades 2 or 3. Anecdotal accounts note that the gall bladders of smooth-hounds caught over rocky areas may burst, spoiling the flesh. This problem has not been observed for Smooth-hounds caught over sandy areas (Da Silva, in prep.).

Storage and Processing

Processed small Spotted Gully Sharks, both the smooth-hound species, and Tope Sharks, are referred to as gummy or hound sharks. Copper Sharks, Dusky Sharks and Blacktip Sharks are processed and sold under the name Bronze Whalers. Blue Sharks and Short-fin Mako Sharks, both pelagic species, make up a small percentage of sharks processed (Da Silva, in prep.).

Care in handling the shark carcass subsequent to capture is of primary importance. Sharks should not be picked up by their tails as such handling tears the lateral musculature and lowers the quality of the flesh (Da Silva, in prep.). Both smooth-hound shark species are more susceptible to such damage as their flesh is described by processors as being almost as delicate as hake, and incorrect handling causes the flesh to become flaky.

Sharks generally arrive at processing facilities headed and gutted but with their fins still attached. One of the holding facilities trims the fins, which are subsequently dried and exported to Hong Kong. This practice does not appear to be commonplace, however, and is due to trade contacts in Asia associated with other seafood traded by this specific holding facility (Andries

Sharks generally arrive at processing facilities headed and gutted but with their fins still attached (1); the fins are removed (2), following which the sharks are filleted (3); the cartilage (4) removed during filleting is sold to a buyer and used in the traditional medicine sector; the fillets are packed in boxes (5) which are kept in cold storage before being exported to Australia for consumption in the fish-and-chips industry.

Year	Harmonized Commodity Description and Coding System (HS)	Mass (kg)	Value (USD)	USD (per kg)
2001	Dogfish, shark, other	37 133	44 868	1.2
2002	Dogfish, shark, other	79 741	460 872	5.78
2003	Dogfish, shark, other	97 307	932 948	9.59
2004	Dogfish, shark, other	79 552	405 449	5.1
2005	Dogfish, shark, other	50 217	145 015	2.89

Table 6. Exports of shark products from South Africa to Australia, 2001 to 2005.
Sources: Stuttaford, 1999; Anon., 2001, 2002, 2003, 2005a

Year	Harmonized Commodity Descriptions and Coding System (HS)	Mass (kg)	Value (AUD'000)	AUD (per kg)
2001	Dogfish and other sharks, fresh or chilled	23 265	207.25	7.02
1998	Dogfish and other sharks, frozen	514	1.33	2.05
1999	Dogfish and other sharks, frozen	21 282	75.66	2.84
2000	Dogfish and other sharks, frozen	92 875	408.18	3.47
2001	Dogfish and other sharks, frozen	124 523	698.21	4.42
2002	Dogfish and other sharks, frozen	9 203	32.20	2.76
2003	Dogfish and other sharks, frozen	0	0	0
2004	Dogfish and other sharks, frozen	0	0	0
2005	Dogfish and other sharks, frozen	0	0	0

Table 7. Australian imports of shark products from South Africa, 1998 to 2005.
Source: Australian Bureau of Statistics

Nouwers, pers. comm. to M. Bürgener, May 2006). Another holding facility noted that sharks not processed for the frozen fillet trade are used for fish meal (George Huishamen, pers. comm. to M. Bürgener, May 2006).

During processing, the fins are removed, following which the sharks are filleted, skinned and the fillets packed in boxes. Processors and exporters estimate the filleted weight to be approximately 50% of live weight. This estimate does not seem to be based on any specific method or calculation comparing live and filleted weight and should be treated cautiously, particularly as processors receive sharks that have already been headed and gutted and therefore do not have figures on the live weight of sharks. The boxes are kept in cold storage until there are sufficient to fill a container (approximately 10 to 12 t) and are then exported to Australia. Unlike the export of seafood products to the European Union, there is no requirement for the shark fillets to be checked by the South African Bureau of Standards.

The fins are sold to a South African buyer and are exported to Australia in frozen or dried form (Johnny Fouche pers. comm. to M. Bürgener, September 2006). An analysis of South African export data confirms the existence of such trade. The cartilage that is removed from the shark during filleting is sold to a buyer for use in the complementary medicine sector in South Africa and overseas.

All three companies processing and exporting demersal sharks are involved in the processing and trade in other seafood products. Inconsistency in supply and quality appear to preclude the commercial viability of an operation based exclusively on the processing and trade in demersal shark products. One of the trading companies noted that the demand for demersal shark fillets in Australia is high and is not being met by supply from South Africa and other countries. This company is accordingly exploring the possibility of exporting demersal shark fillets from Mauritania to Australia.


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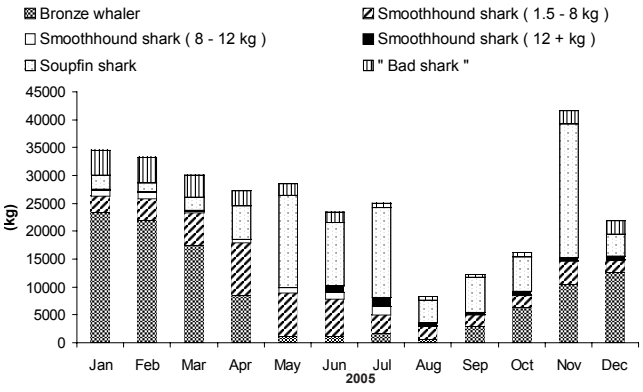

Figure 2. **Processed shark from single shark processing facility for 2005 for the categories: Bronze whalers (*Carcharhinus limbatus*, *C. obscurus* and *C. brachyurus*); Smooth-hounds (*Mustelus mustelus* and *M. palumbes*); Tope Shark *(Galeorhinus galeus)*; and, 'bad' sharks (*Sphyrna* spp., *Isurus oxyrinchus* and *Prionace glauca).***

A breakdown of sharks processed in 2005 by a Cape Town-based facility is summarized in Figure 2.

International trade

The export of shark products from South Africa to Australia for the period 2001 to 2005 and Australian imports of shark products from South Africa for the period 1998 to 2005 are shown in Tables 6 and 7, respectively. There is only one descriptive category for sharks within the South African Customs system: 'dogfish, shark, other'. It is not clear whether 'other' in this description refers to other chondrichthyans or only other elasmobranchs. Despite anecdotal evidence that exports of demersal shark fillets to Australia are increasing, South African trade data reflect a decrease in trade from 2003 to 2005.

While the figures for the shark processing facility in Figure 2 reflect an amount of approximately 300 t processed in 2005, the total export of 'dogfish, shark, other' (Table 6) is just more than 50 t for the same period. Given that there are two other facilities processing and exporting sharks, the discrepancies in the data are of concern. It is possible that other HS codes were used for exports of demersal shark and is a more likely reason than data entry error since export figures for other years are not substantially different. There is almost no domestic demand for demersal shark meat, which could otherwise have explained the discrepancies. Further research is required to determine the reasons for this disparity.


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The value per kg of 'dogfish, shark, other' is inconsistent, ranging from USD1.2 per kg to USD9.59 per kg, with no clear trend.

A comparative analysis with Australian import data reveals significant anomalies. In 2001, South African exports to Australia were 37 133 kg whereas Australia shows imports of 23 265 kg of 'dogfish and other sharks, fresh or chilled' and 124 523 kg of 'dogfish and other sharks, frozen', totalling 147 788 kg. These discrepancies highlight a difference in volume between South African and Australian data of more than 100 t. In addition, South African data reflect exports of 'dogfish, shark, other' to Australia in the years 2001 to 2005 yet there is no reflection in Australian data of the importation of any shark products from South Africa during 2003 to 2005.

Discussion and Conclusions

While demersal shark species are caught in a wide variety of South African fisheries, there is little knowledge of their stock status, and there is no recent research on the impact of current harvest levels. The lack of knowledge of biology, population structures and movement patterns severely restricts the implementation of a successful shark management strategy.

Whether caught as by-catch or as targeted species, few controls are in place to limit the harvest levels of all sharks, including demersal shark species. It is unclear whether the current levels of extraction are sustainable for all, or certain, demersal shark species. The only controls that currently exist are effort controls in the various fisheries in which sharks are caught. The slow growth, late maturity and low fecundity of most elasmobranchs make them vulnerable to over-exploitation and research should be conducted into the stock status of the targeted commercial demersal shark species as well as those of limited commercial value, yet exhibiting high catch levels.

Trawl catch data do not provide sufficient detail of shark species caught in this fishery; many shark species are reported under the generic description 'sharks', rather than to a species or family level which would assist in catch analysis and subsequent comparative analysis with stock levels. Encouragingly, catch reports for the 2003 and 2004 inshore trawl fishery demonstrate increased group allocations for sharks caught in this fishery.

Far more detailed data capture are evident in the commercial traditional linefishery where more than 10 species or descriptive names are used for allocating shark catches. However, the veracity of this

FILLETING SHARK TRUNKS (TOP) AND PACKING THE FILLETS IN BOXES (BELOW), PROCESSING COMPANY, CAPE TOWN. DEMAND FOR DEMERSAL SHARK FILLETS IN AUSTRALIA FOR THE TRADE IN FISH AND CHIPS IS HIGH BUT IS REPORTEDLY NOT BEING MET BY SUPPLY FROM SOUTH AFRICA AND OTHER COUNTRIES.

PHOTOGRAPHS: M. BÜRGENER

dataset is questionable allowing limited use for analytical purposes. Improved data capture at the point of landing by fisheries monitors and fisheries control officers is required to improve the quality of these data.

The decrease in catches of high value teleosts within the traditional linefishery will only increase the emphasis on fishing for sharks to defray costs. High beach prices and the spread of knowledge on the preparation of a shark carcass on board vessels are both likely to result in increased shark catches in future. There is therefore a need for demersal shark catch trends to be carefully monitored by MCM.

A comparative analysis of trade data for South Africa and Australia reflects significant discrepancies between the two datasets. As there are currently no catch limits related to any of the sharks used for the demersal shark fillet trade to Australia, there are no apparent reasons why exporters would choose to export consignments under a different Customs export category. It also remains unclear why Australian import data for the years 2003 to 2005 do not reflect the importation of shark meat from South Africa when it is clear from both South African export data, as well as significant anecdotal evidence, that such trade exists. Problems with these datasets preclude the use of the data as an indicator of minimum catch levels of demersal sharks. Given the poor quality and level of detail in much of the South African catch data, as it pertains to demersal sharks, accurate trade data could prove a useful proxy indicator of minimum catch.

Recommendations

- Research should be undertaken into the stock status of demersal sharks exploited in South African fisheries.
- Capacity building of fisheries control officers, monitors and other relevant compliance officials should be undertaken to improve their identification skills for demersal sharks.
- The processing and export of demersal sharks should be more closely monitored to improve knowledge in this sector, such that government is better able to identify associated trade trends and the extent to which trade is a driver for the targeting of certain demersal shark species.
- The demersal shark species identification toolkit developed by Da Silva should be distributed to all relevant compliance officials in South Africa. Where appropriate, the toolkit should also be distributed to compliance officials in other countries where the same demersal shark species are being exploited.
- Further research should be undertaken in both South Africa and Australia to resolve the data discrepancies between the import and export datasets for these two countries.

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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.

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.

EUROPE

CROATIA

On 11 November 2006, Croatian Customs service at Batina (Croatian–Serbian border crossing) seized nine parrots: Red-fronted Parakeet *Cyanoramphus novaezelandiae* (CITES I) (5 live specimens, 2 dead); Red-rumped Parrot *Psephotus haematonotus* (CITES II) (1 live specimen); and Australian King-Parrot *Alisterus scapularis* (CITES II) (1 live specimen). The birds had been wrapped in clothing and placed in luggage concealed in the car of a Serbian citizen arriving from Serbia. Nature Protection Inspectors confiscated the birds and placed them in the country's official rescue centre. The suspect was charged with violating the country's *Customs Law* and *Nature Protection Law* and fined HRK7000 (€930/USD1252).

On 1 April 2007, at Zagreb Airport, Customs officers stopped a Croatian citizen returning from Bangkok, Thailand, via Budapest, Hungary, after he was found to be carrying in his luggage 10 tortoises and 175 chameleons. The animals were confiscated and placed in quarantine. The species have been identified as: Radiated Tortoise *Geochelone radiata* (CITES I), Flat-casqued Chameleon *Calumma globifer* (CITES II) and Parson's Giant Chameleon *Calumma parsonii* (CITES II). All specimens originated from Madagascar. Seven chameleons died during transport owing to inadequate conditions in the cargo hold, and more specimens died following their arrival. Owing to the failure of the perpetrator to declare the goods and present the requisite veterinary and CITES documents, a court hearing is pending.

On 30 May it was confirmed that the surviving specimens had been returned to Antananarivo. Fourteen of the chameleons perished on the two-day journey, leaving alive only about half the original number. All the tortoises survived.

Ministry of Culture, Nature Protection Directorate, Zagreb

CZECH REPUBLIC

On 3 November 2006, a Czech citizen arriving at Rozyne International Airport, Prague, from Tunis, Tunisia, was found with geckos *Hemidactylus* sp. and *Tarentola* sp., beetle larvae and 11 Spur-thighed Tortoises *Testudo graeca* (CITES II/EU(B)) concealed in his luggage. The tortoises had been restrained by adhesive tape and were unable to move. The requisite certificates were not available. Customs officers and inspectors of the Czech Environmental Inspectorate also carried out a house search at the suspect's address and found six Hermann's Tortoises *Testudo hermanni* (CITES II/EU(A)), three Caucasian Sand Boas *Eryx jaculus* (CITES II/EU(A)) and one Bell's Dabb Lizard *Uromastyx acanthinura* (CITES II/EU(B)), also without documents. All animals were seized and a prosecution is pending.

CITES News 17, 2006, Czech Environmental Inspectorate, Rozyne International Airport, Prague

ESTONIA

On 6 March 2007, an Estonian citizen travelling by car from Russia was caught in Narva at the Narva Road border point with 12.5 kg of Russian caviar (CITES II/EU(B)) (sturgeon species unidentified). The suspect claimed to have received the caviar in exchange for money from an unknown person in Ivangorod, Russian Federation. The goods, which were hidden in a loudspeaker, were seized and the suspect was fined EEK6000 (€380/USD510); the caviar was confiscated. The Environmental Inspectorate has also charged the individual with causing harm to nature and an additional fine is pending.

Estonian Tax and Customs Board, CITES Info 3, 2007; Tax and Customs Board, in litt., *16 April 2007*

GERMANY

On 25 January 2007, Customs officials at Cologne Airport seized a consignment containing 24 kg of caviar after detecting it by chance. The shipment, which had been sent by post from Marbella, Spain, did not adhere to the labelling requirements for caviar which have been compulsory in the EU since July 2006. Analysis of the caviar revealed it to be of Russian origin (sturgeon species unidentified).

