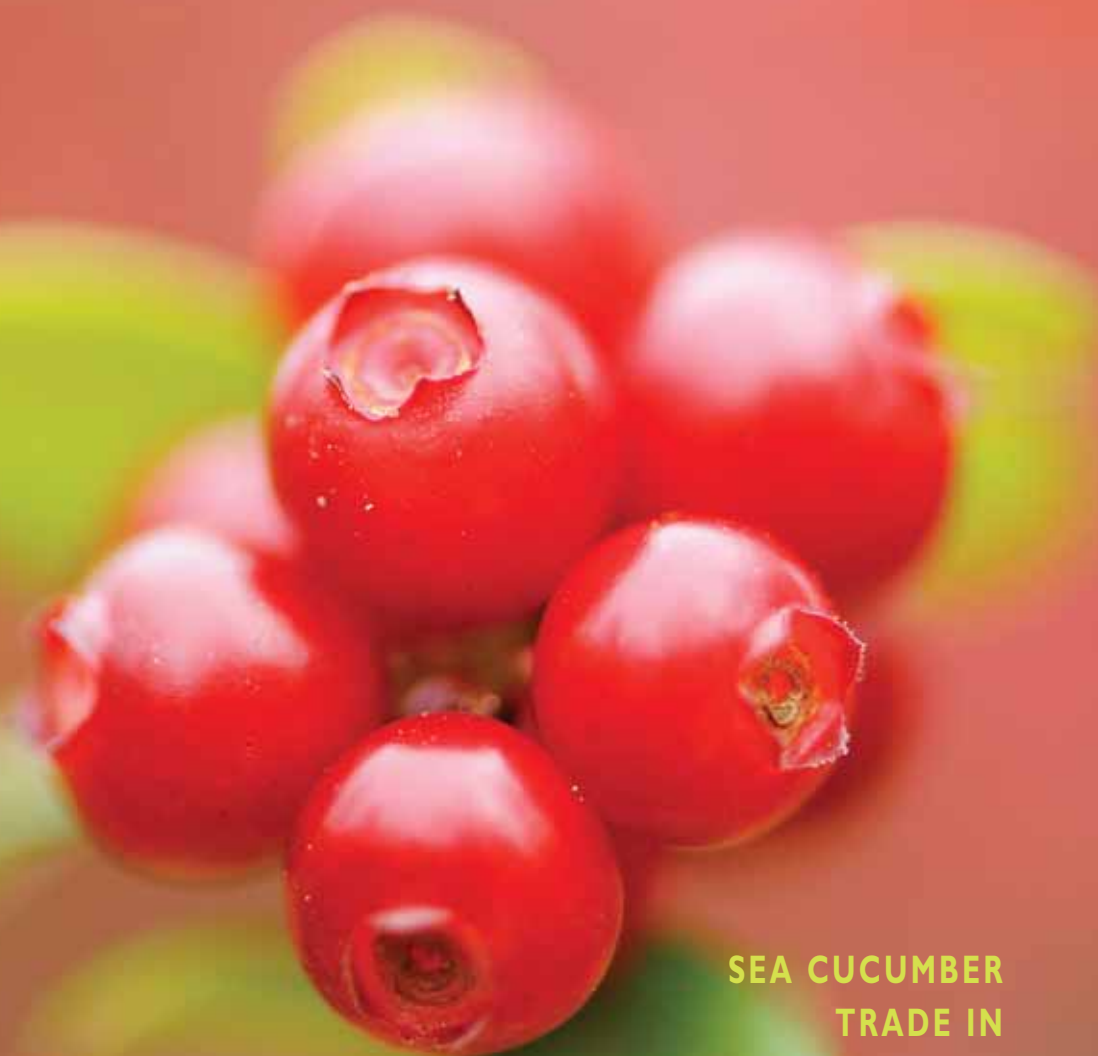


VOL. 24 NO. 2

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# TRAFFIC

B U L L E T I N



SEA CUCUMBER  
TRADE IN  
HONG KONG AND  
CHINA

IMPACT OF TRADE  
ON MYANMAR'S  
WILDLIFE

AFRICAN PANGOLINS  
IN ASIA

OCTOBER 2012

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

# TRAFFIC

the wildlife trade monitoring network



TRAFFIC was established in

1976 to perform what

remains a unique role as a

global specialist leading and

supporting efforts to identify

and address conservation

challenges and solutions

linked to trade in wild

animals and plants.



MARTIN HARVEY / WWF-CANON

**TRAFFIC's Vision is of a world in which trade in wild plants and animals is managed at sustainable levels without damaging the integrity of ecological systems and in such a manner that it makes a significant contribution to human needs, supports local and national economies and helps to motivate commitments to the conservation of wild species and their habitats.**

# TRAFFIC

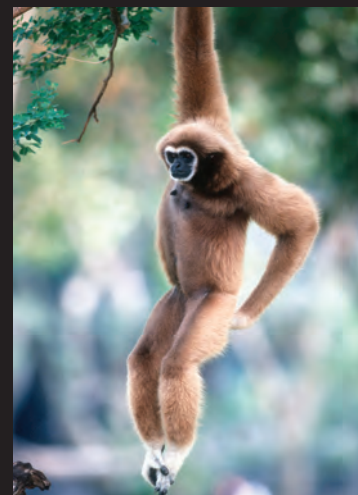
Trade in wildlife is vital to meeting the needs of a significant proportion of the world's population. Products derived from tens of thousands of species of plants and animals are traded and used for the purposes of, among other things, medicine, food, fuel, building materials, clothing and ornamentation.

Most of the trade is legal and much of it sustainable, but a significant proportion is not. As well as threatening these resources, unsustainable trade can also lead to species declining in the wild to the point that they are threatened with extinction. Illegal trade undermines local, national and international efforts to manage wild natural resources sustainably and causes massive economic losses.

TRAFFIC is a joint programme of WWF and IUCN, the International Union for Conservation of Nature. The role of TRAFFIC is to seek and activate solutions

to the problems created by illegal and/or unsustainable wildlife trade. TRAFFIC's aim is to encourage sustainability by providing government, decision-makers, traders, businesses, consumers and others with an interest in wildlife trade with reliable information about trade volumes, trends, pathways and impacts, along with guidance on how to respond where trade is illegal or unsustainable. Eight regional TRAFFIC programmes are co-ordinated by the TRAFFIC International headquarters in Cambridge, UK.

TRAFFIC's reports and advice provide a technical basis for the establishment of effective conservation policies and programmes to ensure that wildlife is maintained within sustainable levels and conducted according to national and international laws and agreements. The journal of the TRAFFIC network, *TRAFFIC Bulletin*, is the only journal devoted exclusively to issues relating to international trade in wild plants and animals. Provided free of charge to over 4000 subscribers and freely available from the TRAFFIC website ([www.traffic.org](http://www.traffic.org)), it is a key tool for disseminating knowledge of wildlife trade and an important source of information for those in a position to effect change and improve awareness.



MARTIN HARVEY / WWF-CANON

Much of the content published in the *TRAFFIC Bulletin* arises from investigations carried out by TRAFFIC staff, whose wide-ranging expertise allows for a broad coverage of issues. TRAFFIC has also built up a global network of contacts with, for example, law enforcement agents, scientists, and wildlife experts, some of whom are regular contributors to the *TRAFFIC Bulletin*.

TRAFFIC welcomes articles on the subject of wildlife trade that will bring new information to the attention of the wider public; guidelines are provided in this issue and online to assist in this process. For more information, please contact the editor: Kim Lochen ([kim.lochen@traffic.org](mailto:kim.lochen@traffic.org)).



ADAM OSWELL / WWF-CANON



ROGER LEGUEN / WWF-CANON



The *TRAFFIC Bulletin* is a publication of TRAFFIC, the wildlife trade monitoring network, which works to ensure that trade in wild plants and animals is not a threat to the conservation of nature. TRAFFIC is a joint programme of WWF and IUCN.

The *TRAFFIC Bulletin* publishes information and original papers on the subject of trade in wild animals and plants, and strives to be a source of accurate and objective information.