It is the first time that caviar has been seized on this transit route into the EU. One German national was identified as being involved in the case, which is under investigation.

Press release Zollfahndungsamt Essen, 6 January 2007; TRAFFIC Europe

A CONSIGNMENT OF MORE THAN 24 KG OF CAVIAR WAS SEIZED AT COLOGNE AIRPORT IN JANUARY 2007

ZOLLFAHNDUNGSAMT ESSEN

NEVEN VRBANIC

A PARSON'S GIANT CHAMELEON FROM MADAGASCAR SEIZED WITH OTHER REPTILES IN CROATIA IN APRIL 2007

HUNGARY

On 17 July 2006, officials at Röszke on the Hungarian–Serbian border, seized 48 Radiated Tortoises *Geochelone radiata* (CITES I), 68 Leopard Tortoises *G. pardalis* (CITES II) and 55 Pancake Tortoises *Malacochersus tornieri* (CITES II) from a lorry arriving from Serbia. The driver was transporting the shipment to Rotterdam, where it was to be collected.

CITES Management Authority, Hungary

ROMANIA

On 7 December 2006, Otopeni Customs officers seized a parcel from Botswana containing two pieces of African Elephant *Loxodonta africana* (CITES I) ivory and two pieces of elephant leg skin. The addressee was a Moldavian citizen living in Bucharest. Although the recipient was in receipt of a CITES export permit, an import permit had not been issued. The CITES Management Authority was consequently asked to issue an import permit within 30 days. A permit was issued in 2007 following the entering into force of Regulation No. 338/97 which states that an import permit may be granted in exceptional cases once the goods in question have been declared. The National Customs Authority of Romania, however, declared the shipment to be in breach of Ministerial Order No. 647/2001, which was in force at the time of the seizure and which prohibited the entry into the country of CITES-listed specimens without a CITES import permit. The ivory items were confiscated.

National Customs Authority, Anti Fraud Directorate, Bucharest

RUSSIA

On 18 January 2007, at the Kharol settlement in Primorsky Kray, police stopped a car and seized an amount of animal derivatives prepared for illegal transportation through the Russian–Chinese border. These included: 531 horns of Saiga Antelope *Saiga tatarica* (CITES II); 8 skinned Tiger *Panthera tigris* (CITES I) paws; 3 Tiger skins; 332 Tiger bones; 2 Tiger skulls; and, 283 bear paws. The case was prosecuted and all commodities and the car were confiscated.

TRAFFIC Europe

UK

On 24 October 2006, at Westminster Magistrates' Court, a leading London gentleman's barber was fined GBP10 000 (US19 460) after 24 grooming accessories made from ivory were found for sale on his premises during a raid by officers from the Metropolitan Police Wildlife Crime Unit, acting on information received from TRAFFIC. This is the maximum penalty available to the court for offering for sale items derived from EU Annex A species as per the *Control of Trade in Endangered Species (Enforcement) Regulations 1997* (COTES) as amended 2005. The items, at three shops in Mayfair, included shaving brushes—bearing the stamp "real ivory"—as well as ivory hairbrushes, glove stretchers and an elephant's tusk. All items were forfeited by the court.

It is illegal to sell ivory in the UK unless it is a worked item and an antique (i.e. pre-1947). Lawyers representing the firm, Geo. F. Trumper Ltd, pleaded guilty to keeping items from an endangered species for sale.

www.lse.co.uk/ShowStory.asp?story=NL243039 1F&news_headline=barber_fin, 24 October 2006; TRAFFIC International

AFRICA

SOUTH AFRICA

On 8 February 2007, 12 people were arrested and an undisclosed amount of abalone *Haliotis* (known in South Africa as perlemoen) was confiscated in Bronkhorstspruit following an operation carried out by Pretoria police's organized crime unit and the Bronkhorstspruit police. Six Chinese and six Mozambican nationals were arrested and the abalone was confiscated.

The arrests were made on two plots in Bronkhorstspruit where the molluscs were allegedly processed. Other assets including cars were also confiscated.

On 11 April 2007, between five and six tonnes of abalone *Haliotis* was seized at Camperdown, KwaZulu-Natal, the largest amount to be seized in the province. Teams from the South African Police Service, the South African Revenue Service, the Directorate of Special Operations, Maritime and Coastal Management and the Department of Environmental Affairs and Tourism raided a farm and arrested six people, among them individuals from South Africa, China and Mexico. Wet, or shucked, abalone was found in the garage. Fans were being used to dry the molluscs.

The case continues.

www.int.iol.co.za/index.php?set_id=14&click_id=14&art_id=iol1170912053890B265, 8 February 2007; The Mercury (South Africa): www.themercury.co.za, 12 April 2007

ASIA

EAST ASIA

CHINA

On 19 November 2006, police from the Guangxi Qinlian forestry centre acting on information stopped a car at the border of Guangxi Province with Guangdong Province and seized 53 pangolins *Manis* (CITES II) packed in the trunk of the car; 14 specimens were dead. The people in the car evaded capture. The surviving pangolins have been sent to the Guangxi Endangered Wild Animals Aid Center.

Xinhua Net, www.cwca.org.cn/Article/ShowArticle.asp?ArticleID=2242, 20 November 2006;TRAFFIC East Asia

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A large number of elephant ivory seizures have taken place in China over the past year. Examples include, most recently, on 13 February 2007, 67.5 kg by Customs officers at Beijing Capital International Airport. The ivory, representing approximately seven elephants, was found in the luggage of a female passenger from the Democratic Republic of Congo, arriving from Addis Ababa, Ethiopia, who was standing in the nothing-to-declare Customs area. Items found included half-finished mahjong sets, bracelets, necklaces and other ornaments.

On 7 August 2006, Nanjing (Jiangsu Province) Customs Bureau confiscated 145 pieces of African ivory products (chopsticks and bracelets) (2730 kg) at Nanjing Airport, on a flight arriving from Hong Kong.

On the same day at Hangzhou Airport, Zhejiang Province, Hangzhou Customs Bureau seized 122 ivory products (bracelets, chopsticks and name seals) from a passenger's luggage (route not reported). Officials suspect the items were purchased in Africa. This marked the 30th ivory seizure by Hangzhou Customs between January and August, twice the amount seized the previous year over the same period of time.

During January to June 2006, Shanghai Customs uncovered 13 cases of ivory smuggling involving 16 ivory tusks and 229 ivory products. There is reported to be concern that with the routing of flights between Shanghai and West Asia, passengers are travelling from Africa to Shanghai via Dubai or Doha. Shanghai Customs uncovered seven ivory smuggling cases from inward passengers from Dubai to Shanghai and seized 12 ivory tusks during this period. Among the 13 cases, some suspects attempted to smuggle ivory into China to sell by using fake documentation, or by concealing the items. Others brought them back for personal use or as gifts, claiming that they had been purchased legally and in some cases were in possession of licences issued by local government.

A Yemeni businessman, who had attempted to smuggle over 60 kg of ivory into the country in June 2006 went on trial on 9 April 2007 at Guangzhou Intermediate People's Court, Guangdong Province, on charges of smuggling ivory. Customs officials discovered 60.73 kg in the defendant's luggage at Baiyun Airport, Guangzhou, on 7 June 2006. He stated that he had tried to tell Customs officials he was carrying the ivory but because he couldn't speak Chinese or English, couldn't make himself understood and he failed to declare the 14 pieces of ivory. He claimed the ivory had been purchased from a businessman in Yemen and that he intended to sell it in China. A verdict is expected later this year.

In early 2007, at the People's Court of Longfeng District, Daqing, Heilongjiang Province, Wang Yuying, of Daqing, was sentenced to 10 years in gaol and fined JPY20 000 (USD2588), after being convicted of illegally purchasing a Tiger skin. Wang had purchased the skin from an antique market in Sa'ertu District of Daqing in 2004 and had hidden it in a factory warehouse in Longfeng District. He decided to sell it but was charged last September by forestry police acting on information.

Laboratory work conducted by the Wildlife and Plant Testing Center with the State Forestry Bureau showed that the skin belonged to that of a South China Tiger (or Amoy Tiger) *Panthera tigris amoyensis* (CITES I and fully protected nationally).

Xinhua Net, Shanghai, 21 July 2006, reported by Yu Wu and Xuan Guan; TRAFFIC East Asia; IFAW press release, 19 February 2007: www.ifaw.org/ifaw/general/default.aspx?oid=208268; China Broadcast Net, 8 August 2006; www.cnr.cn/2004news/internal/200608/t20060808_504265682.html (Chinese only); http://news.cctv.com/law/20060812/100771.shtml (in Chinese only); http://english.people.com.cn/200704/10/eng20070410_365063.html, 10 April 2007; http://english.people.com.cn/200704/12/eng 20070412_366041.html, 12 April 2007

HONG KONG SPECIAL ADMINISTRATIVE REGION

On 9 January 2007, at Tsuen Wan Magistrates' Court, a Chinese male was fined HKD16 000 (USD2000) and sentenced to six months' imprisonment, suspended for two years, following his attempt the previous day to import an illegal shipment of animals from Thailand, destined for China, through Hong Kong International Airport. The Agriculture, Fisheries and Conservation Department (AFCD) and Customs officials arrested the man following the detection of the following specimens in his luggage: a Fish-eating Crocodile (Gharial) *Gavialis gangeticus* (CITES I), six snakes Bodiae/Pythonidae spp. (CITES II), 46 turtles/tortoises (Three-keeled Land Tortoise *Melanochelys tricarinata*, Black Pond Turtle *Geoclemys hamiltonii*, Radiated Tortoise *Geochelone radiata* (all CITES I species) and true tortoises Testudinidae spp. (CITES II), and 11 flying squirrels *Petaurista* spp. (non-CITES). The requisite permit and health certificates were missing. The man was charged under the *Protection of Endangered Species of Animals and Plants Ordinance, Cap 586*, and the *Rabies Ordinance, Cap 421*.

Agriculture, Fisheries and Conservation Department, Hong Kong, press release, 9 January 2007; TRAFFIC East Asia

JAPAN

On 7 February 2007, at Tokyo District Court, Shi Guo Qi was sentenced to six-months' imprisonment, suspended for three years, and We Sheng received a one-year gaol sentence, suspended for three years, and fined JPY300 000 (USD2460), for their part in the illegal sale of Asian slipper orchids *Paphiopedilum* spp.

The pair—students from China—were initially arrested on 11 October 2006, together with one other student, by officers of the Metropolitan Police Department (MPD), and including the involvement of the Oi Police Station and 16 other police stations, for their part in the illegal sale of slipper orchids *Paphiopedilum* spp. in violation of the *Law for the Conservation of Endangered Species of Wild Fauna and Flora (LCES)*. A Japanese company employee who conspired with them was arrested the following day. All *Paphiopedilum* species are listed in CITES Appendix I and the *LCES* prohibits their domestic trade.

Shi Guo Qi had been suspected of listing nine orchids *Paphiopedilum* spp. on an internet auction site as wild *Paphiopedilum malipoense* collected in Yunnan Province, China, and to have sold two of these specimens. The other two individuals were suspected to have listed seven orchids on an auction site as wild specimens collected in Guangxi Province, China, and to have sold one specimen. They were suspected of selling the orchids via the email address of the Japanese co-conspirator and of smuggling the specimens by international mail—according to the MPD, from Yunnan Province through a company in Shanghai.

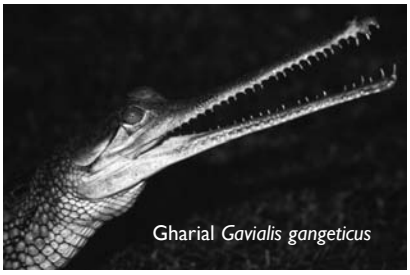
On 1 November 2006, Shi Guo Qi and We Sheng were rearrested. Shi Guo Qi was suspected of selling two *Paphiopedilum* specimens during April to July 2006 and We Sheng was under suspicion of selling 33 slipper orchids *Paphiopedilum* spp. to 11 people on 25 occasions during April to September 2006.

On 30 November 2006, officers of the MPD with assistance from three police stations, rearrested the latter individual [it is not known whether or when this person had been released] for his part in smuggling slipper orchids in violation of the *Foreign Exchange and Foreign Trade Law*. Eight orchids had been imported from China in May 2006 via an express mail service without the approval of the Ministry of Economy, Trade and Industry. A further 27 orchids were imported on two occasions using the same method. A company employee in Wakayama Prefecture who bought four orchids from We Sheng during June to August 2006 was also arrested for violating the *LCES*.

On 7 February 2007, Osaka Prefectural Police and Osaka Customs officials arrested two brothers who attempted to import 2.8 t of African Elephant *Loxodonta africana* (CITES I) ivory. The ivory shipment left Malaysia on 6 August, was transferred to another ship in South Korea, and arrived in Osaka Nanko Port on 21 August. Customs officials confiscated the ivory after screening the ship's cargo; it had been disguised to look like marble and was described as such in false import permits. The consignment consisted of 608 pieces of cut ivory and 17 928 smaller cut pieces for *hanko* (signature stamps) and represents a record amount of ivory seized in the country since the international ivory trade ban went into effect in 1989.

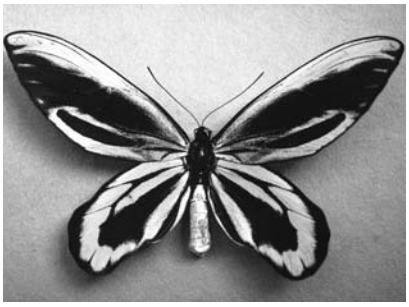
One of the men was indicted on charges of violating the *Customs Law*, while indictment of the other has been shelved.

On 2 May 2007, at Narita International Airport, Customs officials foiled an attempt by a Japanese national to smuggle some 40 slow lorises *Nycticebus* sp. (CITES II) into the coun-



WWF-CANON / GERALD S. CUBITT

Gharial *Gavialis gangeticus*



WWF-CANON / WOLFGANG VON SCHMIEDER

Alexandra's Birdwing *Ornithoptera alexandrae*

try from Bangkok, Thailand. It is the largest number of this species brought into Japan at one time, according to the Finance Ministry's Customs and Tariff Bureau. All of the animals, contained in small boxes, were alive when seized but about a dozen were reported to have later died (see also under Thailand).

The Nihon Keizai Shimbun, 11/12 October/1 November 2006; The Nikkei Sankei Shimbun, 11/12 October/1 November 2006/8 February 2007; The Sankei Shimbun, 8 February/10 February/1 March 2007; The Mainichi Newspapers, 11 October/12 November 2006; www.france24.com/france24Public/en/administration/afp-news.html?id=070207114347.ndz9cIly&cat=null; TRAFFIC East Asia; http://home.kyodo.co.jp/>; http://home.kyodo.co.jp/, 25 May 2007

TAIWAN

In April 2007, police officers posing as buyers seized the skin of a Leopard *Panthera pardus* (CITES I) and arrested a Taiwanese national. The suspect had purchased the item from South Africa some years earlier and had advertised its sale via the internet in late 2006. He was charged with illegal possession of a protected species and a trial date is to be announced.

In April 2007, Customs officials at Keelung port seized 680 Saiga Antelope *Saiga tatarica* (CITES II) horns and dried skins of 302 Hundred-pace Vipers *Deinagkistrodon acutus*. The specimens had been concealed in a container of traditional Chinese medicines on a vessel arriving by sea from China via Hong Kong. One of the horns was embedded with a bullet.

Taiwan Council of Agriculture pers. comm., April 2007; Liberty Times (Taiwan), 18 April 2007; United Evening News (Taiwan), 17 April 2007; www.libertytimes.com.tw/2007/new/may/2/today-so2.htm; TRAFFIC East Asia

SOUTH ASIA

INDIA

On 4 October 2006, police arrested two Bangladeshi nationals as they carried two Tiger skins near Ghaziabad border in East Delhi. The accused told police that they were smuggling the skins to Bangladesh. They revealed that they used to hunt Tigers in Rajaji National Park in Rishikesh or nearby parks in Uttaranchal hills whenever they could gain entry into the areas. They would also buy skins from local hunters and supply them to a contact in Bangladesh for profit. According to a senior police official, they were paid on a commission basis.

The following cases are just some examples of seizures of Indian Star Tortoises *Geochelone elegans* (CITES II) that have taken place in India in recent months and reflect the extent of trade in this species from India, export of which is banned under the *Wild Life Protection Act, 1972*. Two key suspects in this trade were recently arrested.

In October 2006, Customs officials at Bangalore (HAL) Airport, Karnataka, in association with the Central Industrial Security Force (CISF), seized 447 Indian Star Tortoises. One person was detained. The tortoises weighed between 10 g and 350 g and some had perished. Preliminary investigation revealed that they had been procured in Chennai, Tamil Nadu, and were being smuggled to Kuala Lumpur, via Sri Lanka. The specimens were seized under the provisions of the *Customs Act 1962* and handed over to the Forest Department; they were later taken to the Bannerghatta National Park.

On 23 November 2006, a flight to Kuala Lumpur was recalled moments before take-off following information received by the Customs Air Intelligence Unit that a narcotics consignment was being carried on board. The consignment turned out to contain, rather, 430 live Indian Star Tortoises that had not been detected during screening. The suspect involved in the smuggling comes from the Ramnad area of Tamil Nadu, which is the natural habitat of this species. According to an official, Kuala Lumpur was a transit point and it is believed that the tortoises were going to Europe where they are in demand as pets. The turtles were taken to Sanjay Gandhi National Park.

Two key figures involved in this trade were arrested in October and November 2006, respectively. On 29 October 2006, wildlife authorities in Koyambedu, Chennai, acting on information, arrested a key figure in the co-ordination of the collection of this species from the wild in Karnataka. Suspect A of Kolar district in Karnataka was remanded in custody. Following interrogation, it was revealed that he had been involved in the work for over three years, hiring tribals and sending them into the Badravathi forest areas to collect the tortoises. The specimens were then stacked at a particular location and once a sizeable number had been collected, prospective buyers were contacted. According to a senior official, this is the first time that a co-ordinator who was directly involved in collecting the live specimens from the wild has been arrested. On almost all previous occasions, only the carriers had been arrested.

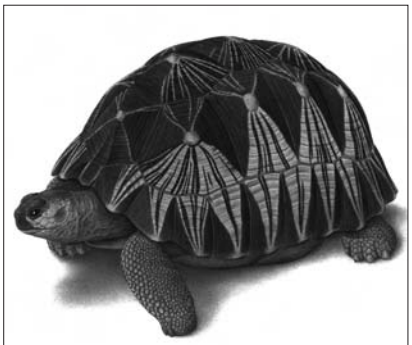
On 28 November 2006, wildlife officials in George Town, Chennai, arrested a key person allegedly involved in the collection of Indian Star Tortoises from the wild, for smuggling to South-east Asia. Suspect B is reported to have hired tribals to collect the tortoises from the forests of Palmaner and Chittoor in Andhra Pradesh, and areas in Karnataka. A week earlier, anti-poaching authorities of the Mumbai Metro railway system seized a consignment of Indian Star Tortoises at Mumbai Airport which had been supplied by Suspect B. In 2005, a passenger who was apprehended boarding a Malaysia-bound flight with 989 Indian Star Tortoises revealed that Suspect B had handed the tortoises to him. Similarly this year another consignment of Indian Star Tortoises was seized at the airport, which again had been collected and given to a 'carrier' by Suspect B.

Both suspects have been remanded in custody.

On 5 February 2007, the Delhi Police Crime Branch, acting on information, seized nine shahtoosh shawls (made from the wool of the Tibetan Antelope *Pantholops hodgsonii*, CITES I), from a trader in Delhi. Police sought the assistance of TRAFFIC India in the prima facie identification of the items. The arrested trader is being held in custody and the shawls were sent to the Wildlife Institute of India for forensic tests.

South China Tiger *Panthera tigris amoyensis*

WWF-CANON / HELMUT DILLER



Radiated Tortoise *Geochelone radiata*

WWF-CANON / URS WOY

TRAFFIC India; The Hindu (India) 1 December/31 October 2006: www.hinduonnet.com; Hindustan Times (India), 24 November 2006: http://epaper.hindustantimes.com/ArticleText.aspx?article=24_11_2006_003_00; WWF Nepal

NEPAL

On 12 February 2007, in the area of Dhangadi, three persons were arrested after being found in possession of five Leopard *Panthera pardus* (CITES I) skins and 11 kg of bones including five skulls (Leopard/Tiger *Panthera tigris* (CITES I). This seizure marks the beginning of a collaborative initiative between TRAFFIC India, WWF Nepal, and Nepalese enforcement agencies, to halt illegal wildlife trade along the Indo–Nepal border.

Prompted by information received from TRAFFIC/WWF India, a mission headed by the Chief Warden of Suklaphanta Wildlife Reserve, Mr Puran Bhakta Shrestha, and supported by the Buffer Zone Management Council Chairman, Mr Labha Bista, the traders were apprehended. The mission was co-ordinated and supported by WWF Nepal as well as by the police and the District Forest Office in Kailali.

All those arrested are reported to have been long engaged in the cross-border illegal wildlife trade between Nepal and India. They are in the custody of Suklaphanta Wildlife Reserve and an investigation is under way.

On 5 June 2007, the Kathmandu Metropolitan Police Crime Division (MPCD) arrested three persons involved in selling shahtoosh shawls (made from the fur of Tibetan Antelope *Pantholops hodgsonii* (CITES I)). "Operation Heritage", led by Superintendent of Police Devendra Subedi, took more than a month's preparation. Those arrested were Indian nationals of Kashmiri origin; 19 pieces of shahtoosh shawls were seized. According to SP Subedi, investigations show that Nepal is being used as a transit point for smuggling shahtoosh shawls and other illegal wildlife parts. From India, the shahtoosh travels to China via Nepal and to markets in Europe and beyond. The shawls are also sold locally to tourists. He mentioned that this was the first case in which fully woven shahtoosh ready for sale was seized in such quantities in Kathmandu.

TRAFFIC India; WWF Nepal; http://www.panda.org/about_wwf/where_we_work/asia_pacific/our_programmes/areas/news/index.cfm?uNewsID=106140

SOUTH-EAST ASIA

LAO PDR

On 29 August 2006, the Lao embassy and forestry police confiscated 1664 high-grade logs believed to belong to a transnational illegal logging network preparing to export the timber to China. The wood, which was kept in 11 containers at a Lat Krabang warehouse, was identified as the rare Payoong or Thailand Rosewood *Dalbergia cochinchinensis* timber, which is one of the most expensive hardwoods. In Southeast Asia, it is found in Cambodia, Laos, Thailand and Viet Nam.

The Customs invoice showed that the logs had been transported to the depot by a Thai freight company and destined for export to China by a Lao firm but no export permit had been issued. It is possible that the seized timber had been smuggled in from a neighbouring country and may have been illegally felled from a Thai forest. Police were to summon the companies' operators for questioning. They could be charged with smuggling timber into the country and being in possession of a protected species.

www.bangkokpost.com/News/30Aug2006_news13.php; TRAFFIC Southeast Asia

MALAYSIA

On 19 October 2006, Eastern region marine police acting on information seized 5000 Water Monitors *Varanus salvator* (CITES II) at a jetty in Batu Tiga, Jalan Gambang. The animals, contained in 448 boxes, were being unloaded from a trailer to a waiting vessel. A number of people eluded capture but five Chinese nationals and one local person were arrested. The lizards are protected by law and no licences had been issued to hunt or catch the animals. The suspects were to be investigated under the *Wildlife Protection Act 1972*. Once investigations were completed, it was reported that the foreign suspects were to be handed over to the Immigration Department and the lizards released in Tasik Cini, Tasik Bera National Park and Kuala Krau forest reserve.

On 13 November 2006, thousands of cobras *Naja*, pythons *Python* and Malayan Pangolins *Manis javanica* (CITES I) were seized from fishermen's jetties at Losong Pasir and Losong Paloh near Kuala Terengganu after being found by villagers in some 650 boxes. Some of animals were believed to have been smuggled in from Indonesia and Thailand. Terengganu Wildlife and National Park assistant director Nurullza Wagiman believed the animals had been left there before they were to be sent to other destinations.

On 2 December 2006, Customs officers acting on information raided a shrimp paste factory near the Sungai Kapal beach in Kampung Sungai Kepal, Penggerang, Johor State, and seized a large consignment of reptiles. Several men escaped but the driver and co-driver of a lorry were arrested. Inside the vehicle, officers found 50 crates containing 444 snakes, mainly cobras, 191 boxes containing 2488 Bengal Monitors *Varanus bengalensis* (CITES I), and more crates with 1889 tortoises (species not reported). More tortoises were found in 11 crates stacked under some trees. The animals were believed to be destined for the restaurant trade in a neighbouring country. A man thought to be the owner of the factory, and the employer of the lorry drivers, were later arrested near Penggerang. The owner faces charges of possessing prohibited goods and trying to avoid payment of export duties. The animals were handed over to wildlife department officials and were due to be released into the wild.

On 30 January 2007, a man was caught with nearly 300 Malayan Pangolins *Manis javanica* (CITES II) which were about to be smuggled into Thailand. State Wildlife and National Parks Department officials, acting on information, inspected a lorry parked outside a house in Bekelam, Backok and found 36 plastic crates containing 288 pangolins. The suspect was held for possession of the pangolins, which are fully protected under the *Wildlife Protection Act 1972*. The specimens weighed between three and five kilogrammes each, and had reportedly been brought from other States such as Johor and Negri Sembilan.

On 6 March 2007, wildlife officers acting on information conducted a raid at the Second Air Cargo Complex in Batu Maung. Inside 86 crates they found 2400 Common Rat Snakes *Ptyas mucosus* (CITES II), bound for Hong Kong.

The species, protected under the *Wildlife Protection Act 1972*, is only common in the northern part of the country, and could also have been brought in from Thailand.

On 14 March 2007, a tannery owner was charged with concealing illegal activities relating to the processing of skins at his tannery in Jalan Gambang. His assistant faces three charges for illegal possession of wildlife.

The tannery was authorized to deal only in python skin but when State Wildlife and National Parks Department officers raided the premises, they found 748 Clouded Monitor Lizards *Varanus nebulosus* (CITES I), 231 Oriental Rat Snakes *Ptyas mucosus* and four King Cobras *Ophiophagus hannah* (both CITES II and protected under the *Wildlife Protection Act 1972*), as well as 800 g of pangolin *Manis javanica* (CITES II) bones and scales.

A trial hearing was set for 18 September 2007.

On 11 April 2007, at Kota Kinabalu Magistrates' Court, the skipper and crew of a Chinese trawler that was apprehended on 29 March with 274 marine turtles on board, were fined more than RM1.88 m (USD55 000). The same court also fined nine Vietnamese RM720 000 for illegally fishing in Malaysian waters on 3 April. The fishermen were unable to pay their fines and were each gaoled for between six and 18 months in default.

The Chinese nationals, from Hainan Island, were accused of fishing illegally in Malaysian waters 17.5 nautical miles off Pulau Mengalum on 28 March and of poaching 185 Green Turtles *Chelonia mydas* (CITES I) and 89 Hawksbill Turtles *Eretmochelys imbricata* (CITES I). The Vietnamese had been apprehended 80 nautical miles off Kota Kinabalu.

The Star (Malaysia), 21 October/14 November 2006/7 March 2007: www.thestar.com.my/news/story.asp?file=/2007/3/7/nation/17065647; http://thestar.com.my/news/story.asp?file=/2006/10/21/nation/20061021161145; http://archives.thestar.com.my/search/default.aspx?query=illegally+fishing; New Straits Times (Malaysia), 5 December 2006: www.nst.com.my/Current_News/nst/Tuesday/National/20061205080416/Article/index_html; http://rawstory.com/news/2006/Malaysian_police_save_5_000_smuggle_12042006.html; www.nst.com.my/Current_News/nst/Wednesday/NewsBreak/20070131183625/Article/index_html; www.nst.com.my/Current_News/nst/Thursday/National/20070315083140/Article/index_html; New Straits Times (Malaysia), 15 March 2007

THAILAND

On 11 October 2006, authorities seized over 200 live Siamese Crocodiles *Crocodylus siamensis* (CITES I) being transported by lorry from the Thai/Cambodia border to a private crocodile farm. Acting on information, Customs officials followed the vehicle as it crossed into Thailand at Aranyaprathet District, Sakeaw Province. Officials detained the driver and seized the crocodiles together with one freezer box of crocodile skins.

The source of the crocodiles has not been confirmed. Crocodiles are protected in Thailand. Although they can be found in many captive-breeding facilities in the country, they are almost extinct in the wild. An official from the Fisheries Department of Thailand has already confirmed that no permit was issued recently for the import of these crocodiles. The confiscation and arrest was reported to be as a result of the increased awareness in the role of Customs officials in helping to stop illegal wildlife trade and Thailand's role as principal lead in the ASEAN-Wildlife Enforcement Network (ASEAN-WEN). ASEAN-WEN is a multi-lateral initiative designed to protect

Asia's wildlife by facilitating cross-border inter-agencies co-operation and the exchange of vital information.