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This page, from top:  
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Bêche-de-mer on sale in seafood market, Hong Kong  
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Galapagos Land Iguana *Conolophus subcristatus*  
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Green-winged Saltator *Saltator similis*  
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# TRAFFIC

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Levels of poaching and illegal trafficking in elephant ivory and rhinoceros horn have surged in recent years, reaching crisis levels. Last year, 2011, saw the highest number of elephant deaths to poaching and ivory seizures since the 1980s. The number of rhinoceroses poached in South Africa alone has risen from 13 in 2007, to an alarming 448 in 2011 and in 2012, some 467 rhinoceroses had been killed unlawfully by the end of October, a figure that was rising daily.

## EDITORIAL

Clearly, the current approach to combating the illegal trade in wildlife is failing. According to a report by management consultancy firm Dalberg Global Development Advisors, commissioned by WWF, the root cause of this failure is that governments do not give the issue a high-enough priority. Dalberg notes the difficulties faced by its researchers wishing to discuss wildlife trade with representatives from Ministries not directly related to environmental issues, such as Justice, Commerce, Internal Affairs, Trade and Economic Affairs. Out of 110 representatives they approached, interviews were granted with only 23. This limited response rate is a telling sign and raises the question of whether crucial government bodies beyond the Ministries of Environment see illegal wildlife trade as an issue of concern at all.

Wildlife crime is not an obscure, victimless crime, but one which is often carried out by determined and well-organized criminals. It may sometimes attract involvement of the rural poor, whose life choices may be limited, but increasingly is run by career criminals who are involved in other illicit activities. Illegal wildlife trade has become well-organized, often conducted by criminal networks that span continents.

The human impacts of wildlife crime are much greater than acknowledged by governments. Frequently, it constitutes a threat to national territorial integrity, rule of law, and security. It can destabilize economies, lead to human deaths and can be symbiotic with other serious crimes such as arms and drug trafficking.

It is also a crime that needs co-ordination with efforts to halt other forms of illegal trafficking and cannot be tackled in isolation. Justice Ministries need to ensure that judges and prosecutors recognize the seriousness of such illegal activities and that penalties imposed provide an effective deterrent. Other Ministries need to ensure that sufficient personnel are deployed at national trade hubs to detect and intercept illicit wildlife. Unless all appropriate government departments are involved, commitments made and actions taken by government to address wildlife crime are likely to be unco-ordinated and will fail to address the issue effectively.

It is not all bad news. India's wildlife crime control bureau is staffed with officers from police, Customs and the forest department, allowing them to work in a co-ordinated manner. In China, the National Inter-Agencies

CITES Enforcement Coordination Group has been established and includes high-level representatives from more than 15 agencies, including the CITES Management Authority, General Administration of Customs, Ministry of Agriculture, State Industry and Business Administration, Ministry of Public Security, and the Forest Police Bureau and Conservation Department of State Forestry Administration.

For the first time, the issue of poaching and the illicit trafficking of wildlife was raised in the United Nations General Assembly in September 2012 during discussions on strengthening national and international governance. World leaders gathering in New York for the global body's 67th annual meeting highlighted wildlife trafficking along with other severe threats to the rule of law, such as corruption and the illegal drugs trade. In a written statement, permanent Security Council member United States highlighted "the harm caused by wildlife poaching and trafficking to conservation efforts, rule of law, governance and economic development." Gabon's President Ali Bongo Ondimba said during the High-level Meeting on the Rule of Law that "such organized crime is increasingly affecting the environment and biodiversity through poaching and illegal fishing", and that Gabon intends to strengthen its criminal justice system to combat this phenomenon. "But such efforts will require a greater international legal co-operation", he said.

Momentum is building, and it is time to change the approach to fight illegal wildlife trade by creating the right incentives for all to make the issue a priority. Collaborative mechanisms such as CITES need to be better employed to embolden regulatory efforts and hold governments to account, with the use of sanctions if necessary. Governments must work to reduce both supply as well as demand, as neither approach alone will be successful.

As with all forms of crime, improving communications between all relevant law enforcement agencies, both nationally and internationally, and stressing the need for intelligence-led investigations is essential to identify and prosecute the criminals at the heart of the trade, with penalties sufficient enough to create the deterrent required to stifle criminal involvement.

High-level decision-makers need to ensure resources are allocated to co-ordinating mechanisms, such as INTERPOL and the World Customs Organization. Regional enforcement networks such as The Association of Southeast Asian Nations Wildlife Enforcement Network (ASEAN-WEN) and The South Asia Wildlife Enforcement Network (SAWEN), also need to build on the great foundations that have been created to bring about significant lasting change. If countries co-operate, make full use of the resources available to them in terms of manpower and expertise, and take wildlife crime seriously at all levels of government, there can perhaps be a glimmer of hope that the current escalation in illegal trade can be reversed.

*Stephanie Pendry, Enforcement Programme Leader,  
TRAFFIC International*



Nigeria's biggest city, Lagos, is believed to be offering for sale the largest number and heaviest total weight of new ivory objects of any African city where surveys have been undertaken to date, according to a study carried out in September 2012. Some 14 349 ivory items were recorded on open display in 36 retail outlets during the course of an investigation by the authors, supported by The Aspinall Foundation.

Nearly all these shops specialize in ivory. The Lekki market, famous for its souvenirs, offered for sale 99% of the ivory items seen. The previous ivory survey in Lagos, undertaken by TRAFFIC in 2002, recorded some 5155 ivory objects in 31 outlets, which included shops based within the international airport and near several luxury hotels.

Almost all ivory in Nigeria has been imported (and is exported) in contravention of CITES regulations, and most ivory items for retail sale are being offered for sale illegally, without the necessary permits from the Nigerian Government.



LUCY VIGNE

IVORY BUST ON SALE IN LAGOS, NIGERIA.

## LAGOS: AFRICA'S BIGGEST DOMESTIC IVORY MARKET?

In this most recent survey, nearly all the ivory items for sale in Lagos were recently made. Some had been carved in Lagos. Five ivory workshops were found on Lagos Island, the largest of which had eight craftsmen from Benin and three Nigerians. Although some vendors said that Lagos craftsmen still produced ivory items, the authors only saw them working on cow bone, producing mostly beads.

The most common ivory items for sale were jewellery, followed by human figurines and chopsticks. Many more items are now produced to meet increased Chinese demand compared with ten years earlier. During the authors' four visits to Lekki market, the majority of foreigners looking at souvenirs were Chinese; it was apparent that they were largely only interested in the outlets selling ivory and were the only ivory buyers seen by the authors. They were observed negotiating to buy in bulk bangles, necklaces, signature stamps, chopsticks and combs.

Ivory items on sale are much cheaper in Lagos than in China. In Lagos, a pair of chopsticks costs USD63 before bargaining, but in southern China the average price is USD455. A signature stamp for personal use costs USD108 in Lagos (again, before bargaining), and USD214 in Guangzhou. The greatest price difference is for beaded necklaces: USD57 in Lekki market compared with USD586 in a Guangzhou shop. Added to this, the Chinese population in Nigeria has increased from about 2000 Chinese residents in 2001 to 100 000 by 2007.

It is imperative that the Nigerian Government enforces its laws on the ivory trade, not only by targeting the shops selling ivory, and their customers, but also by intercepting illegal ivory being imported and exported from the country. The Chinese Embassy in Nigeria could assist greatly in stopping these sales by taking more robust measures to ensure its citizens are aware of the illegal nature of the trade.

The next issue of the *TRAFFIC Bulletin* will include a more detailed report on Lagos's ivory trade.

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*Esmond Martin and Lucy Vigne are independent consultants studying the international trade in endangered species, and in particular the trade in ivory and rhinoceros horn.*



## PUKKA HERBS LAUNCH THE UK'S FIRST FAIRWILD-LABELLED PRODUCT

To celebrate its 10th anniversary, Pukka Herbs ([www.pukkaherbs.com](http://www.pukkaherbs.com)) has launched a new blend of organic peppermint and FairWild-certified liquorice tea. The liquorice *Glycyrrhiza uralensis* originates from Kazakhstan and was especially selected because it meets the FairWild Standard for sustainability and fair trade. This Standard was developed by TRAFFIC and partners through a multi-stakeholder consultation process, providing a framework to help ensure those collecting wild plant ingredients harvest the produce sustainably and receive a premium price for their efforts. The FairWild Standard and certification scheme are maintained by the FairWild Foundation ([www.fairwild.org](http://www.fairwild.org)).