The lorry driver, a Thai national, was charged under the *Customs Act* and the *Wildlife Law Act*. The crocodiles were to be transported to a wildlife holding facility outside Bangkok.

On 19 November 2006, anti-wildlife trafficking officials at the Thai–Laos border seized 260 Malayan Pangolins *Manis javanica* (CITES II) which were about to be shipped to Laos, thence to China, where they were to be sold as food.

The seizure came after authorities raided a lorry parked near the Mekong River border with Laos. The driver and another person were charged with illegal animal trafficking and were detained under police custody.

During January and February 2007, there were four separate attempts by Japanese nationals to smuggle Slow Lorises *Nycticebus coucang* (CITES II) out of Suvarnabhumi Airport, Bangkok, to Japan. Three people were arrested last year for smuggling this species.

The most recent attempt took place on 24 February 2007, when 23, mostly new-born Slow Lorises, were checked onto a flight bound for Narita Airport. The suspect, who never boarded the plane and eluded arrest, is now being sought by police in Bangkok. Airport authorities were alerted by noises coming from the suspect's luggage and upon investigation found the 23 specimens inside tiny cages. One of the animals died from suffocation but the remainder were placed under the care of a government-run wildlife sanctuary.

The airport authorities are reported to be in talks with wildlife crime police and Customs officials with regard to conducting an investigation into this illegal trade between Thailand and Japan (see also under Japan).

In early 2007, some 1000 Indian Star Tortoises *Geochelone elegans* (CITES II) being smuggled into Thailand were found by Customs officers during a routine inspection of luggage. The consignment, which also contained Snake-necked Turtles *Chelodina siebenrocki* and other aquatic animals, was confiscated.

Kampuchea Thmey Daily (Cambodia), No. 1163, year 5th, 13 October 2006; Raksmey Kampuchea Daily (Cambodia), No. 4105, year 14th, 13 October 2006; WildAid Foundation (Thailand) release of 28 February 2007 posted at www.tatnews.org/special_interest?Wildlife/3324.asp (Tourism Authority of Thailand); www.playfuls.com/news_10_16713-Slow-Lorises-Smuggler-Eludes-Arrest-In-Thailand.html; http://us.i1.yimg.com/us.yimg.com/i/us/nws/p/ap_small.gif, 19 November 2006; The Times, 1 February 2007: www.timesonline.co.uk/article/0,2576995,00.html

VIET NAM

On 23 October 2006, police in Quang Nam Province seized over 344 kg of snakes, turtles and Monitor Lizards *Varanus salvator* (CITES II) being transported in bags and cages from Ho Chi Minh City to China by bus. The animals were destined for sale to restaurants. The owner of the bus was detained. Most of the animals were healthy, and it is reported that they were likely to be sent to a rescue centre at Cuc Phuong National Park.

www.voanews.com/english/2006-10-24-voa20.cfm, 24 October 2006

OCEANIA

AUSTRALIA

On 19 January 2007, at Downing Centre District Court, French national Pascal Rene Della Zuana was fined AUD10 000 (USD8294) and sentenced to two years in gaol after being convicted of attempting to smuggle 23 exotic bird eggs into Australia from Bangkok, Thailand, in contravention of the *Commonwealth Environment Protection and Biodiversity Act,* CITES, the *Customs Act 1901* and the *Quarantine Act 1908*. Della Zuana was stopped by Customs officers at Sydney International Airport on 2 August 2006 after he arrived on a flight from Bangkok. He was found to be wearing a specially constructed singlet underneath his clothing which held bird eggs including macaws (species not reported), Grey Parrots *Psittacus erithacus,* Eclectus Parrots *Eclectus roratus* (both CITES II) and one Moluccan Cockatoo *Cacatua moluccensis* (CITES I). Della Zuana was subsequently charged by Customs investigators and had been on remand since his arrest in August. Due to the quarantine risk the eggs had to be destroyed by irradiation. Identification of the birds was possible through DNA analysis.

On 8 February 2007, at Ceduna Magistrates' Court, Nicholas Karagiannis, of Coorabie, South Australia, was sentenced to 18 months in gaol with a 12-month non-parole period for abalone *Haliotis* poaching and fined AUD30 000 (USD24 883)—the maximum fine allowable under existing fisheries laws—making this a record sentence imposed by South Australia for such an offence. A vehicle, boat, diving gear and camping equipment belonging to Karagiannis were also forfeited. Karagiannis had been gaoled twice before for abalone poaching offences.

This case follows a joint Fisheries and police operation in June 2005. As a result of that operation, Karagiannis and two others were caught with almost 2000 abalones: Robert Hedley Miller, of Croydon, pleaded guilty to possessing a commercial quantity of abalone for the purpose of sale and was placed on a two-year good behaviour bond. The third person is still before the court.

On 15 February 2007, at Geelong County Court, three abalone poachers had gaol sentences re-imposed after losing their appeal for the sentence to be revoked. Hung Quoc Doan of Lalor, Peter Phung of Sunshine West and Lung Van Luu of Lalor, pleaded guilty in Geelong Magistrates' Court in November 2006 to trafficking in a commercial quantity of abalone and other charges relating to illegal fishing. All were convicted and given custodial sentences but were later bailed after lodging appeals against their sentences.

On 4 May 2006, the three men travelled on Phung's boat from Werribee South to Point Wilson where Doan and Luu dived for abalone. The abalones were then shucked and placed inside bags which were later hidden on the river bank at Werribee. A vehicle carrying the three collected the abalones and drove off. Fisheries officers followed but when they attempted to pull the car over, it accelerated away with Doan and Luu throwing the bags containing 517 abalones out the windows.

The judge ruled that there had been no valid reason given for the men taking more than five times the commercial quantity of abalone and rejected any suggestion they were for their own use. Doan was sentenced to nine months' imprisonment with a non-parole period of three months, the remainder suspended for 12 months. He was also fined AUD1250 (USD1036). Phung was convicted and sentenced to nine months in gaol with a non-parole period of three months and the remainder suspended for 12 months. He was also fined AUD400 (USD330). Luu was convicted and sentenced to 12 months' imprisonment with a non-parole period of six months and the remainder suspended for 12 months. He was also fined AUD750 (US622).

Personal items (boat, car and mobile phone) were forfeited to the Crown and each was ordered to pay AUD1550 (USD1285) in compensation and costs.

On 26 February 2007, at Perth Magistrates' Court, three people were each fined up to AUD3500 (USD2795) after pleading guilty to trying to take large numbers of abalone out of the country. The two women and a man were caught at Perth International Airport in November and December 2006 during a joint operation involving Customs and Western Australian Department of Fisheries officers. Each person had more than four times the legal limit of 20 Roe's Abalones *Haliotis roei* in their hand luggage. The court was told all three had misunderstood Western Australia's fisheries laws and were intending to give the shellfish to family in Asia.

Australian Customs media release, 20 January 2007: www.customs.gov.au/site/page.cfm?c=8431; www.geelongadvertiser.com.au/article/2007/02/15/11434_news.html, 15 February 2007; Western Australian Department of Fisheries media release, 25 February 2007; ABC Newsonline, 26 February 2007: www.abc.net.au/news/newsitems/200702/s1857591.htm; www.news.com.au/adelaidenow/story/0,22606,21203831-2682,00.html?from=public_rss, 11 February 2007

AMERICAS

CANADA

Thousands of diet pill shipments ordered by Canadians are arriving at Canada's borders and being detained by federal wildlife and Customs officials because they contain the plant Hoodia *Hoodia* (listed in CITES II since 12 January 2005).

Hoodia is used as an appetite suppressant. Foreign marketers, based predominantly in the USA, are advertising to Canadians who place orders, often unaware that the seller is outside Canada. Since May 2006, these shipments have been intercepted daily at international mail centres, courier facilities and airports in Montreal, Quebec City, Mississauga, Calgary and Vancouver because importers do not have the proper permits. In excess of 2000 shipments had been detained by August 2006. No charges have been laid, but federal wildlife officers may charge importers who have not obtained the proper permits.

Hoodia is a cactus native to Namibia, Botswana and South Africa.

Environment Canada has laid 14 charges against Wing Quon Enterprises Ltd for allegedly importing specimens of CITES-listed species without the required permits and for unlawfully possessing and distributing medicines containing Tiger *Panthera tigris*, bear *Ursus*, pangolin *Manis*, musk deer *Moschus* and rhinoceros derivatives.

The company has been charged with three counts of importing CITES-listed plant species without a permit in contravention of Section 6(2) of the *Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act* (WAPPRIITA), the legislative vehicle by which Canada meets its obligations under CITES. The company has also been charged with nine counts under Section 8(a) of the Act for unlawful possession of medicines containing bear, pangolin, musk deer and rhinoceros derivatives and two counts under Section 8(c) of the Act related to the distribution of medicines containing Tiger and rhinoceros. The charges follow an investigation by the Wildlife Enforcement Division.

On 14 November 2006, in the Ontario Court of Justice Criminal Division, Caviar Centre Inc. was convicted of unlawfully importing sturgeon caviar into Canada from Turkey without a permit. The company, one of Canada's premier caviar import and wholesale operations, was fined CAD3000 (USD2640) and ordered to forfeit the 126 kg of seized caviar. It is alleged that the caviar in question originated in the Caspian Sea region.

The conviction concluded an investigation undertaken by Environment Canada in late 2004 and early 2005. The investigation included the detection and detention of large quantities of caviar entering Canada at Pearson International Airport, Toronto, and a search warrant executed at the Toronto address of Caviar Centre Inc.

All species of sturgeon are listed in CITES as well as being protected under WAPPRIITA. The convicted company attempted to import caviar using falsified CITES permits.

The forfeited caviar was to be destroyed owing to its age, as its human consumption in any manner would likely constitute a health hazard.

On 18 April 2007, in Prince Rupert, British Columbia, three people received the heaviest penalties that have ever been imposed for abalone poaching in BC. The men had been caught with 11 000 Northern or Pinto Abalone *Haliotis kamtschatkana* in February 2006 (see *TRAFFIC Bulletin* 21(1):40), the largest consignment of illegally caught abalones ever made in the province. The species was assigned a Threatened status in 1999.

Each poacher received a conditional sentence which includes house arrest, a new form of punishment for abalone poaching in BC. Michael McNeill was given a 12-month conditional sentence with six months house arrest, a five-year scuba-diving prohibition and was fined CAD20 000 (USD17 850). His lorry, boat and equipment used during the crime were forfeited. Daniel McNeill and Randall Graff each received four-month conditional sentences, with three months of house arrest, two-year diving bans, CAD10 000 (USD8926) in fines, and 80 hours of community work involving presentations on abalone conservation. They also had to forfeit CAD4000 worth of equipment.

The men were apprehended leaving Port Edward, near Prince Rupert, on their way to Vancouver to sell the abalone. They are the first abalone poachers convicted under the four-year old *Species at Risk Act* (SARA).

Environment Canada, Press Releases, 28/29 August, 14 November 2006: www.ec.gc.ca/press/2006/060828_n_e.htm; Globe and Mail (Canada), 20 April 2007: www.theglobeandmail.com/servlet/story/LAC.20070420.BCABALONE20/TPStory/TPNational/BritishColumbia; TRAFFIC Bulletin 21(1):40

COLOMBIA

On 11 April 2007, marine troops seized 1030 Spectacled Caiman *Caiman crocodylus fuscus* (CITES II) skins which reportedly were to be traded in the municipality of Magangué. The skins had been concealed on board a wooden vessel manned by four crew members who were handed over to the custody of the authorities.

www.armada.mil.co/index.php?idcategoria=274336

USA

On 13 November 2006 it was announced that Antonio Vidal Pego of Rebeira, Spain, and Fadilur, S.A., a Uruguayan corporation, had been found guilty of charges related to an attempt to import and sell illegally possessed Patagonian Toothfish *Dissostichus eleginoides*, in what is the first successful federal felony prosecution in the USA for activities involving illegal importation and sale of toothfish. Sentencing included a fine of USD400 000 and USD100 000 for Vidal and Fadilur, S.A., respectively.

Fadilur was convicted on its plea to false labelling, importation of illegally possessed fish, and attempted sale of that fish. Additionally, both Fadilur and defendant Vidal were convicted of obstructing justice. In May 2004, Vidal and Fadilur, S.A., knowingly attempted to import approximately 24 000 kg of toothfish from Singapore into Miami, for sale in the USA, knowing that the fish were taken and transported in violation of CCAMLR (Commission for the Conservation of Antarctic Marine Living Resources) and US law. The defendants made and submitted a false record and account for fish intended to be imported into the USA from Singapore. Finally, in July 2004, the defendants knowingly altered and made a false entry in a survey report purporting to reflect a toothfish cargo off-loaded at Singapore from the F/V CARRAN with the intent to obstruct and influence the investigation and proper administration of a matter within the jurisdiction of NOAA (National Oceanic and Atmospheric Administration).

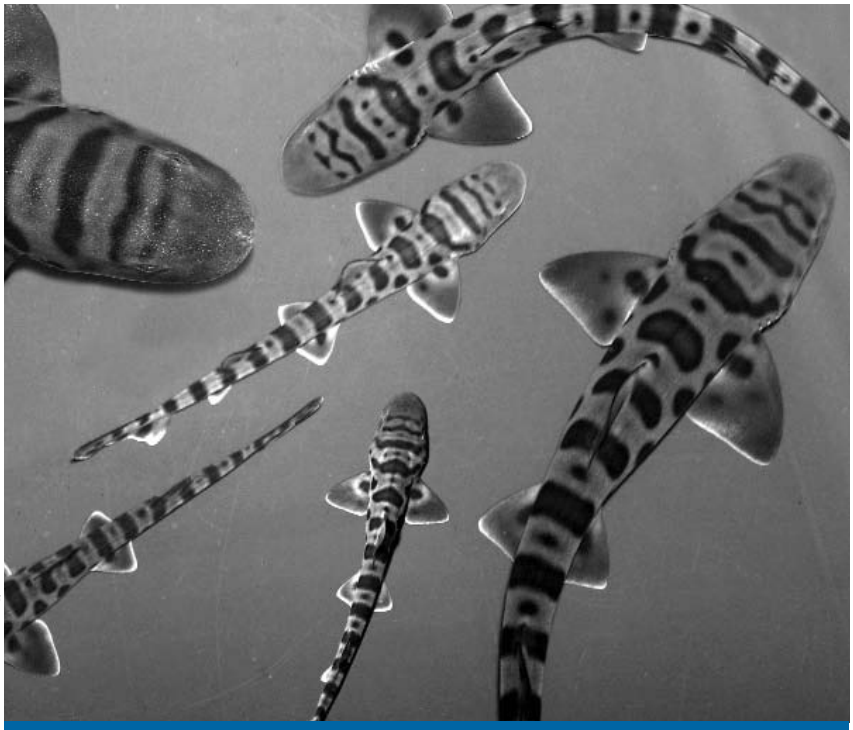
According to records in the case, the government seized the toothfish which arrived in the USA in a total of 11 cargo containers on three separate vessels, all of which were derived from the F/V CARRAN catch. NOAA and ICE agents in Miami, Los Angeles, and New York seized all the containers. The plea agreements in this case include provisions requiring the forfeiture of all the fish, or the proceeds of the government's sale of the fish, to the USA. Vidal, as a result of co-operation provided to the US Government in the investigation or prosecution of others, was placed on probation for a period of four years, and is required as a condition of that probation to cease all involvement in the toothfish industry. The Court's Probation Office and the US Government are empowered to enforce this provision by examining the books and records of any business activities of Vidal and to require his appearance in the USA as necessary. Further, Vidal has been required to provide a waiver of extradition for use in the event of a violation of the terms of the sentence. The USD400 000 fine imposed against Vidal will be paid into the *Magnuson–Stevens Fishery Conservation and Management Act Fund*. Fadilur, S.A. was also placed on probation for a period of four years and fined USD100 000, payable to the *Magnuson–Stevens Fishery Conservation and Management Act Fund*, and is required by the terms of its plea and the sentence to cease all corporate activities and dissolve as a business entity within 45 days.