It is the first time that consumers in the UK will be able to buy a product bearing the FairWild logo. The UK is Europe's third-largest importer of medicinal and aromatic plants, accounting for some 8.5% of total EU imports by value (ITC, 2011). Earlier studies have shown that the majority of such products are wild-harvested (Mulliken and Inskipp, 2006). Ensuring the market's supplies are from sustainable sources is therefore vital for conservation reasons and for the thousands of workers involved in the industry. As an added bonus, for every packet sold, Pukka Herbs is donating GBP0.20 (USD0.32) to WWF-UK to support wild plant conservation projects around the world. The partnership aims to raise over GBP50 000 (USD80 500).

Inspired by the idea of connecting people with the power of plants, Tim Westwell (creative entrepreneur) and Sebastian Pole (herbalist and Ayurvedic practitioner) created Pukka Herbs and launched a trio of organic herbal teas in 2002. A decade later, Pukka has a range of 25 award-winning teas, a skincare collection and food supplements sold in 40 countries around the world. According to Sebastian Pole, co-founder and director of the company, "When we started Pukka Herbs in 2002, we wanted to create a totally organic business that inspired people to live healthier, more sustainable lives; partnering with WWF to promote our shared conservation values seemed the perfect next step."

With global concerns over the sustainability of wild liquorice populations, the use of FairWild Standard principles at the Kazakhstan site has a particular value, verifying that wild harvesting and trade in these species is sustainable and fair.

With the launch of this tea, Pukka Herbs joins a growing number of producers, traders and manufacturers worldwide who are participating in the FairWild certification scheme. FairWild products are already on the market in the USA, Canada and continental Europe.

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**LIQUORICE** root is especially appropriate for Pukka Herbs celebratory tea; earlier this year liquorice was named medicinal plant of the year in Germany, chosen because of its paramount importance to human well-being worldwide.

The liquorice plant is a woody shrub ranging from the Mediterranean to East Asia, the Americas and Australia. Only the root of liquorice is used, from which a wide variety of compounds—400 to date—have been isolated. Among the most important is *glycyrrhizin*, a chemical that possesses almost 50 times the sweetening power of cane sugar. Today, liquorice is used as an important ingredient "gan cao" in traditional Chinese medicine (TCM), while in Germany, Europe's major consumer and trader in medicinal plants, around 500 t of liquorice are imported each year, 100 t of which are consumed domestically in medicinal teas. The root is also used in confectionery and in many herbal liqueurs. In Japan, liquorice is used mainly in medicine although also as an ingredient of cosmetics.



**Liquorice root, FairWild harvesting site, Kazakhstan, 2011.**

HEIKO SCHINDLER, INSTITUTE FOR MARKETECOLOGY



## TRAFFIC Pilots Medicinal and Aromatic Plants Sustainable Harvesting Project in Viet Nam

Most plant and animal species used for traditional medicine in Viet Nam are sourced from the wild. Increasing demand for traditional medicine has important implications for the conservation of the many species of flora and fauna upon which traditional remedies are largely based. There is growing evidence to suggest that many of these have become more difficult to obtain from the wild, and a number of them are listed as species of conservation significance. Additionally, increasing use of traditional medicines in China has seen vast quantities of plants sourced from Viet Nam transported to the Chinese market, putting further strain on these plant populations.

Despite their importance to health and livelihoods, relatively little investment has been made in assessing the conservation status of most medicinal plant species or in developing more sustainable harvest and trade practices. Through the use of the FairWild Standard, TRAFFIC has begun to address the loss of Medicinal and Aromatic Plant (MAP) species in Viet Nam.

In co-ordination with the Bac Kan Province Forest Protection Department (FPD), in partnership with People Resources and Conservation Foundation (PRCF), and through the support of the Critical Ecosystem Partnership Fund, TRAFFIC has been implementing its first project in Viet Nam to protect MAPs that rural communities rely upon for traditional medicine. The plants targeted by the project are threatened by unsustainable harvesting due to commercial demand, and by habitat destruction.

The project in the South Xuan Lac Species and Habitat Conservation Area (SXL SHCA) in northern Viet Nam, which began in 2011, is implemented using the FairWild Standard for best practice in sustainable use and trade of wild-harvested plant ingredients. By following this set of guidelines, TRAFFIC is able to ensure that this project incorporates principles of ecological and social responsibility and provides a fair and value-added management and trading system for wild-collected natural ingredients for harvesters.

The SXL SHCA in the Bac Kan Province was chosen for its unique floral composition, local communities' use of medicinal plants and evidence of uncontrolled harvesting of these species.

The project involves training local collectors in wild plant resource management, harvest monitoring, sustainable collection and value-adding processing techniques. It further aims to strengthen market linkages of target communities with the objective of increasing their income.

Four medicinal plant species were chosen from the ginger family Zingiberaceae: *Amomum villosum* and *Amomum xanthioides* var. *xanthioides* are native to Indo-China and south China, and used in over 60 traditional medicine remedies in Viet Nam as an antipyretic and diuretic; *Alpinia malaccensis* and *Alpinia latilabris* are native throughout eastern India to south China and used to treat stomach complaints.

In order to help local collectors gain legal status for harvesting and trading plants in the project site, TRAFFIC collaborated with the provincial Traditional Medicinal Association to help 51 local plant collectors from seven villages obtain the necessary legal licences for their activities. This included targeted training for the collectors in how to improve their sustainable harvesting skills and plant product processing techniques and provision of information on medicinal resources within the SXL SHCA.

TRAFFIC has also signed a five-year Memorandum of Understanding with the Bac Kan Province to facilitate local government engagement and support to this project.



NGUYENTAP / TRAFFIC

A LOCAL COLLECTOR DEMONSTRATES HOW TO CUT *ALPINIA MALACCENSIS* ON A SUSTAINABLE BASIS, DURING A TRAINING SESSION CONDUCTED BY TRAFFIC ON SUSTAINABLE WILD HARVESTING METHODS.

The resource assessment produced a distribution map which will allow collectors to take a lead in managing these plant resources. TRAFFIC is currently in discussion with local harvesters to establish a supervision group to conduct regular assessments of the selected plant species in the project site during the harvesting season to ensure that the plants are being sustainably managed.

A major component of this project is a community fund, into which participants contribute 10% of their revenue from the sale of the selected MAP species. Half of this will be used to cover the maintenance of herb dryers and supervision costs of harvester groups, while the other half of the funds will be used to improve the income of non-harvesters. The intention of this mechanism is to facilitate benefit-sharing and highlight economic benefits of wild species. The project has also provided five herb dryers to target villages in order for harvesters to gain greater value from their MAP products.

Finally, a market study has produced initial information on opportunities to increase community incomes through trade in target MAP species. Further evaluation will be undertaken of potential demand for third-party certification of wild-harvested MAPs (e.g. through FairWild), which could further increase the income of producers through the establishment of fair trade relations with buyers. Collectors in the communities are in discussion about the possibility of creating a co-operative to strengthen the communities' bargaining power, and which TRAFFIC will facilitate if such a decision is taken.

It is the ultimate goal of this project that the villagers within the project site will be able to manage MAP species independently and sustainably, and improve their livelihoods, in addition to protecting the larger ecosystem from the threats it currently faces.

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### NON-TIMBER FOREST PRODUCTS

Besides Korean Pine nuts, a number of non-wood forest products are wild-harvested and traded from the Russian Far East, based on harvest quantities approved in forest management plans. These include a range of berries (*Schisandra chinensis*, Bilberry *Vaccinium myrtillus*, Lingonberry *V. vitis-idaea*, Viburnum *Viburnum sargentii*, Hawthorn *Crataegus spathulata*, Rosehip *Rosa rugosa*, Barberry *Berberis amurensis*, Actinidia *Actinidia kolomikta*), as well as mushrooms (e.g. Chaga mushrooms *Inonotus obliquus*), ferns (Bracken Fern *Pteridium aquilinum*, Osmunda/Cinnamon Fern *Osmunda regalis*), medicinal plants (e.g. roots of Siberian Ginseng *Eleutherococcus senticosus* and Manchurian Aralia *Aralia elata*), Amur cork tree *Phellodendron amurense*, among others.

Photograph: Cones of Korean Pine

## NON-TIMBER FOREST PRODUCTS FROM RUSSIAN FAR EAST: CONSERVATION OF KOREAN PINE FORESTS, LIVELIHOODS, TIGER HABITATS

The Russian Far East (RFE) holds important habitat for the Amur Tiger *Panthera tigris*. An estimated 40–45 individuals are known to occur in circa 1.3 million hectares of wilderness around the middle and upper Bikin River, which amounts to around one tenth of Russia's Tiger population. However, these habitats are at risk from illegal logging of Korean Pine *Pinus koraiensis*—the fruits of which are an important source of food for wild boars, an important prey of the Amur Tiger—and other valuable timber species such as Oak *Quercus* and Ash *Fraxinus*.