The harvest and trade of Patagonian Toothfish is regulated under CCAMLR, implemented in the USA through the *Antarctic Marine Living Resources Act*.

On 14 November 2006, NOAA announced that it had issued a USD68 000 civil penalty and a 100-day permit sanction to the owner and operator of the fishing vessel Sea Angel for multiple violations of the *Magnuson–Stevens Fishery Conservation and Management Act*, which included shark finning, possession of large coastal sharks during a closure, possession of prohibited sharks, and possession of undersized swordfish.

On 18 May 2006, Florida Fish and Wildlife Conservation Commission officers, operating under a Cooperative Enforcement Agreement with NOAA Fisheries Service Office for Law Enforcement, conducted a dockside inspection of the fishing vessel in Port Canaveral, Florida, and discovered fins of large coastal sharks on board. The fishing season for large coastal sharks had already ended. Accordingly, the FWC officers contacted NOAA special agents, who initiated an investigation. Subsequently, the agents seized 41 kg of shark fins and an undersized Swordfish *Xiphias gladius* carcass.

Identification by a shark fin expert and DNA analysis indicated that some of the fins seized were from protected shark species, including Dusky Sharks *Carcharhinus obscurus*.



MONTEREY BAY AQUARIUM / RANDY WILDER

LEOPARD SHARKS AMONG 19 SPECIMENS CONFISCATED IN THE USA AND DELIVERED TO MONTEREY BAY AQUARIUM FOR CARE PRIOR TO THEIR RELEASE. FOUR SPECIMENS REMAIN AT THE AQUARIUM WHERE THEY WILL STAY AS THEY CONTINUE TO GROW. WHEN THEY REACH A SIZE WHERE THEY CAN NO LONGER BE ACCOMMODATED AT THE AQUARIUM, THEY WILL BE RELEASED INTO MONTEREY BAY.

On 22 January 2007, Kevin Thompson, pastor of the Bay Area Family Church, Holy Spirit Association for the Unification of World Christianity in San Leandro, California, and five other individuals, were found guilty of being involved in the illegal catching of thousands of undersized juvenile Leopard Sharks *Triakis semifasciata* from San Francisco Bay and selling them to aquarium dealers throughout the country, the UK and the Netherlands. Thompson pleaded guilty and was sentenced to one year and one day in prison and ordered to pay USD100 000 in fines. The five others charged in connection with the case, and who were sentenced on separate occasions, were: Ira Gass of Azusa, California (fined USD100 000 and sentenced to eight months' imprisonment and three years of supervised release); John Newberry of Hayward, California (fined USD50 000 and sentenced to six months' imprisonment and six months of community confinement); Hiroshi Ishikawa of San Leandro, California (fined USD40 000 and sentenced to three years' probation); and, Sion Lim, a citizen of Singapore (fined USD25 000 and sentenced to one year probation). These monies have been designated for rehabilitating and restoring marine wildlife habitat in San Francisco Bay.

From 1992 to 2003, Thompson led a scheme whereby members of his church illegally harvested undersized Leopard Sharks from San Francisco Bay and sold them throughout the USA and overseas. John Newberry admitted that from 1992 to 2004, he and other church members fished for undersized Leopard Sharks using church vessels and stored the sharks at a facility located in San Leandro, owned by a business associated with the church. They then shipped the sharks out of Oakland and San Francisco airports for sale to dealers throughout the country and abroad. Thompson came under suspicion when a pet trade distributor in Miami was caught with 18 juvenile Leopard Sharks from California and given an 18-month gaol sentence. The case eventually led investigators back to the Bay Area where the principal suppliers were based. Some 465 juvenile Leopard Sharks were sold.

Leopard Sharks are commonly found in ocean waters along the Oregon, California and Baja Mexico coasts. The sharks gained extra protection in 1994 when the State Department of Fish and Game placed a minimum size catch limit of 36 inches (91.5 cm) on the species. This size limit was implemented because the Leopard Shark is a slow-growing species that does not reach sexual maturity until it is between 7 and 13 years of age. The species may live as long as 30 years. Because of these factors and others, including increased commercial and sport fishing, California State wildlife authorities have established these management measures to ensure the species' ability to maintain healthy stocks in the wild.

Both the Monterey Bay Aquarium in Monterey, California, the John G. Shedd Aquarium in Chicago, Illinois, and the Cabrillo Aquarium in San Pedro, California, assisted federal wildlife investigators and Illinois Conservation officers in the transport and care of 19 juvenile Leopard Sharks confiscated during the course of the investigation. Nine of the sharks were ultimately returned to the wild in Monterey Bay, four remain on exhibit at Monterey Bay Aquarium and seven died.

The case is the result of an investigation conducted by agencies across borders, including NOAA, Fisheries Service's Office of Law Enforcement, US Fish and Wildlife Service, the California Department of Fish and Game, the UK's Department for Environment, Food and Rural Affairs and the Fish Health Inspectorate, and the Netherlands' General Inspection Service. TRAFFIC North America assisted with the investigation.

On 26 January 2007, Alvin G. Keel was sentenced in the Southern District of Florida to 60 months' imprisonment and three years' supervised release.

Keel was convicted on 30 October 2006 of the unlawful possession of Loggerhead *Caretta caretta* (CITES I) eggs, in violation of the *Endangered Species Act*, and the unlawful transportation of sea turtle eggs, in violation of the *Lacey Act*. Keel was reportedly seen digging up four separate nests of freshly laid Loggerhead eggs on 4 June 2004. The next day, law enforcement officers discovered a large bag containing two pillow cases filled with 481 sea turtle eggs near to where Keel had been caught.

Keel has three prior federal convictions in the Southern District of Florida for crimes involving the illegal taking of protected sea turtle eggs, as well as four other state convictions involving the taking of sea turtle eggs.

On 16 April 2007, at Los Angeles federal court, Hisayoshi Kojima, of Kyoto, Japan, was sentenced to 21 months' imprisonment and fined a total of USD38 831 for trafficking in protected butterfly species. US Fish and Wildlife special agents began investigating Kojima in 2003 after an insect dealer told agents of Kojima's reputation within the trade as the world's top smuggler of protected butterflies. He was indicted by a grand jury and arrested in July 2006. He pleaded guilty in January 2007 to 17 criminal charges related to the sale and smuggling of butterfly species, including the CITES-I listed Homerus Swallowtail *Papilio homerus*. Forty-three butterflies were sold to undercover agents, including two Alexandra's Birdwings *Ornithoptera alexandrae* (CITES I), two Luzon Peacock Swallowtails *Papilio chikae* (CITES I), six Corsican Swallowtails *Papilio hospiton* (CITES I), three Paradise Birdwings *Ornithoptera paradisia* (CITES II), two *Ornithoptera meridionalis* (CITES II) and three Bhutan Glory butterflies *Bhutanitis lidderdalii* (CITES II), as well as 23 other species.

Department of Justice press releases, www.usdoj.gov/usao/fls/PressReleases/061113-01.html; www.usdoj.gov/usao/can/press/2007/2007_01_23_Thompson.sentencing.press.html, 23 January; 12 February 2007: www.usdoj.gov/usao/can/press/2007/2007_02_12_leopardsharks.sentencing.press.html; www.usdoj.gov/usao/fls/PressReleases/070126-04.html; NOAA Fisheries Service press release, 14 November 2006: www.nmfs.noaa.gov; US Fish & Wildlife Service News Release, 16 April 2007: www.fws.gov/news/NewsReleases/showNews.cfm?newsId=FCD050C1-E3EE-5FF3-85B01AEA2953D852

World Without Borders: Wildlife Trade on the Chinese-language Internet

J. Wu

Introduction

THE INTERNET holds both challenges and opportunities for wildlife trade. Virtual markets now allow buyers and sellers to connect with an ease and speed never before possible. Particularly important is the Chinese-language internet, which serves over 120 million users. Between 2000 and 2005, internet use increased by 450% in mainland China—over twice the global rate—and internet users in Hong Kong and Taiwan are among the most connected in the world, each user with over 40 hours on-line each month.

Illegal wildlife trade is gaining ground on the Chinese-language internet. Products from threatened wildlife—including elephants, rhinoceroses, Tigers and marine turtles—are openly advertised on popular websites in mainland China, Hong Kong, and Taiwan. While wildlife law enforcement has made gains in policing physical markets for wildlife, the internet presents new challenges. Virtual markets have yet to be properly regulated, and this puts new pressures on wild populations of threatened species.

The current study documents the state of wildlife trade on Chinese-language websites, with the aim of aiding future efforts to keep this trade both legal and sustainable. Over eight months during 2005 and 2006, this study found over 4200 unique advertisements offered by almost 2000 sellers on the Chinese-language internet. Wildlife trade is common on both auction sites and wildlife-specific "thematic" sites targeting the Chinese-language markets of mainland China, Hong Kong, and Taiwan. These three markets share similar cultures and tastes, and categories of wildlife trade are generally similar among them, although they differ in detail. Live animals are commonly offered on auction sites in mainland China, for example, while live animals are commonly offered on thematic sites in Hong Kong and Taiwan. Even accounting for the likelihood that a proportion of the offers made are duplicative or fraudulent, the extent of wildlife being offered for sale over the internet in apparent contravention of international and national laws is alarming.

Background

By 2006, over one billion people worldwide had access to the internet, an increase of almost 200% between 2000 and 2005 (Anon., 2006a). Chinese-language markets are at the forefront of this change. Internet use in mainland China grew from 22 million users in 2000 to 111 million users in 2005, an increase of almost 450% (Anon., 2006a). China's market of internet users is now second in size only to that of the USA (Anon., 2006a). While growth between 2000 and 2005 in Hong Kong and Taiwan has been lower (115% and 120%, respectively), Hong Kong and Taiwan are already among the most connected markets in the world. Internet users in Hong Kong and Taiwan are connected for over 40 hours per month, placing these two markets in the "top ten" for internet use worldwide.

The internet provides quick and extensive information to this vast, connected audience. Much of this information is about commerce, including wildlife in trade. Internet markets are flourishing; the auction websites Yahoo and eBay are the third and fourth top websites visited by users worldwide (Anon., 2006b). In addition, internet chat rooms allow wildlife traders to find customers and make deals for almost any animal, plant, or wildlife product.

While the internet is a growing platform for illegal wildlife trade, and previous reviews of English-language internet sites have found substantial illegal trade in wildlife (Williamson, 2004; IFAW, 2005), it is also a key venue for efforts to combat wildlife crime. Monitoring the internet can produce immediate and effective enforcement action. A previous TRAFFIC report on ivory in the USA, for example, detailed the role of internet auctions in illegal ivory trade, with some of these auctions based in mainland China (Williamson, 2004). Chinese authorities quickly intervened with internet service providers and internet auctions in Shanghai and Guangzhou, and the advertisements for ivory were subsequently removed from the auction sites (H.F. Xu, pers. comm.).

The current report is based on broad-scale surveys of Chinese-language websites for species protected under CITES. The goal is to provide enforcement officers and other interested parties with a better understanding of wildlife trade on the Chinese-language internet and thereby ensure that internet markets are brought into the existing regulatory structures of three Chinese-language jurisdictions, namely mainland China, Hong Kong, and Taiwan. The study aims both to assist authorities in stopping illegal wildlife trade on the internet and in developing comprehensive strategies for the regulation of wildlife trade in both physical and virtual markets.

Methods

The current study reviews wildlife trade on Chinese-language websites based in three jurisdictions: mainland China, Hong Kong, and Taiwan. (Singapore was initially investigated but had neither active Chinese-language auctions nor "thematic" websites on wildlife trade.)

The world's two most popular auction websites, Yahoo and eBay, were surveyed through their web addresses in mainland China, Hong Kong, and Taiwan. Yahoo in Hong Kong is an independent auction website, while in mainland China it operates under Taobao (and formerly 1Pai) and under Kimo in Taiwan. For simplicity of comparison, this report refers to "Yahoo" in all three jurisdictions. Several independent websites with wildlife trade themes ("thematic sites") were also surveyed; these included virtual pet shops and internet chat rooms. These were located through keyword searches on several internet search engines designed for Chinese markets.

Websites in mainland China were accessed from Beijing, and websites in Hong Kong and Taiwan were accessed from Taipei. In mainland China, auction websites were surveyed weekly for eight months, giving a total of 32 "surveys." Auction websites in Hong Kong and Taiwan were surveyed weekly for the first three months of the study (July to September 2005). Due to high repetition of advertisements in Hong Kong and Taiwan, however, this was reduced to twice a month for the remaining five months (October 2005 to February 2006), giving a total of 21 surveys in Hong Kong and 22 in Taiwan. Thematic sites were surveyed monthly.

Keywords (Table 1) were used to find advertisements for wildlife commodities. Species chosen were a broad, but selective list of species in CITES Appendix I and II, known to be of interest to Chinese consumers. Records were made of relevant advertisements of live animals and plants (e.g., parrots, orchids) as well as products derived from threatened species (e.g. ivory carvings, agarwood incense). Authenticity of products could not be tested because the objects were not physically present; this report is therefore based on the claims of sellers. Advertisements appearing in different surveys with the same headline and by the same seller were considered as "repeats". These were recorded in every survey to document accurately the availability but were adjusted in data analysis to avoid overestimating scope. Data points recorded in the surveys are listed in Table 2.

The monitoring of internet markets is still in its initial stages. The current study's data collection protocol was therefore developed as a guide for standardizing methodology employed in future studies. Standardization of data collection in future will allow comparison of research of different topics under the overarching theme of "internet markets". Standardization of methods also allows comparison of studies done at different times as well as at different scales. Flexibility is needed for studies of varying scope and scale, of course; the guidelines (Table 2) provide this flexibility.