WWF-Russia's Amur Branch, together with WWF-Germany, and through co-operation and joint work with the indigenous Udege and other communities, supported the lease of areas in the Korean Pine forest referred to as Nut-Harvesting Zones (NHZs), thus helping to ensure the survival of ecosystems and the traditional lifestyle of local communities. WWF-Russia's Amur Branch supports legal, environmentally and socially sustainable harvesting in wild non-timber forest products (NTFPs) in the RFE through the long-term engagement of communities in resource management.

A WWF project 'Mitigating impacts of climate change through the protection of large-scale virgin forests as carbon storage in the Bikin River area of the Russian Far East (RFE)', supported by the German Ministry of Environment (BMU), aims to demonstrate that harvesting and use of NTFPs, which provides the major source of income for local people, is a viable alternative to timber logging (which is often illegal and unsustainable). These efforts led to improved protection of these forests and the listing of Korean Pine in CITES Appendix III, as well as a ban by the Russian Federation of trade in Korean Pine timber. TRAFFIC was involved in the project, supporting the work to develop market linkages for producer groups in RFE in trading sustainably harvested wild NTFPs.

NHZs within the Korean Pine forests are under the concession ownership rights of a number of WWF partners; four NHZs are currently under lease for 49 years. The WWF partners work together with the Amur branch of WWF on forest protection and conservation, as well as on the development of a system for income generation for communities that are traditionally involved in the harvesting of wild NTFPs.

Among the NTFPs used, Korean pine nuts have the biggest potential for an economically sustainable future for community development in the Bikin river area owing to the high market prices for the nuts and the potential amounts that can be harvested (the average estimated annual total harvest from four leased NHZs is over 2000 t of shelled nuts). Project partners expect to generate additional revenue from NTFP trade for nature conservation, the prevention of fire and illegal logging, and sustainable development activities in the region. The achievements that the project has demonstrated to date include the proven legality of the product harvested under the long-term concession rights, increased engagement of community partners in forest management (anti-poaching, fire-prevention activities), and work towards the long-term environmental sustainability of resources and ecosystems.

A market survey undertaken by TRAFFIC as part of the project, which predominantly focused on markets in the USA and Europe, demonstrated the strong interest in RFE NTFPs from a variety of companies, including traders, manufacturers and retailers, as well as companies interested in niche products (e.g. 'superfoods'). For the majority of NTFPs, shifting primary processing to a community level would generate higher earnings for those communities. Producers in RFE were supported in a variety of ways during the project, including through links to interested buyers, and the presentation of the project profile at trade fairs. Recommendations were also developed to advise on the appropriate equipment used for processing NTFPs, and on the potential benefits of producer groups in forming an association. Certification frameworks, including organic and FairWild Standard labels are under consideration. The recommendations on the use of various third-party certification systems are available to RFE producers. It is further anticipated that business relations with potential buyers, e.g. from the list of contacts identified by the project, will be established with RFE producers.

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## Sustainable management of *Pelargonium sidoides* in South Africa and Lesotho

**T**RAFFIC achieved a solid breakthrough in getting the principles of sustainable and equitable resource use embedded into national policy when the South African Government adopted the Biodiversity Management Plan (BMP) (Newton *et al.*, 2011) for the medicinal plant species *Kalwerbossie Pelargonium sidoides*, based on the principles set out in the FairWild Standard (FairWild Foundation, 2010). A BMP was presented to the Government of Lesotho, but lack of a legislative framework stands in the way of full implementation. Technical guidance was provided for the national BMPs in both countries, and in South Africa it has completed public consultation through the South African Government Gazette; on 23 October 2012, the BMP was approved by the South African Minister of Environment Affairs and it is anticipated that this will result in the FairWild Standard principles being incorporated into the law of the land (the *National Environmental Management—Biodiversity Act*). This development follows the extensive work TRAFFIC, in partnership with the South African National Biodiversity Institute (SANBI), conducted in South Africa and Lesotho, including pilot testing of the FairWild Standard between 2005 and 2009 (then the International Standard for Sustainable Wild Collection of Medicinal and Aromatic Plants (ISSC-MAP)) through the Saving Plants that Save Lives and Livelihoods project, funded by BMZ (German Federal Ministry for Economic Co-operation and Development).

### *Pelargonium sidoides*

*Pelargonium sidoides*, of the Geranium family, is endemic to Lesotho and South Africa. It has slightly aromatic, velvety and heart-shaped leaves and dark reddish-purple flowers. The plant's root tubers have been used medicinally in southern Africa for many years, providing relief for colic, diarrhoea and dysentery.

Although the benefit of this remedy has been known for many years, it is only since 2001 that large-scale commercial wild harvesting of the root tubers commenced in South Africa and more recently in Lesotho, to supply a growing international market for commercially produced remedies to treat bronchitis and other respiratory tract infections. The dominant export destination for this plant and its products is Germany.

This species is harvested from the wild mainly in the Eastern Cape Province of South Africa and in the south-eastern and north-western districts of Lesotho. Some harvest of agriculturally produced roots has occurred in the Western Cape and Free State provinces of South Africa but not thus far in Lesotho. The sale of wild-harvested tubers provides income for rural collectors.

In 2003, TRAFFIC first conducted an assessment of the sustainability of the harvest of *P. sidoides* following

concern raised by the German Government of the reportedly large-scale trade in medicinal products derived from this species in Germany and the absence of substantive information on the short- or long-term sustainability of the industry. The results of the assessment indicated that, although the trade did not imminently threaten *P. sidoides*, the species was under potential longer-term threat owing to the very slow regrowth of tuber material left in the ground by harvesters and the danger of complete root removal as a result of unmanaged, repeat harvesting.

During 2005, TRAFFIC was approached by the Government of Lesotho to assist in building capacity within their CITES Management and Scientific Authorities. During a needs assessment for the training programme, the existence of an unregulated and undocumented industry for *P. sidoides* in Lesotho was revealed, while other sources reported illegal harvesting of the species from protected areas within South Africa. As a result, TRAFFIC and the National Environmental Secretariat of Lesotho agreed that the practical fieldwork component of the training course should focus on research in relation to making a non-detriment finding (NDF) for *P. sidoides*. Although not CITES-listed, *P. sidoides* would be a good candidate for an exercise on conducting an NDF. TRAFFIC was further requested to facilitate collaboration between government regulators in South Africa and Lesotho and other stakeholders to ensure sustainability of the industry. Project sites comprised all regions of Lesotho where the species occurs and adjacent areas of South Africa.

### Resource assessment of *Pelargonium sidoides*

One of the data gaps identified by the NDF process in Lesotho and South Africa's BMP development was lack of information on the plant's distribution and population density. Through a project managed by SANBI, a comprehensive resource assessment was conducted by three experienced plant ecologists to obtain an understanding of the size of the *P. sidoides* wild resource, to determine what proportion is currently harvested, and to identify areas where harvest may impact on wild populations (De Castro *et al.*, 2010).

The assessment, which involved 103 surveys of areas with suitable habitat across a large part of the known distribution range, was completed in early October 2010, and indicates that:

- 1) *P. sidoides* is widespread, extending 1 036 374 km<sup>2</sup> across half of South Africa and throughout Lesotho;
- 2) within the central parts of its range in the South African provinces of the Free State and the Eastern Cape, as well as throughout Lesotho, *P. sidoides* is abundant to extremely abundant;
- 3) the greatest threats to the overall survival of *P. sidoides* are habitat transformation and degradation mainly due to livestock grazing;
- 4) harvesting is impacting on a small proportion of the total population. Even in regions where harvesting is most active, e.g. in the Eastern Cape, harvesting was only recorded from 6% of sites where *P. sidoides* occurs;



- 5) *Pelargonium sidoides* can recover from harvesting and the majority of harvested plants in the survey areas (average 75%) were observed to be resprouting after being harvested;
- 6) despite the average recovery of populations from harvesting, following completion of the research, population declines were recorded in areas where repeat harvesting occurred frequently. Three sites in the survey area were heavily overexploited and less than 20% of plants in these sites had recovered after harvesting.