Agarwood	Leopard	Seahorse
Air plant	Live plant	Shark fin
Asian Arowana	Lizard	Snake
Bear	Musk	Specimen
Bekko	Orchid	Succulent plant
Cibotium	Parrot	Tiger
Crocodile	Rhino	Tortoise
Dendrobium	Saiga horn	Turtle
Ginseng	Sandalwood	
Ivory	Sea cucumber	

Table 1. Keywords used for finding wildlife trade websites and advertisements through internet search engines.

Legal trade in CITES-listed species (and derivatives) is possible, particularly for those listed in Appendix II, and illegality of trade typically cannot be determined simply from availability on the internet. For example, pre-Convention and captive-bred specimens, such as Asian Arowana *Scleropages formosus* marked by microchip transponders, may be legally traded internationally as well as domestically. For Appendix I species, the potential for products offered on the internet to represent a violation of legal restrictions is relatively high. Rhinoceros horn products (including antiques), for example, can only be traded legally with CITES import and export permits in very limited circumstances and cannot be legally sold in any of the three markets (i.e., mainland China, Hong Kong, and Taiwan). Equally, all elephant ivory (including antiques) requires certification for legal trade, as do all captive-bred animals of CITES Appendix I species. There are no captive breeding facilities in Hong Kong or Taiwan to provide

Data point	Detail
Date of survey	Record date website was visited and sale was found.
Website address	List the web address where a particular item was found.
Search terms	List search terms used to locate the item found (e.g., ivory, tusk, tortoise shell, sea turtle, caviar, eggs, etc.).
Commodity	This will not always be applicable, but should be the most general of terms, such as ivory, turtle shell, or caviar.
Category of item	Categories within a commodity type can vary greatly. As an example, under the commodity of ivory, categories include "Jewellery/Charms" (necklaces, brooches, rings, pendants, etc.); "Figurines"; "Tusks"; "Knives/Letter openers" (including grips); "Ornaments" (ashtrays, napkin rings, chess sets, boxes, toothpicks/cocktail sticks, piano keys, etc.); and "Pieces" (random ivory pieces being offered in lots). For many commodities, the category "Miscellaneous" may be needed; where possible, however, greater specificity should be used.
Advertised species	The ability to document a species is limited by the information provided. If it is possible to obtain this information, however, it should be recorded (scientific name if available, trade or common name if not).
Unit/Quantity	Record how many and of what unit (e.g., 4 tonnes, 3000 individuals, etc.).
Price	A value, if listed, should be recorded. Include the advertised price (i.e., in the currency listed) as well as a conversion to a standard comparison, such as US dollars.
Reference to legality	It is useful to record the number of items specifically advertised as being legal, mentioning the proper permits (e.g., CITES), etc. This information is not conclusive—e.g., claims of pre-CITES ivory, for example, may be false—yet is nonetheless important.
Country of origin	If the item offered lists a country of origin, it should be recorded.
Location of seller	If the sale mentions the location of the seller, this information should be included, in as specific detail as possible. The location of the seller obviously has a bearing on the legality of the sale/trade.
Shipping range	Record whether the item is offered for shipment domestically or internationally.
Store/Individual	Note whether the seller is representing an "Individual" (only one or a few items for sale) or advertising as a "Store" (with a physical location and many items available). Any name given should be listed as well.

Table 2. Guidelines for data collection for wildlife trade surveys on the internet.

Common English name	Scientific name	IUCN Red List status	On auction site	On thematic site	In mainland China	In Hong Kong	In Taiwan
Tiger	*Panthera tigris*	EN	x		x	x	
Leopard	*Panthera pardus*	LC	x				x
Asiatic Black Bear	*Ursus thibetanus*	VU	x		x		
Elephant*	Elephantidae spp.	EN/VU	x	x	x	x	x
Rhinoceros*	Rhinocerotidae spp.	EN/CR/NT	x		x	x	x
Lilac-crowned Amazon	*Amazona finschi*	VU		x		x	
Yellow-naped Parrot	*Amazona ochrocephala auropalliata*	LC		x			x
Yellow Headed Parrot	*Amazona ochrocephala oratrix*	EN		x		x	x
Tucuman Parrot	*Amazona tucumana*	NT		x		x	
Vinaceous Amazon	*Amazona vinacea*	VU		x		x	
Green-cheeked Amazon	*Amazona viridigenalis*	EN		x		x	
Hyacinth Macaw	*Anodorhynchus hyacinthinus*	EN		x		x	
Scarlet Macaw	*Ara macao*	LC		x		x	
Military Macaw	*Ara militaris*	VU		x		x	
Red-fronted Macaw	*Ara rubrogenys*	EN		x		x	
Blue Headed Macaw	*Propyrrhura couloni*	-		x		x	
Goffin's Cockatoo	*Cacatua goffini*	NT		x		x	
Moluccan Cockatoo	*Cacatua moluccensis*	VU		x		x	
Yellow-crested Cockatoo	*Cacatua sulphurea*	CR		x		x	x
Red-fronted Parakeet	*Cyanoramphus novaezelandiae*	VU		x			x
Palm Cockatoo	*Probosciger aterrimus*	LC		x		x	
Madagascar Ground Boa	*Acrantophis dumerili*	VU		x			x
Radiated Tortoise	*Geochelone radiata*	VU	x	x	x		x
Angonoka Tortoise	*Geochelone yniphora*	EN		x			x
Spider Tortoise	*Pyxis arachnoides*	VU		x			x
Flat-backed Spider Tortoise	*Pyxis planicauda*	EN		x			x
Hawksbill Turtle	*Eretmochelys imbricata*	CR	x		x	x	x
Black Pond Turtle	*Geoclemys hamiltonii*	VU		x			x
Burmese Eyed Turtle	*Morenia ocellata*	VU		x			x
Three-Keeled Land Tortoise	*Melanochelys tricarinata*	VU		x			x
Spectacled Caiman*	*Caiman crocodilus*	LR/LC		x			x
Rhinoceros Iguana	*Cyclura cornuta*	VU		x			x
Grand Cayman Blue Iguana	*Cyclura lewisi*	VU		x			x
Asian Arowana	*Scleropages formosus*	EN	x	x	x		x

Table 3. Species listed in CITES Appendix I and offered for sale on the Chinese-language internet.
**Due to split-listing, some subspecies/geographic populations are listed in CITES Appendix II.*

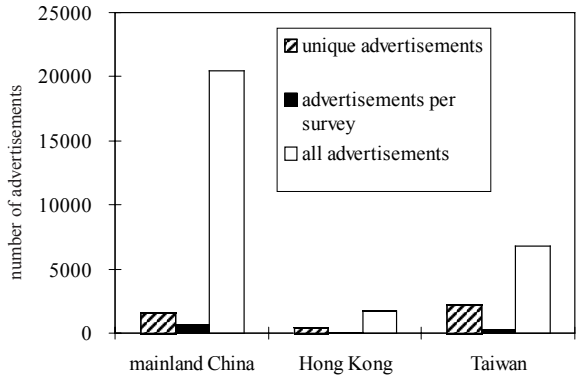


Figure 1. Number of advertisements and sellers on auction websites in mainland China, Hong Kong, and Taiwan during the survey period.

domestic stock of these species, just as there are no captive breeding facilities for parrots and reptiles (with the exception of crocodiles) registered in mainland China. Such considerations allow the identification of trade on the internet that is highly likely to be illegal, though this can only be officially determined by appropriate authorities checking the required documentation.

Results

A wide range of species is available on the Chinese-language internet (Tables 3 and 4). Species are sold as live or whole, although numerous products derived from these species are also available (Table 5).

Products are sourced from numerous countries (Table 6) and represent a significant international trade. In survey results, information on the source country was highly variable. Advertisements on auction websites in mainland China, for example, identified the source country in 97% of cases (n = 1602), while auction websites in Taiwan identified the source country in fewer than 40% of cases (n = 2204). Further, when the source country was listed, it was often identified as the country in which the auction website or thematic site was based; this was highly questionable in numerous cases (e.g., marine turtles, freshwater turtles, live parrots). The biases against accurate reporting will be consistent however, and the levels of international trade estimated through the current study should therefore represent minimum estimates. For example, of 143 *bekko* (marine turtle) products offered by 47 sellers on auction websites in mainland China, 25% were claimed as sourced from Viet Nam. Another example comes from the 208 ivory products offered on the auction websites in Taiwan: 18% of them were claimed to be from countries in Africa and Asia. Although minimum estimates, this nonetheless shows significant and almost certainly illegal international trade—in these two examples, of marine turtle and of ivory— promoted by the Chinese-language internet.

During the course of the study, 4291 unique advertisements were identified on auction sites. Auction sites from mainland China had the highest number of advertisements (including duplicates), followed by Taiwan and Hong Kong (Figure 1). Accounting for repeats, Taiwan had the highest number of unique advertisements. During the course of the study, Taiwan had 2204 unique advertisements, mainland China had 1602, and Hong Kong 485.

For auction sites, 1983 wildlife traders ("sellers") were identified in the current study. Taiwan had the highest total number of sellers, and the highest number relative to its total internet population. There were 1097, 563, and 323 sellers identified for Taiwan, mainland China, and Hong Kong, respectively. Comparing individual sellers to unique advertisements in each of these three jurisdictions, sellers offered on average 2.0, 2.8, and 1.5 wildlife products in Taiwan, mainland China, and Hong Kong, respectively. This is an indication that, in each of the three jurisdictions, most sellers on auction sites are individuals and not professional wildlife traders.

Products offered on auction websites included those derived from numerous "high profile" species, such as elephant, rhinoceros, Tiger, and marine turtle (Table 7). All advertisements offering rhinoceros products on mainland China auction websites were for horn carvings (not, as might be expected, for traditional medicines). Sixteen of the 32 Tiger products seen, or 50%, were Tiger bone wine; one seller offered 5000 bottles. Many of the rhinoceros horn and non-wine Tiger products were claimed as historical artefacts, with some sellers claiming documentation, although the veracity of such documents could not be confirmed.

Given the nature of restrictions on trade in CITES-listed species, it is highly likely that many, if not most, of the CITES species offered on the Chinese-language internet are illegal. This is particularly clear for CITES Appendix I species, such as those listed in Table 7. Other examples of clearly questionable legality include:

- a "thematic" website in Hong Kong, claiming to be a commercial breeding centre and offering 12 species of CITES Appendix I-listed parrots. However, no captive breeding facility is registered in Hong Kong according to Hong Kong's governing authority (AFCD *in litt.,* to TRAFFIC East Asia).

- a "thematic" website in Taiwan, offering Angonoka *Geochelone yniphora*, a CITES Appendix I species with a wild population of only several hundred, all in Madagascar. Trade in the Angonoka (and all other CITES Appendix I specimens) is illegal under Taiwanese law, and further, relevant authorities in Taiwan have no record of CITES import permits for this species.

- an auction website in mainland China offering Veiled Chameleon *Chamaeleo calyptratus*. According to CITES annual report data from UNEP, nine species of *Chamaeleo* were imported to mainland China from 2000 to 2005. *Chamaeleo calyptratus* was not included.

Common English name	Scientific name	IUCN Red List status	On auction site	On thematic site	In mainland China	In Hong Kong	In Taiwan
Crested Goshawk	*Accipiter trivirgatus*	LC		x			x
Lovebird*	*Agapornis* spp.	VU/LC/NT	x	x	x		x
Blue-fronted Parrot	*Amazona aestiva*	LC		x			x
White-capped Parrot	*Amazona albifrons*	LC		x		x	x
Orange Winged Parrot	*Amazona amazonica*	LC		x		x	x
Red-lored Parrot	*Amazona autumnalis*	LC		x		x	x
Mealy Parrot	*Amazona farinosa*	LC		x		x	
Yellow-lored Parrot	*Amazona xantholora*	LC		x		x	
Blue-and-gold Macaw	*Ara ararauna*	LC		x		x	x
Buffon's Macaw	*Ara auricollis*	-		x		x	x
Red and Green Macaw	*Ara chloroptera*	LC		x		x	x
Red-bellied Macaw	*Ara manilata*	LC		x			x
Chestnut-fronted Macaw	*Ara severa*	LC		x		x	x
Red-shouldered Macaw	*Diopsittaca nobilis*	LC		x		x	x
White Cockatoo	*Cacatua alba*	VU		x		x	
Ducorps's Cockatoo	*Cacatua ducorpsii*	LC		x		x	x
Sulphur-crested Cockatoo	*Cacatua galerita*	LC		x	x	x	x
Major Mitchell's Cockatoo	*Cacatua leadbeateri*	LC		x		x	x
Blue-eyed Cockatoo	*Cacatua ophthalmica*	LC		x		x	x
Red-breasted Parakeet	*Psittacula alexandri*	LR		x	x		
Plum-headed Parakeet	*Psittacula cyanocephala*	LC		x			x
Derbyan Parakeet	*Psittacula derbiana*	LC	x		x		x
African Grey Parrot	*Psittacula erithacus*	-		x			x
Alexandrine Parakeet	*Psittacula eupatria*	LC		x			x
Ring-necked Parakeet	*Psittacula krameri*	LC		x			x
Eastern Rosella	*Platycercus eximius*	LR		x	x		x
Hill Myna	*Gracula religiosa*	LR		x	x		x
Red-footed Tortoise	*Geochelone carbonaria*	-	x	x	x	x	x
Argentine Tortoise	*Geochelone chilensis*	VU		x			x
Yellow-footed Tortoise	*Geochelone denticulata*	VU		x			x
Indian Star Tortoise	*Geochelone elegans*	LR/LC	x	x	x	x	x
Aldabra Giant Tortoise	*Geochelone gigantea*	VU		x			x
Leopard Tortoise	*Geochelone pardalis*	-	x	x	x		x
Burmese Star Tortoise	*Geochelone platynota*	CR		x			x
African Spurred Tortoise	*Geochelone sulcata*	VU	x	x	x		x
Elongated Tortoise	*Indotestudo elongata*	EN	x	x	x		x
Celebes Tortoise	*Indotestudo forsteni*	EN		x			x
Bell's Hinged Tortoise	*Kinixys belliana*	-		x		x	
Home's Hinged-backed Tortoise	*Kinixys homeana*	VU		x		x	x

Table 4. Live animals listed in CITES Appendix II and offered for sale on the Chinese-language internet.
**Agapornis roseicollis was deleted from Appendix II on 1 January 2005.*

Common English name	Scientific name	IUCN Red List status	On auction site	On thematic site	In mainland China	In Hong Kong	In Taiwan
Natal Hinge-backed Tortoise	*Kinixys natalensis*	LR/NT		x			x
Pancake Tortoise	*Malacochersus tornieri*	VU	x		x		x
Burmese Mountain Tortoise	*Manouria emys*	EN		x			x
Spur-thighed Tortoise	*Testudo graeca*	VU	x	x	x	x	x
Hermann's Tortoise	*Testudo hermanni*	LR/NT	x		x	x	
Horsfield's Tortoise	*Testudo horsfieldii*	VU		x			x
Marginated Tortoise	*Testudo marginata*	LR/LC		x			x
Pig-nosed Turtle	*Carettochelys insculpta*	VU	x	x	x		x
South Asian Box Turtle	*Cuora amboinensis*	VU	x		x		x
Golden-headed Box Turtle	*Cuora aurocapitata*	CR	x		x		
Yellow-margined Box Turtle	*Cuora flavomarginata*	EN	x	x	x		
Indochinese Box Turtle	*Cuora galbinifrons*	CR		x			x
Chinese Three-striped Box Turtle	*Cuora trifasciata*	CR	x		x		
Yellow Pond Turtle	*Mauremys mutica*	EN	x	x	x		x
Big Headed Turtle	*Platysternon megacephalum*	EN		x	x		
Yellow-spotted Sideneck Turtle	*Podocnemis unifilis*	VU	x		x		x
Keeled Box Turtle	*Pyxidea mouhotii*	EN		x			x
Common Box Turtle	*Terrapene carolina*	LR/NT		x			x
Ornate Box Turtle	*Terrapene ornata*	LR/NT		x			x
Strawberry Poison Frog	*Dendrobates pumilio*	LC		x			x
Golden Mantella	*Mantella aurantiaca*	CR		x			x
Brown Mantella	*Mantella betsileo*	LC		x			x
Yellow Mantella	*Mantella crocea*	EN		x			x
Arboreal Mantella	*Mantella laevigata*	NT		x			x
Madagascan Mantella	*Mantella madagascariensis*	VU		x			x
Parker's Mantella	*Mantella pulchra*	VU		x			x
Green Mantella	*Mantella viridis*	CR		x			x
Rainbow Boa	*Epicrates cenchria*	-		x			x
Kenya Sand Boa	*Gongylophis colubrinus*	-		x			x
Rosy Boa	*Lichanura trivirgata*	-		x			x
Green Anaconda	*Eunectes murinus*	-		x			x
Burmese Python	*Python molurus*	LR		x	x		
Ball Python	*Python regius*	-		x	x	x	x
Minute Leaf Chameleon	*Brookesia minima*	-		x			x
Pygmy Chameleon	*Brookesia spectrum*	-		x			x
Veiled Chameleon	*Chamaeleo calyptratus*	-	x		x		
Panther Chameleon	*Furcifer pardalis*	-		x			x
Green Iguana	*Iguana iguana*	-		x	x		
Monitor lizards	*Varanus* spp. (14 spp.)	-		x			x
Seahorses	*Hippocampus* spp.	DD/VU	x		x		

Table 4 (ctd). Live animals listed in CITES Appendix II and offered for sale on the Chinese-language internet.

A Hong Kong website offering reptiles

Rhino horn antiques sold on a Chinese auction website

The companies providing auction websites seem generally aware of wildlife regulations. In all the three jurisdictions, eBay prohibits the trade of live animals (excluding live seafood for human consumption and live insects as food for pets), as does Yahoo in Taiwan. In terms of wildlife products, eBay is more consistent in its general wildlife trade policies in all three markets, although it does refer to the different laws and regulations in the three jurisdictions. The policies on wildlife trade are not so obvious on Yahoo, with references simply to proclamations and legislation in Hong Kong and Taiwan. In mainland China, Yahoo prohibits trade in nationally protected species, including all ivory and *bekko* products.

Most of the thematic websites in the current study were business websites. Some of these were completely virtual, while others also had bricks-and-mortar shops. A total of 35 thematic websites were located (16, 15, and four in mainland China, Taiwan, and Hong Kong, respectively). Most of these (27) were engaged in the live pet trade. A wider range of live animals was found on thematic websites than on auction websites, especially for Hong Kong and Taiwan. A total of 139 species of live birds, 279 species of reptiles, and 27 species of amphibians were found on thematic websites in mainland China, Hong Kong, and Taiwan. In each of these taxonomic groups, over 50% of the species in trade on the Chinese-language internet were listed in the CITES Appendices (ranging from 37% of the amphibians to 94% of the birds).

In terms of shipment, sellers typically offered delivery through the post office or other parcel delivery service. Face-to-face delivery, often for live animals, was most common in Hong Kong, and rare in Taiwan. Some sellers, representing bricks-and-mortar shops, asked buyers to pick up their purchases from the shops. Two websites of fish shops in north-east China used the post to ship their fish, which included Asian Arowana.

Looking at the differences between the three markets (i.e., mainland China, Taiwan, Hong Kong), live animals (e.g., tortoises, parrots) were most commonly available on auction websites in mainland China, while live plants (e.g., *Dendrobium* orchids, various succulents) were most commonly available on auction websites in Hong Kong and Taiwan. Traditional medicines purported to be made from Tiger bone, bear bile, musk, Saiga Antelope *Saiga tatarica* horn, seahorse, and *Dendrobium* orchids were found on auction websites of mainland China, but not of Hong Kong or Taiwan.

Discussion

Web hosts—both of auction and thematic sites—need to accept responsibility and take a greater role in stopping illegal trade. This can be done by improving the sensitivity of screening systems and providing more information about wildlife trade regulations to their clients. Further, government authorities must ensure regulation of wildlife trade in virtual as well as physical markets. Progress is being made in this difficult task; during the course of the current study, wildlife trade authorities in mainland China, Hong Kong, and Taiwan were informed about suspected illegal trades. In each case, the authorities acted quickly to investigate these apparent breaches in the law.

Previous studies have documented the challenges for wildlife trade presented by the English-language internet (Williamson, 2004; IFAW, 2005). The current study extends this to the Chinese-language internet. Virtual markets targeting Chinese-speaking customers represent significant international trade in terms of the number of countries involved, the diversity of products on offer, and the sheer number of participants.

Like other commodities, a proportion of the wildlife and related products identified for sale on the internet in the current study could represent fraudulent offers. A recent study claimed over 15% non-delivery and/or payment fraud for the internet sales in the USA (Anon., 2006d) and there is evidence that non-delivery fraud is common in mainland China, Hong Kong and Taiwan for a wide range of consumer products (2006f, 2006g). The extent to which such fraud permeates the wildlife trade sector is unknown, but it is a factor that should at least be taken into account by researchers in estimating significance of occurrence of on-line offers and by consumers considering purchase.

Species	CITES listing	Products
Tiger *Panthera tigris*	I	Traditional medicines (bone); traditional tonics (bone) (e.g., wines); skin (whole); religious relics (made with bone and skin); carvings (bone) (e.g., smoking pipes, rings, bracelets)
Leopard *Panthera pardus*	I	Whole trophies; skin products
Hawksbill Turtle *Eretmochelys imbricata*	I	Whole trophies; snuff bottles, from shell; jewellery, from shell (e.g., rings, bracelets, necklaces, hair pins); decorative items, from shell (e.g. statues, pen holders, jewellery boxes); glasses and combs, from shell; musical instrument picks, from shell; chopsticks, from shell
Arowana *Scleropages formosus*	I	Live specimens
Bear Ursidae spp.	I/II	Traditional medicines, from bile; whole skins
Elephant Elephantidae spp.	I/II	Decorative carvings, from tusk; name seals, from ivory; jewellery, from ivory; (e.g. rings, bracelets, necklaces); chopsticks, of ivory; smoking pipes, of ivory; knife handles, of ivory; billiard cues, ornamented with ivory
Rhinoceros Rhinocerotidae spp.	I/II	Cups (horn); name seals (horn); jewellery (horn) (e.g. bracelets, charms); pen holders (horn); tobacco boxes and smoking pipes (horn); snuff bottles (horn); medicines (horn); bags, (skin)
Musk Deer *Moschus* spp.	I/II	Traditional medicine, with musk
Asian Crested Goshawk *Accipiter trivirgatus* Psittacidae spp.	I/II	Live specimens; stuffed specimen
Freshwater turtles Emydidae spp.	I/II	Live specimens; meat and gelatines; traditional tonics
Tortoise Testudinidae spp.	I/II	Live specimens
Crocodile Crocodylia spp.	I/II	Clothing (skin) (e.g. shoes, belts); bags (skin); wine bottle holders (skin)
Lizard *Varanus* spp., *Iguana* spp.	I/II	Live specimens; skin products
Chameleon	II	Live specimens
Frog *Dendrobates* spp., *Mantella* spp.	II	Live specimens
Saiga Antelope *Saiga tatarica*	II	Traditional medicine, with horn
Seahorse *Hippocampus* spp.	II	Live specimens; traditional medicines
Cactus Cactaceae spp.	II	Live specimens and seeds; foods and extracts; skin care products
Orchid Orchidaceae spp.	II	Live specimens; traditional medicine
Agarwood *Aquilaria* spp.	II	Statues; jewellery; religious relics (e.g. rosaries, charms); oils, flakes, powders; tea

Table 5. CITES Appendix I and Appendix II species and selected products found on the Chinese-language internet.

There are at least 120 million internet users in the Chinese-speaking markets covered by this study, and only 4291 unique advertisements for CITES-listed species were found over the course of this eight-month study. This may indicate that virtual markets for wildlife trade do not yet have wide penetration. Illegal wildlife trade on the internet needs to be viewed with alarm nonetheless, given the efficiency with which the internet brings together buyers and sellers, the diversity of the trade, the clearly illegal nature of much of the trade, and the vast size of the potential market.

Elephant ivory, for example, was among the most highly-available products on the Chinese-language internet (Table 7). Ivory continues to be one of the most attractive wildlife products for Chinese consumers, as witnessed by the large seizures of illegal ivory in East Asia in 2006. The current study demonstrates how the sale and distribution of ivory now extends to the internet beyond the limited number of bricks-and-mortar shops authorized to sell certified ivory products.

Internet service providers and individual websites poorly address these issues of legality. Although both eBay and Yahoo have prohibited the live animal trade, the provision of information on laws, regulations, and links to relevant authorities is insufficient. And, although eBay in mainland China and Hong Kong, as well as Yahoo in Taiwan, prohibit the selling of ivory, for example, ivory sellers still use the sites to advertise products. Although the internet is an excellent vehicle for sharing information, consumers are not receiving the information they need with regard to wildlife trade.

The relative newness of internet markets, coupled with the diversity of products on offer, make enforcement difficult. This difficulty is compounded by variability among Chinese-language internet sites. Auction sites and thematic sites represent different aspects of the trade, for example, with auction sites offering more high-profile species, such as elephant ivory and marine turtle shell, and with thematic websites offering a greater range of species (particularly live animals, such as parrots or Asian freshwater turtles). Further, the websites of mainland China, Hong Kong and Taiwan, though sharing similarities, have significant differences as well. Such differences must be acknowledged in tailoring strategies to combat illegal wildlife trade in the different jurisdictions.

Notwithstanding differences between auction sites and thematic sites, or differences in trade within the various jurisdictions which host Chinese-language websites, wildlife trade on the internet must conform to the same regulations and standards as wildlife in physical markets. Sellers on the internet should be regulated, as are retailers in physical markets, and must be required to provide genuine information for the products they offer for sale.

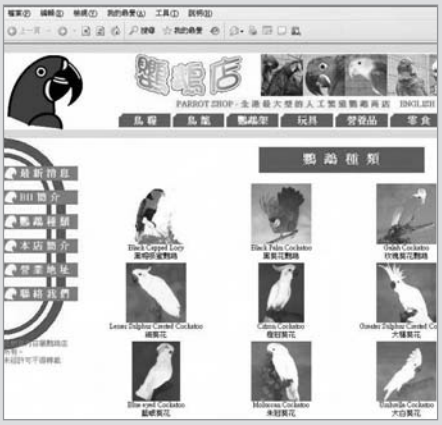
Government authorities are still developing strategies to respond to these new, virtual markets. This lag in enforcement unfortunately allows trade to proceed unregulated. Government authorities are clearly concerned, however. As this study was conducted, government authorities were informed of advertisements for high-profile species in all three markets. China's CITES Management Authority was informed of rhinoceros horn advertisements on auction websites, for example; the information was passed to the internet monitoring bureau for investigation (ongoing as of June 2007). Similarly, Hong Kong's Agriculture, Fisheries and Conservation Department and Taiwan's Council of Agriculture have been informed of apparent violations of the law. These have resulted in ongoing government investigations. The investigation in Hong Kong resulted in a conviction in February 2005 and a fine of HKD15 000 (USD1913). This is clear evidence that authorities view seriously the extension of illegal wildlife markets onto the internet.

Australia (marine turtle)
Congo (ivory)
Egypt (ivory)
France (ivory, marine turtle)
Germany (bekko)
India (ivory, musk)
Indonesia (ivory, agarwood, marine turtle, rhinoceros horn)
Italy (marine turtle)
Japan (ivory)
Lao PDR (agarwood)
Malaysia (agarwood)
Nepal (ivory, rhinoceros horn)
Palau (marine turtle)
Russia (bear bile)
Saudi Arabia (chameleon)
South Africa (ivory, rhinoceros bone)
Thailand (ivory, marine turtle, Tiger skin)
UK (ivory)
USA (ivory, marine turtle)
Viet Nam (marine turtle, agarwood)

Table 6. Selected countries (other than the three Chinese-language markets) listed as sources for the selected wildlife for sale on Chinese-language websites.

	Elephant	Rhinoceros	Hawksbill Turtle	Tiger	Total
China	332	193	143	32	700
Hong Kong	98 (96) **	3	17	6	124 (122)
Taiwan	615 (208)**	13	181	0	809 (402)
Total	**1045 (636)**	**209**	**341**	**38**	**1633 (1224)**

Table 7. Numbers of unique advertisements on auction websites offering selected CITES Appendix I species.
*** Two and 407 of the ivory products offered in Hong Kong and Taiwan, respectively, were purportedly made of mammoth ivory (2% and 66%, respectively). The numbers in parentheses are the number of different advertisements without the reputed mammoth ivory.*



A Hong Kong website claiming to be a commercial breeding centre for parrots.

Front and back of Tiger skin as religious relic (Hong Kong auction website).

Japanese sword with ivory handle for sale (Taiwanese website).

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On 5 June 2007, the international online commerce site eBay said that it will announce a ban on the international trade of elephant ivory on all of its sites around the globe, creating the first-ever online international trade ban of elephant ivory. In addition to the ban on international trade, eBay stated that clearer and stricter policies would be implemented on a national level for in-country trade.

www.ifaw.org/ifaw/general/default.aspx?oid=214542

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

- **Internet service providers** and individual websites should be encouraged to take greater responsibility to keep the trade on their sites legal, providing clear and easily accessible information on wildlife trade regulations to sellers and buyers.