### Non-detriment findings for *Pelargonium sidoides*

Because of its specific trade focus, *A Checklist for Making Non-detriment Findings—Guidance for CITES Scientific Authorities* (Rosser and Haywood, 2002) was found to be insufficient for identifying the requisite background information for the BMP for *Pelargonium sidoides*. However, these NDF guidelines have much in common with specific principles and criteria of the FairWild Standard (FairWild Foundation, 2010). Consequently, during the NDF process for *P. sidoides*, these guidelines and FairWild criteria were applied jointly and used to document available knowledge and identify field research and data-collection priorities for the species. This enabled the compilation of an NDF in FairWild format, with the advantage that the scientific data gathered during the NDF could simply be incorporated into the structure of the FairWild-based BMP. This manner of making an NDF was presented at the International Expert Workshop on Non-Detriment Findings in Mexico, 2008 (Anon., 2008; see also Anon., 2010a), and the presentation “Development of a Non-Detriment Finding (NDF) process for *Pelargonium sidoides* in Lesotho” (Anon., 2008b). The results of the NDF exercise were communicated to delegates at the World Congress on Medicinal and Aromatic Plants (WOCMAP) in Cape Town in November 2008 and discussed at the 19th meeting of the CITES Plants Committee meeting in 2011 (see also Anon., 2010b). In addition, TRAFFIC was invited to participate in the *Pelargonium* Working Group, a group set up in South Africa to further sustainable use of *P. sidoides*, and this provided an additional opportunity to promote FairWild, including to the medicinals industry.

### Studies on recovery of *Pelargonium sidoides*

Initiation of scientific background work required to develop sound harvest protocols comprised a further element of FairWild implementation during the project. In this connection, one of the main questions that required answers was the rate of tuber recovery of *Pelargonium sidoides*. With BMZ funding, a three-year research study was carried out between 2008 and 2011 with the support of the National University of Lesotho, the Lesotho Department of Environment Affairs, Witwatersrand University in South Africa, and TRAFFIC. The research conducted by Lisebo Motjotji, seconded to TRAFFIC by the Lesotho Government, resulted in a M.Sc thesis entitled ‘Towards sustainability of harvesting the medicinal plant *Pelargonium sidoides* DC.

(GERANIACEAE)’. The main result of the study was that although tuber fragments remaining in the soil following harvest resprouted very quickly, it took 10 to 15 years for wild plants to recover their original tuber biomass. This demonstrated that any return harvest that occurred more regularly than this period would compromise tuber recovery and impact negatively on plant populations. This result has formed one of the harvest recommendations included in the BMP aimed at minimizing the negative impact of harvest.

### Development of a Biodiversity Management Plan (BMP) for *Pelargonium sidoides* based on the FairWild principles

With completion of the work on the *P. sidoides* national resource and clarification of the time taken by remnant tubers to recover biomass removed by harvest, it was possible for the South African Department of Environment Affairs (DEA) to finalize the BMP and submit it for public comment. This was undertaken in late 2011, with final amendments being made in mid-2012. On 23 October 2012, the BMP was formally approved for implementation in South Africa, a process that will commence through the DEA-chaired *Pelargonium* Working Group and which will serve as the blueprint for management of the species for at least five years, when the plan will be reviewed and updated.

During the project, it was discovered that Lesotho’s environmental legislation was highly fragmented and would not allow the BMP to be implemented easily or smoothly. In recognition of this shortcoming, TRAFFIC worked with IUCN ESARO on a legislation review that provided recommendations to the Government of Lesotho on how to rationalize environmental laws for the effective implementation of CITES, CBD and the *P. sidoides* management plan. The BMP is still going through the adoption process in Lesotho, where a number of legislative and capacity issues have to be resolved before it can be fully adopted. Full implementation of the BMP will take several years and responsibility for this lies with the Government of Lesotho. TRAFFIC is working with Lesotho to raise the project funds required to implement the BMP in that country.

### Future plans and developments of NDFs for perennial plants

TRAFFIC is currently engaged in a project to develop guidance and training modules for the CITES Scientific Authorities on conducting NDFs for perennial plants, partially based on the FairWild Standard. Development of this guidance was discussed at a small meeting in February 2012 in Mexico. The guidance will form the basis of training modules which will be put into practice at an NDF workshop on cycads in Viet Nam in November 2012. Final results are expected to be presented during the 16th meeting of the Conference of the Parties to CITES.

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**Tubers of *Pelargonium sidoides*, Lesotho.**

WWW.TRAFFIC.ORG/PATZOLD

## Marine Turtle Trade at Pangandaran, South Java

Pangandaran is a beach resort with a ~1000 ha nature reserve along the south coast of Java, Indonesia. According to staff at the entry posts, it receives almost a million, mainly domestic, visitors a year. Based on a visit in August 2004, Hilterman and Goverse (2005) reported that "...hundreds of stuffed sea turtles and bottles of turtle oil were being sold in souvenir shops...", including Olive Ridley Turtles *Lepidochelys olivacea*, Hawksbill Turtles *Eretmochelys imbricata*, Green Turtles *Chelonia mydas*, and possibly Loggerhead Turtles *Caretta caretta*. Previous surveys in Pangandaran found 100 Hawksbill, 37 Olive Ridley and six Green Turtles (Anon., 2005) and 14 Hawksbill, eight Olive Ridley and six Green Turtles for sale (Anon., 2010).

All species of marine turtle are globally threatened and included in Appendix I of CITES and Appendix I of the Convention on the Conservation of Migratory Species of Wild Animals (CMS). Marine turtles are protected by Indonesian law (*Law No. 5* of 1990 and amendment *PP No. 8* of 1999), and all trade is prohibited. The Penanjung Pangandaran nature reserve, which is classified as a protected area under the IUCN Protected Areas Management Categories under 1a Strict Nature Reserve, includes a 470 ha marine section in which no natural resource exploitation is allowed; there are two guard posts, staffed by officers of the Regional Office for Natural Resource Management, at either ends of the reserve.

From 13 to 15 April 2012, the author surveyed over 200 stalls and shops selling marine products in Pangandaran resort (7°41' S, 108°39' E). Carapace lengths of whole marine turtle specimens were measured or estimated. Vendors were interviewed in Bahasa Indonesia, the official language of Indonesia, about origins, turnover and prices (quoted in Indonesian rupiah and converted to US dollars in this report) of marine turtle products. No wildlife was purchased as part of this investigation.

The trade in marine turtles was concentrated on the southern end of the eastern beach (*pantai timur*), with seven stalls selling turtles near the offices of the nature reserve park management, and a further eight shops in the tourist market (*pasar parawisata*) on the north side, close to the main bus terminal (Fig. 1). This survey found stuffed specimens of nine Hawksbill, 12 Olive Ridley and 21 Green Turtles for sale, all whole. No Loggerhead Turtles were observed for sale. Green Turtle specimens ranged in length from 18 cm (priced at USD22) to 108 cm (USD220), the Hawksbill Turtles from between 30 to 35 cm (USD49) and 50 cm (USD82) and the largest Olive Ridelys were ~75 cm (price unknown). There was a significant positive relationship between carapace length and price (Fig. 2), with more or less USD1 added for every centimetre of increase in carapace length. The overall value of the stuffed marine turtles observed for sale was in the order of USD2000–2500. No turtle eggs or marine turtle derivatives (oil, meat, tortoiseshell or *bekko*) were observed for sale.





V. NIJMAN

FIG. 1. A SHOP IN PANGANDARAN'S TOURIST MARKET OFFERING A WIDE RANGE OF MARINE PRODUCTS FOR SALE, INCLUDING STUFFED GREEN TURTLES (LEFT) AND AN OLIVE RIDLEY (RIGHT).

The turtles were said to be caught locally and opportunistically, possibly as by-catch, by local fishermen. Vendors were generally aware that the turtles were a protected species but were open about providing details of the trade. Captured turtles were brought on shore and stuffed locally near Pangandaran. Apart from two adult Olive Ridley Turtles, which were in poor condition, all specimens on offer appeared to have been recently acquired, suggesting a high turnover. One vendor at the tourist market indicated that turnover of stuffed turtles was high and pointed at the large numbers of visitor/tourist coaches that were parked at the bus terminal adjacent to the market. Another vendor at the eastern beach also indicated a high turnover of marine turtle sales, stating that she regularly sold medium-sized, juvenile turtles.