- **Wildlife law enforcement authorities** should be encouraged to develop specific strategies to police virtual markets and to bring virtual markets under the same regulatory structures used for physical markets (e.g., requiring information on source country, access to certificates of legality, etc.). New regulations may be required, such as the prohibition of sale of CITES Appendix I species over the internet, to account for unique difficulties in policing of the internet.

- **Internet shoppers** should be alerted to the growing use of the internet for illegal wildlife trade, and their role in keeping their purchases legal. Since these consumers spend many hours on the internet, a global awareness campaign using the internet should be an effective avenue to reach those who may be involved in buying and trading wildlife in this way.

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An Assessment of Wildlife Trade at Mong La Market on the Myanmar-China Border

C.R. Shepherd and V. Nijman

Introduction

MYANMAR is the largest country in mainland South-east Asia. Bordering five nations, including India, Thailand and the People's Republic of China, it is strategically located as a land bridge between South and East Asia. The country is endowed with rich natural resources and is home to some of Asia's prime conservation flagship species, such as the Tiger *Panthera tigris*, the Asian Elephant *Elephas maximus*, and the Gaur *Bos gaurus*. Besides habitat loss, wildlife in Myanmar is threatened by illegal and unregulated hunting for domestic and international trade (Martin and Redford, 2000; Shepherd, 2001; Rao *et al.,* 2005), and these practices continue to flourish largely because of lack of commitment to protect wildlife (Martin, 1997). Insufficient capacity among enforcement agencies is a major impediment to conservation.

Although little is known about the extent of wildlife trade within and from Myanmar, it is well known that China is a major consumer of wildlife from neighbouring countries (Yiming and Dianmo, 1998; Yiming and Wilcove, 2005), including Myanmar (Yiming *et al*., 2000). With that in mind, the Mong La market on the border with China was visited to assess the trade so as to further TRAFFIC's understanding of Myanmar's wildlife trade dynamics, especially pertaining to international trade.

With a poverty incidence of 27%, Myanmar is among the poorest countries in South-east Asia (ADB, 2006), especially in remote and border areas. As part of an overall plan to reduce poverty, raise the standard of living, and narrow the gap between urban and rural areas, 24 Special Development Zones in designated States and divisions were established in 2001. Several of these are situated near international borders, in order to promote international trade.

Mong La is situated in one of the Special Development Zones, immediately adjacent to the border with China's Yunnan Province. The town was largely developed with money from a Chinese opium war lord, after reaching a peace agreement with the Myanmar junta, and until 2005 operated largely independently from Myanmar law. Nightclubs, brothels, hotels, and 24-hour casinos attracted large numbers of Chinese to indulge in activities largely banned inside China (Oswell and Davies, 2002; Davies, 2005). In the past, the region was off limits to non-Chinese foreign visitors, but more recently, foreigners from further abroad have begun to visit the area intermittently, regardless of the seven-hour land journey from the Thai/Myanmar border. Along with Burmese and other local languages, Chinese is commonly used. All signs in Mong La, for example, are written in Chinese characters, and the Chinese Yuan, and not the Myanmar Kyat, is the currency of daily use. At the time of the authors' visit, many of the casinos were closed down, hotels were empty, and prostitutes appeared to be less in evidence.

Wildlife legislation

Myanmar has committed to protecting its wildlife through the *Protection of Wildlife and Wild Plants and Conservation of Natural Areas Law* of 1994, and to managing its international trade under CITES, to which Myanmar became a Party in 1997. Chapter XI of the aforementioned 1994 law states that anyone "killing, hunting or wounding a normally protected wild life or seasonally protected wild life without permission or possessing, selling, transporting or transferring such wild life or any part thereof without permission" shall, on conviction, be punished with imprisonment for a term which may extend to three years, or fined up to Kyats 10 000 (USD1490), or both. Penalties relating to violations involving fully protected species may extend to imprisonment for seven years or a fine of up to Kyats 50 000 (USD7451), or both.

Methods

The Mong La market was surveyed on 7 February 2006 and all species and their parts observed were recorded. All specimens were openly displayed, and there was no need to resort to undercover techniques to obtain the relevant data. An obligatory guide from Mong La provided the necessary translations. The surveyors did not purchase any wildlife parts or derivatives. Species that could not be readily identified were photographed for further reference. Any species that could not be identified at least to genus level is not included in this report. Such specimens included the carapace of a turtle, scutes from a tortoise and canines and claws from small cats.

The official exchange rate during this period was USD1=6.71110 Myanmar Kyat.

Observations

A total of 14 vendors were selling wildlife products in Mong La market on the day of the survey. A combination of freshly killed animals and dried or durable parts (horns, antlers, etc.) were observed. In all, a minimum of 179 animals, representing 32 species were offered for sale, i.e. four species of birds, 21 species of mammals and seven reptile species. At an adjacent hotel a Tiger skin was openly displayed for sale in the lobby. The most numerous species on the market were the Tokay Gecko *Gekko gecko*, Red Muntjak *Muntiacus muntjak* and Asiatic Black Bear *Ursus thibetanus*, with a minimum number of 72, 23 and 13 individuals observed respectively (see Table 1). Ten species (32%) observed in the Mong La market are included in the list of

Species	CITES	National protection status	Live	Carcass	Whole skins	Skulls/ heads	Horns/ antlers**	Feet/ paws	Misc. parts	Min. no. of individuals
MAMMALS										
Slow Loris *Nycticebus coucang*	II	P	2	-	5	-	-	4	2 skeletons	7
Macaque *Macaca* sp.	II	P	-	-	-	1	-	-	1 tail	1
Pangolin *Manis*	II	TP	3	-	1	1	-	-	c. 260 scales	4
Flying Squirrel *Petaurista cf. petaurista*	-	-	-	-	1	-	-	-	-	1
East Asian Porcupine *Hystrix brachyura*	-	-	-	1	-	-	-	-	c. 600 quills	2
Asiatic Black Bear *Ursus thibetanus*	I	P	-	1	-	12	-	9	19 claws	13
Siberian Weasel *Mustela sibirica*	-	-	-	-	2	-	-	-	1 skeleton	2
Otter *Lutra, Lutrogale* or *Aonyx* sp.	I/II	TP	-	-	2	-	-	-	1 tail	2
Small Indian Civet *Viverricula indica*	III	P	-	-	1	-	-	-	-	1
Spotted Linsang *Prionodon pardicolor*	I	TP	-	-	1	-	-	-	-	1
Jungle Cat *Felis chaus*	II	-	1	-	-	-	-	-	-	1
Fishing Cat *Prionailurus viverrinus*	II	-	-	-	1	-	-	-	-	1
Leopard Cat *Prionailurus bengalensis*	II	-	-	-	4	-	-	-	-	4
Clouded Leopard *Neofelis nebulosa*	I	TP	-	-	1	-	-	-	1 skeleton	1
Tiger *Panthera tigris***	I		-	-	1	-	-	-	-	1
Asian Elephant *Elephas maximus*	I	TP	-	-	4 pieces	-	-	-	-	1
Eurasian Wild Pig *Sus scrofa*	-	-	-	-	-	-	-	-	1 tooth	1
Red Muntjak *Muntiacus muntjak*	-	SP	-	13	3 pieces	-	8, 1 set	-	10 tails	23
Sambar Deer *Cervus unicolor*	-	P	-	-	-	-	12, 2 sets	-	-	8
Gaur *Bos gaurus*	I	TP	-	-	-	-	2	-	-	1
Mainland Serow *Naemorhedus sumatraensis*	I	TP	-	-	-	-	8, 1 set	-	1 tail	5
Goral *Naemorhedus* sp.	I	TP	-	-	-	-	1 set	-	-	1
BIRDS										
Pheasant *Lophura* sp.	I/III	TP	-	-	-	-	-	6	-	3
Owl *Bubo* sp.	II	TP	-	-	-	-	-	2	1 wing	1
Black-collared Starling *Sturnus nigricollis*	-	P	2	-	-	-	-	-	-	2
Hwamei *Garrulax canorus*	II	P	2	-	-	-	-	-	-	2
REPTILES										
Burmese Python *Python molurus*	I/II	P	-	-	1	-	-	-	5 pieces	1
Cobra *Naja* sp.	II	-	6	-	1	-	-	-	-	7
Tokay Gecko *Gekko gecko*	-	-	-	72	-	-	-	-	-	72
Water Monitor *Varanus salvator*	II	P	-	-	1	1	-	-	-	1
Big-headed Turtle *Platysternon megacephalum*	II	TP	1	-	-	-	-	-	5 carapaces	6
Red-eared Slider *Trachemys scripta elegans*	-	*	1	-	-	-	-	-	-	1
Chinese Softshell Turtle *Pelodiscus sinensis*	-	*	2	-	-	-	-	-	-	2
TOTAL	-	-	-	-	-	-	-	-	-	**180**

Table 1. Wildlife observed in Mong La market, Myanmar, 7 February 2006.

TP = Totally Protected, P = Protected, SP = Seasonally Protected, * = Exotic species ** = for sale at a nearby hotel

Seasonally Protected or Protected species, possession or trade in which requires a permit under Myanmar law. However, it is highly unlikely that any of the dealers in this market had the required permits, as they were aware that their activities were illegal and were very wary when questioned or when photos were taken.

Eleven species (34%) observed are included in Myanmar's list of Totally Protected species and therefore should not be traded. The remaining 11 (34%) species are not included in the Totally Protected, Protected or Seasonally Protected lists of Myanmar, including two exotic species: the Red-eared Slider *Trachemys scripta elegans* and the Chinese Softshell Turtle *Pelodiscus sinensis*. Seven species observed were listed in CITES Appendix I, 10 in Appendix II and one in Appendix III. A further three species were listed in CITES, but could only be identified to genus level. Only 10 of the 32 species observed were not listed in the CITES Appendices. Legal trade of CITES-listed animals from Myanmar to China in the period 1997 to 2005 involved an average of 64 individuals per year and was largely restricted to live snakes and crocodiles (300 and 210 individuals of each species group respectively), Rhesus Macaques *Macaca mulatta* (50 individuals) and Asian Elephants (15 individuals) over a nine-year period (UNEP-WCMC, 2006).

It is clear that the trade is carried out on a daily basis, at least in the case of the trade in animal carcasses: many of the specimens being offered for sale had been recently killed as they were still bleeding and in the process of being gutted, and gall bladders were being removed, for example. There were no refrigeration units.

Discussion and Recommendations

Although carried out over only one day, this is the first complete inventory of wildlife trade in Mong La. Oswell and Davies (2002) recorded more than 17 animal species at the Mong La market and a nearby shop in January to February 2002, but did not conduct a full inventory. Only three of the species they recorded (unknown species of eagle(s), Oriental Pied Hornbill *Anthracoceros albirostris* and Marbled Cat *Pardofelis marmorata*) were not recorded during the survey under discussion. Felbab-Brown (2006) noted turtles, monkeys, rodents, and birds being offered for sale at the Mong La markets, as were bear claws, dried genitals from civets, and deer antlers. However, no specific details were provided with these observations. In the 1980s and 1990s Martin and Redford (2000; Martin, 1997) surveyed nine towns in Myanmar's interior or at the border with Thailand. In all they observed some 26 species offered for sale, nine of which were not observed in Mong La. The greater number of species (>18) were recorded at Tachilek market, at the border with Thailand; at the other eight markets considerably fewer species were found to be present. Whether or not the high number of species (33) offered for sale in Mong La represents a difference between Mong La and the other markets, or whether or not the number of species offered for sale at markets has increased in time is not clear at present. On the other side of the border in Yunnan, Yiming *et al*. (2000) reported on 26 species that were confiscated by Chinese forestry officials in the Sino-Myanmar border area that originated or could have originated from Myanmar. Eight of these (six of which were birds) were not recorded in Mong La. Combined, these data show that Mong La, despite its relatively small size, is an important trade hub for the export of wildlife from Myanmar to China.

Hunting has always played an important role in local livelihoods in rural north-eastern Myanmar (Rao *et al*., 2005), but with the opening up of the country, it is highly likely that an increasing percentage of the trade is for

PHOTOGRAPHS: C.R. SHEPHERD

FISHING CAT SKIN (LEFT) AND SPOTTED LINSANG SKIN (RIGHT) SURROUNDED BY ANIMAL PARTS INCLUDING ELEPHANT SKIN, BONES, SIBERIAN WEASEL SKINS, GALL BLADDERS (SPECIES NOT KNOWN) AND A VARIETY OF UNIDENTIFIED ANIMAL PARTS AND FAKE TEETH.

C.R. SHEPHERD

A DEAD ADULT AND JUVENILE RED MUNTJAC *MUNTIACUS MUNTJAK* AWAITING SALE AT MONG LA MARKET.

buyers from outside the immediate area. With increasing globalization and improving transport infrastructure, even some of the most remote areas in one of Asia's most reclusive countries are being exploited for short-term gains. Without effective monitoring and regulation, and increased efficiency of law enforcement, Myanmar's wildlife will continue to be depleted. The authors' observations and those of Oswell and Davies (2002) indicate that the primary purpose of much of this trade is to supply the demand from China, and indeed that wildlife is being imported into China. This suggests clear violations of international commitments under CITES.

The quantity of CITES-listed species being offered for sale on one day at Mong La equals the official annual trade in wildlife exported from Myanmar to China. If these observations are a true reflection of the magnitude of trade from Myanmar to China, this suggests that the illegal trade between these countries is of a much higher magnitude, and consists of more species, than the reported levels of CITES-permitted trade indicate.

The fact that all specimens observed in the Mong La market were openly displayed demonstrates the blatant disregard for national legislation—or at least a lack of awareness of a law that is inadequately enforced.

Additional monitoring and research on the trade in animals and plants from Myanmar is needed, in combination with increased law enforcement co-ordination between Myanmar authorities and their counterparts in China. Information should be provided to the national authorities and/or the international conservation community whenever possible. The Myanmar Government recognizes that increased co-operation and communication with China, and with all neighbouring countries, is essential in controlling the cross-border trade and in effectively implementing CITES (Compton, 2003). In December 2005, the 10 member countries of the Association of South-East Asian Nations (ASEAN), which includes Myanmar, formed the ASEAN-Wildlife Enforcement Network, the world's most extensive wildlife law enforcement network. The network is designed to protect Asia's wildlife by facilitating the exchange of intelligence among enforcement authorities in the region. Co-operation and vigilance on the part of the border authorities in both Myanmar and China should be increased and Myanmar's existing domestic regulations and controls need to be enforced more stringently by the responsible authorities in order to end these illegal activities.

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