Immediately following the survey, TRAFFIC reported the findings to the Indonesian Ministry of Forestry, requesting appropriate action be taken, but as of 3 August 2012, the sale of marine turtles in Pangandaran is still taking place (C.R. Shepherd, *in litt.*, 3 August 2012) and continues to be a significant market for stuffed marine turtles. The openness of the trade, and information provided by vendors, suggest a regular trade in stuffed

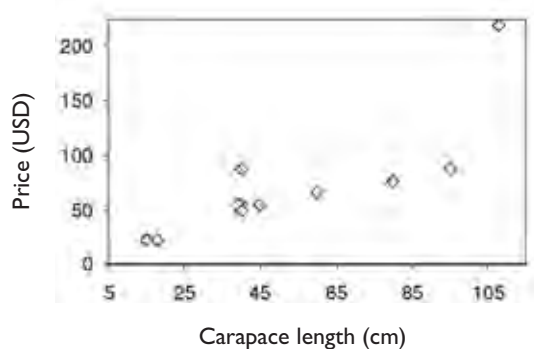


Fig. 2. Relationship between carapace length and asking price for stuffed Green Turtles, Pangandaran, West Java, Indonesia, April 2012.

whole marine turtles. It is unclear if the absence of turtle eggs represents a change from the past or whether these products are traded only seasonally (the egg-laying season mainly takes place from September to December (Whitten *et al.*, 1996)). Likewise, the absence of turtle oil for sale, as reported by Hilterman and Goverse (2005), may suggest a change in trade dynamics, with a renewed preference for whole turtles. The open, illegal sale and consistent presence of marine turtles in markets that should be easy to monitor (including stalls situated in front of the offices of the nature reserve authorities) is a clear indictment of the Indonesian wildlife conservation authorities' neglect of their duties. With their close proximity, it should be relatively straightforward for the authorities to take action to stop this illegal trade. While detailed quantitative data are lacking, the presence of likely mainly recently acquired specimens, including a significant proportion of potential breeding adults, and turnover information from traders, suggest that the trade in marine turtles in Pangandaran is significant, and potentially affecting their conservation status. Wildlife protection laws are not being enforced as intended, and, in Pangandaran at least, this is not due to limited capacity but rather to a lack of pressure on the authorities to treat these illegal sales as a priority issue. Collectors, middlemen, traders and consumers (both domestic and international) engaged in illegal activities must be held accountable for their actions and prosecuted, and law enforcers must be given incentives to carry out their duties in this regard with greater efficiency. With highly migratory species such as marine turtles, the impact of the turtle trade in Indonesia has important ramifications for international turtle conservation; the current lack of intervention to stop these illegal sales by officials who should be upholding wildlife protection laws must not be tolerated.

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**Fig. 1. Map of Customs Union of Belarus, Kazakhstan and Russia depicting key international trade routes and neighbouring countries.**

Abbreviations:

AM: Armenia; AZ: Azerbaijan;  
 BY: Belarus; CN: China; EE: Estonia;  
 FI: Finland; GE: Georgia; JP: Japan;  
 KG: Kyrgyzstan; KP: Democratic People's  
 Republic of Korea;  
 KZ: Kazakhstan; LT: Lithuania;  
 LV: Latvia; MN: Mongolia; PL: Poland;  
 RU: Russian Federation; TJ: Tajikistan;  
 TM: Turkmenistan; UA: Ukraine;  
 UZ: Uzbekistan.

Map drawn by TRAFFIC for the European  
 Commission (after Silitski, 2010).

## THE CUSTOMS UNION OF BELARUS, KAZAKHSTAN AND RUSSIA: IMPLICATIONS FOR WILDLIFE TRADE

The Customs Union of the Republic of Belarus (Belarus), the Republic of Kazakhstan (Kazakhstan) and the Russian Federation (Russia) is an integrated Customs area, formally established in October 2007. A number of intergovernmental agreements have since been signed to implement the Customs Union (hereafter 'CU') in practice, resulting in, *inter alia*: a common Customs Code becoming effective in July 2010; internal physical border controls being eliminated in July 2011; and a "Single Economic Space" coming into effect in January 2012, ensuring the free movement of goods, services, capital, labour and equal treatment of economic entities (Anon., 2012a). All current members of the CU are Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

The Kyrgyz Republic (Kyrgyzstan) started negotiations on future accession to the CU in April 2011, with work currently under way on the full accession of Kyrgyzstan. Further enlargement of the CU seems likely, potentially including the Republic of Uzbekistan, the Republic of Armenia, and the Republic of Tajikistan (not a Party to CITES). The latter two countries do not, however, currently border a CU member country (a precondition for membership), thus their accession is dependent on future CU developments (Anon., 2012b; Dragneva and Wolczuk, 2012).

The removal of Customs controls at borders between Russia and Kazakhstan and between Russia and Belarus has created a vast single Customs territory, stretching continuously from the European Union (EU) in the West to China in the East (Fig. 1). However, the resulting effect of shortening the transportation "speed" of goods from China to Europe by as much as four times owing to faster border crossings (Anon., 2010) comes with ramifications of high conservation concern: the removal of several barriers to legal and illegal wildlife trade, as well as reduced opportunities for control and enforcement at borders. Now, following introduction into the CU, specimens of CITES-listed species can effectively be transported throughout the CU unhindered.

Native species—both CITES and non-CITES listed—can also be traded freely within the CU, with fewer borders to cross between range States and consumers in Europe and Asia. Trophy hunting is an important activity in this region, with Russia and several Central Asian countries a popular destination for hunters (especially from the EU and North America) seeking trophies of various species of bird and mammal (Hofer, 2002, and e.g. Brown Bear: Knapp, 2007). The region is also home to many rare and sometimes endemic fish, reptile and plant species. With the removal of border controls within the CU, CU member countries may find it difficult to control and monitor exports of native species, and therefore keep trophy hunting and other such trade within sustainable levels. A Brown Bear hunted in Russia, for example, could be exported from Kazakhstan without the true country of origin being declared, posing a potential threat to specific populations of Russia's Brown Bears. The absence of co-ordination between CU member countries on CITES implementation is likely to increase the risk of such problems arising. ►

► The sheer size of the CU will require a highly organized and co-ordinated approach to wildlife trade monitoring and enforcement within its borders. Co-ordination and information exchange at all levels of CITES implementation and enforcement would appear to be necessary to ensure consistency across the CU and to avoid abuse of the system/exploitation of the weakest link in the chain (not only by smugglers but by those involved in “permit shopping”—applying to successive authorities until a permit is granted).

To date, the CU does not appear to have implemented legislation nor taken the co-ordinated monitoring and enforcement actions necessary for effective wildlife trade regulation, either within member countries or between member countries within the single Customs area. In the EU, for example, the EU Wildlife Trade Regulations establish three co-ordinating bodies, which allow for regular and frequent information exchange and consistent decision-making for the different aspects of CITES implementation, from scientific issues (Scientific Review Group) to management (Committee) and enforcement issues (Enforcement Group) (EC, 2012). In addition, EU-TWIX<sup>1</sup> functions as an important tool for information-sharing between enforcement officials and authorities across the EU. Whereas the EU also regulates internal trade in Annex A-listed species<sup>2</sup>, internal trade in CITES Appendix I-listed species does not currently appear to be regulated within the CU.

The establishment of the CU therefore raises a number of important issues with regard to the trade in wildlife. These include:

- the apparent lack of CU legislation dealing with CITES trade;
- the lack of co-ordination and information exchange at all levels of CITES implementation (science, management and enforcement) necessary to ensure consistency across CU member countries and to avoid abuse of the system and exploitation of the weakest link in the chain;
- the lack of internal trade monitoring (at least for selected species groups, e.g. species listed in CITES Appendix I, and CITES species for which the CU member countries are range countries);
- consequences of the removal of border controls within the CU, such as a reduced ability for CU member countries to monitor exports of native species and fewer barriers to legal and illegal wildlife trade between range States/areas and markets.

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<sup>1</sup>EU-TWIX, the European Union Trade in Wildlife Information eXchange is a tool developed to facilitate information exchange and international co-operation between law enforcement officials across the EU. It consists of two complementary components: a database and a mailing list. EU-TWIX is a joint initiative of the Belgian Federal Police, Customs and CITES Management Authority, and TRAFFIC.

<sup>2</sup>broadly equivalent to CITES Appendix I.

# AFRICAN PANGOLINS

## UNDER INCREASED PRESSURE FROM POACHING AND INTERCONTINENTAL TRADE

Daniel W.S. Challender and Lisa Hywood

BLACK-BELLIED PANGOLIN UROMANIS TETRADACTYLA, MINKÉKÉ, GABON. MEG GAWLER / WWF-CANON

All pangolin species have been subject to exploitation historically, which continues today, but little is known about their natural history, status or conservation needs (Lim and Ng, 2007; Pantel and Chin, 2009; Challender, 2011). In Asia, the four extant species—the Chinese Pangolin *Manis pentadactyla*, Sunda Pangolin *M. javanica*, Thick-tailed Pangolin *M. crassicaudata* and Philippine Pangolin *M. culionensis*—are threatened primarily as a result of illegal hunting for illicit international trade (Wu *et al.*, 2004; Challender, 2011) to meet demand for their meat and for the use of their scales in traditional medicines (Pantel and Chin, 2009; Challender, 2011). The key consumers are China and Viet Nam. The African species, namely Temminck's Ground Pangolin *Smutsia temminckii*, African White-bellied Pangolin *Phataginus tricuspis*, Black-bellied Pangolin *Uromanis tetractyla* and Giant Ground Pangolin *Smutsia gigantea*, are also threatened by consumptive use in west, central and southern Africa (Kingdon, 1971; Soewu and Ayodele, 2009; Soewu and Adekanola, 2011). The animals are hunted for their meat, which is either consumed or traded as wild meat, and for their scales, which are used for cultural and ethno-medicinal purposes, including in traditional African medicine, *muti* or *juju* (Bräutigam *et al.*, 1994; Sodeinde and Adedipe, 1995; Soewu and Ayodele, 2009; Soewu and Adekanola, 2011).

All extant species of pangolin are listed in Appendix II of CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora); international trade is permitted, but regulated through the issuance of import and export permits, subject to non-detriment findings. However, at the 11th meeting of the Conference of the Parties to CITES, in 2000, a proposal to transfer Asian pangolin species from Appendix II to Appendix I was amended to retain these species in Appendix II with an annotation of a zero quota for specimens taken from the wild and traded for primarily

commercial purposes; a zero export quota was also established for the Philippine Pangolin in September 2007 following its recognition as a species distinct from the Sunda Pangolin (see Feiler, 1998; Gaubert and Antunes, 2005). Trade in Asian pangolins and their parts may only be resumed upon submission and adoption of a proposal to remove or amend the annotation at another meeting of the Parties (CITES, 2011; Anon., 2000). In June 2012, the EU CITES Scientific Review Group (SRG) banned imports of African White-bellied Pangolins from Guinea into the EU, based on concerns about the sustainability of recent levels of trade (SRG, 2012).

A number of seizures in Asia of African pangolins (see Challender, 2011) provide evidence of an intercontinental trade in African pangolins to Asia that has long been suspected, but little is known about the extent of this trade or the figures involved. At the same time, the exploitation of pangolins specifically within Africa has received little attention from conservationists (Bräutigam *et al.*, 1994, Sodeinde and Adedipe, 1995, Soewu and Ayodele, 2009, and Soewu and Adekanola, 2011, being notable exceptions). This paper discusses trade in African pangolins targeted for export to Asia and provides some recent figures of pangolin seizures intended for this market.

### Exploitation driven by intercontinental trade

The clandestine nature of illicit trade in wildlife makes it difficult to estimate trade levels; minimum volumes only can be gauged based on data from media reports of seizures and the findings of research (Broad *et al.*, 2003). Here the authors are limited to presenting selected data relating to seizures in Africa, Europe and Asia for the period 2000 to 2012 based on media reports, Customs agencies and the Tikki Hywood Trust, which operates in Zimbabwe (Table 1).

Prior to 2008, the authors have no records of intercontinental trade in African pangolins or their derivatives to Asia, though it is feasible that such trade has existed ►



▶ but gone undetected. Since 2008, a small number of seizures comprising African pangolins and derivatives have taken place in Asia and in Europe where the end destinations were reported to be China, Thailand and Hong Kong (Table 1), though this is undoubtedly a small fraction of actual trade levels based on the low detection rates associated with wildlife trade. Although the quantities of pangolins and scales seized are not known in all cases, some of these consignments included pangolin scales ranging in weight from between one and 115 kg; one comprised 100 African White-bellied Pangolin skins (with scales attached) that had originated in Guinea and was bound for Thailand (Table 1). The larger volumes suggest this trade is commercial in nature but operating in parallel with smaller volumes. For example, pangolin scales have been recovered from personal baggage and passengers' shoes during recent seizures in Belgium. Again, while the identity of the species concerned has not been confirmed in all seizures, photographic evidence suggests that this trade involves at least three of the four African pangolins—the Temminck's Ground Pangolin, Giant Ground Pangolin and African White-bellied Pangolin. In June 2012, the EU SRG

banned the importation of Tree Pangolins to the EU based on concerns about the sustainability of trade volumes of this species from Guinea.

How much of the hunting and trade in pangolins in Africa is intended for intercontinental trade, international trade within Africa or for domestic use is not clear. However, the nature and circumstances surrounding seizures that have been made recently suggest links to intercontinental trade rather than to local use. A pangolin seized in Zimbabwe in May 2012 had had most of its scales removed, which deviates from the local practice of *muti*, where the animal is kept alive and its scales removed as and when needed for medicinal purposes. Moreover, one of the authors has been contacted for advice by conservationists operating in Gabon in response to reports of Chinese buyers placing orders for pangolins. In July 2012, 115 kg of pangolin scales were seized in Uganda; the trader claimed that he had many suppliers and that he always exported the pangolin scales to China. He said that he received deliveries from various locations within the country and from the Democratic Republic of Congo (Mayanja, 2012). According to a spokesperson from the Ugandan Wildlife Authority, wealthy Chinese

Year	Location of seizure (Known source/destination)	Commodity	Species	No. of individuals/ weight (kg)	Source
2000	Zimbabwe	Live	Temminck's Ground Pangolin <i>Smutsia temminckii</i>	1	THT
	Zimbabwe	Live	Temminck's Ground Pangolin	1	THT
2001	Mozambique	Live	Temminck's Ground Pangolin	1	THT
	Zimbabwe	Live	Temminck's Ground Pangolin	2	THT
	Zimbabwe	Live	Temminck's Ground Pangolin	1	THT
	Zimbabwe	Live	Temminck's Ground Pangolin	1	THT
2003	Zimbabwe	Live	Temminck's Ground Pangolin	1	THT
	Namibia	Live	Temminck's Ground Pangolin	1	THT
2004	Zimbabwe	Live	Temminck's Ground Pangolin	1	THT
2008	Zimbabwe	Live	Temminck's Ground Pangolin	1	THT
	China	Scales	<i>Manis</i> sp.	4 kg	Media
	France	Live	<i>Manis</i> sp.	1	French Customs
2009	France (Cameroon)	Body(ies)	<i>Manis</i> sp.	3	Media
	France (Cote d'Ivoire/Hong Kong)	Scales	<i>Manis</i> sp.	96 kg	French Customs
	France (Central African Republic)	Body(ies)	<i>Manis</i> sp.	4	French Customs
2010	South Africa	Live	Temminck's Ground Pangolin <i>Smutsia temminckii</i>	1	Media
	USA	Body(ies)	<i>Manis</i> sp.	>4	Media
	France (Congo)	Body(ies)	<i>Manis</i> sp.	1	French Customs
	France	Body(ies)	<i>Manis</i> sp.	1	French Customs
2011	France	Meat	<i>Manis</i> sp.	15 kg	Media
	Zimbabwe	Specimen	Temminck's Ground Pangolin <i>Smutsia temminckii</i>	1	Media
	Zimbabwe	Specimen	Temminck's Ground Pangolin	1	Media
	Mozambique	Scales	Temminck's Ground Pangolin	Unknown	Media
	Namibia	Specimen	Temminck's Ground Pangolin	1	Media
	Belgium (Guinea/Thailand)	Skins (with scales)	African White-bellied Pangolin <i>Phataginus tricuspis</i>	100	Belgian Customs
	Kenya	Specimen	Temminck's Ground Pangolin <i>Smutsia temminckii</i>	1	Media
	Zimbabwe	Seizure	Temminck's Ground Pangolin	1	THT
	Zimbabwe	Seizure	Temminck's Ground Pangolin	1	THT
	China (Nigeria)	Meat/Scales	<i>Manis</i> sp.	3/1 kg	Media
2012	Belgium (Guinea/China)	Scales	Giant Ground Pangolin <i>Smutsia gigantea</i>	Unknown	Belgian Customs
	Belgium (Cameroon/Belgium)	Body(ies)	<i>Manis</i> sp.	c.200 kg	Belgian Customs
	Belgium (Unknown/China)	Scales	<i>Manis</i> sp.	c.20 small bags	Belgian Customs
	Uganda	Scales	<i>Manis</i> sp.	4 kg	Media
	Uganda	Scales	<i>Manis</i> sp.	115 kg	Media
	Kenya	Live	Temminck's Ground Pangolin <i>Smutsia temminckii</i>	1	Media
	China (Angola)	Scales	<i>Manis</i> sp.	6	Media

**Table 1. Year, location of seizure, commodity, species and number of individuals/weight of African pangolin/derivatives in trade, 2000–2012.**  
Sources: media reports, Customs agencies, THT=Tikki Hywood Trust, Harare, Zimbabwe.

were encouraging the illegal trade (Mayanja, 2012). This supports the concern that intercontinental trade, if not the case already, is set to be a major threat to Africa's pangolins, especially if this practice is occurring elsewhere in Africa, facilitated by a growing Chinese presence on the continent as a result of increasing trade and economic links.

Changing culture also appears to be facilitating trade in pangolins in Africa, at least in Zimbabwe. Pangolins there are listed as Specially Protected species under the *Parks & Wildlife Act 1975*. Additionally, the recent passing of Statutory Instruments 56 and 57 of 2012 of the *Parks and Wildlife Act* means a gaol sentence is now likely for those caught poaching pangolins. The new legislation also prohibits the historical practice of taking captured pangolins to Chiefs, Sangomas or Headmen, for which the community would receive a multitude of blessings. The pangolin has a spiritual value to the Shona people, Zimbabwe's largest ethnic group (Anchors, 2002), who traditionally believe that offering a pangolin to a spirit medium, or *midzimu*, will bring protection and well-being to their village communities. However, this practice appears to be changing and the use of pangolins in Shona culture today is more often characterized by bringing a pangolin to a person of high standing, such as a politician, in order to elevate the giver's standing, or through trading the animal for economic benefit. In the past two years, the value of one pangolin has increased from USD5000 to USD7000 (Tikki Hywood Trust, unpublished data, 2011). Reports of a number of seizures of pangolins in trade in Zimbabwe are recorded in Table 1.

## DISCUSSION AND CONCLUSIONS

The low detection rates associated with wildlife trade suggest that the pangolin seizures documented in this paper comprise only a small fraction of the actual trade, with real volumes potentially at unsustainable levels, though scant knowledge of African pangolin ecology precludes making a definitive assessment. However, based on the evidence presented here, it is possible that the intercontinental trade in African pangolins to supply markets in Asia, e.g. China, is now a potential threat to these little-studied species. Vigilance by Customs authorities and efforts in the field to prevent the extraction of pangolins must be stepped up. Similarly, research needs to be undertaken on intercontinental trade, given the potential magnitude of the threat and the suspected precipitous decline in Asian pangolin populations driven by demand in the region, in particular China (Pantel and Chin, 2009) and the growing economic ties between Africa and China. Such a study should be supplemented with research into the status and ecology of African pangolins in order that an informed assessment can be undertaken into the impact of trade on pangolin populations.

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## Identifying the origin of elephant ivory with isotopes

The international ivory trade remains one of the most controversial wildlife trade issues. In 1989, the international community listed the African Elephant *Loxodonta africana* in Appendix I of CITES, thus prohibiting any commercial ivory trade. The strict trade prohibition and effective protective measures allowed the elephant populations in some African countries to recover. One of the key findings in the latest African Elephant Status Report (Blanc *et al.*, 2007) is that elephant numbers in east and southern Africa are increasing by four percent annually. These two sub-regions hold 88% of all of the 'definite' and 'probable' elephant numbers recorded in the African Elephant Database. Botswana, Namibia, Zimbabwe and South Africa were given the opportunity to trade in elephant products under strict controls. Nevertheless, CITES has only allowed one-off sales and does not allow unrestricted trade of products made of elephant ivory. One of the main arguments for the trade prohibition is the fact that it is very difficult to distinguish legal ivory from illegal ivory in the markets, so that the legal ivory trade would provide a perfect cover for smuggling. However, in the medium-term, some African countries, in particular those with increasing elephant numbers, might insist that trade in ivory from their stocks should be allowed in order to generate continuous revenues for nature conservation (Ziegler, 2010).

Stable isotope analysis is a technique that relies on intrinsic tissue signatures to provide information on diet and often provenance of feeding. The use of this technique to trace the origin of wildlife is based on the fact that stable isotope signatures in animal tissues reflect those of local food webs and geology (Peterson and Fry, 1987; Tieszen and Boutton, 1988; Michener and Schell, 1994; Hobson, 1999). Van der Merwe *et al.* (1988) demonstrated that African Elephants from different regions had unique isotopic compositions. In an attempt to elaborate further the predictive ability of stable isotope signatures in ivory, WWF-Germany, in co-operation with the International Centre of Ivory Studies (INCENTIVS) at the University of Mainz, Germany, was contracted by the Federal Agency for Nature Conservation (BfN) to develop a methodology with which the determination of the geographical origin can be tested. The German Federal Ministry of Environment, Nature Conservation and Nuclear Safety (BMU) partly funds this project, which will officially end in December 2013 (CITES, 2011).

In total, 606 ivory samples from 24 African and six Asian Elephant range States were collected from European museums and collections, trophy hunters and other individuals. CITES Management Authorities from Burkina Faso, Botswana, Malawi, South Africa, Mozambique and Sudan were particularly helpful and provided more than 350 samples. Several organizations, including TRAFFIC and the International Council for Game and Wildlife Conservation, promoted the project and extended the request for support to specific range countries. Ivory fragments of at least 30 mg were taken from different locations at the proximal end of the tusk by using a small handsaw, or alternatively a pincer, thus assuring that the isotopic signal reflected the environment where the animal had died. The samples were analysed at the Agroisolab facility for stable isotope research in Jülich, Germany. The authors combined various routine chemical analyses to measure the isotope ratios of the bio-elements hydrogen, nitrogen, carbon, oxygen and sulfur.

Stable isotope values of elephant ivory showed a considerable range of variation and there was significant overlap between regions. Therefore, approaches using single stable isotope markers are less practical to predict accurately the

correct place of origin. Thus, multivariate statistics were applied and it was also found that combining isotopes increased the predictive power. The ratios of hydrogen, carbon and nitrogen, in particular, appear to be the most promising predictors in analysing isotopic fingerprints of elephant ivory. The authors also carried out assignment simulations and found that more than 95% of all ivory reference samples deriving from elephant populations listed in Appendix I of CITES were correctly assigned to their region of origin. Approximately 14% of all ivory samples from Botswana, Namibia, South Africa and Zimbabwe, whose elephant populations are listed in Appendix II of CITES, were misclassified as Appendix I populations. However, the authors are confident that the so-called false positive rate can be reduced if more reference samples are made available, particularly from Namibia and Zimbabwe. The results suggest that the combination of isotopic parameters have the potential to provide predictable and complementary markers for estimating the origin of seized elephant ivory. By pinpointing poaching hotspots with isotopic maps, wildlife authorities are in a better position to direct law enforcement efforts. Furthermore, the potential for unique isotopic markers, possibly in combination with other forensic techniques, increase the ability to distinguish legally derived ivory from illegally sourced ivory along the production and marketing chain.

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## LEGISLATION

The *Myanmar Wildlife Protection Law (MWPL)* consists of a number of categories that relate to the threat to survival of species in Myanmar, in accordance with the *Protection of Wild Animals, Wild Plants, and Conservation of Natural Areas Act 15(A), 1994*. Species are afforded varying degrees of protection according to their designation:

**Completely Protected (CP):** Completely Protected species may not be hunted except for scientific purposes under a special licence.

**Protected (P):** Protected species may be hunted but only with special permission such as for public awareness or scientific research.

**Seasonally Protected (SP):** Seasonally Protected species are subject to traditional subsistence hunting by rural communities only during the non-breeding season. Mammalian species are protected between 15 June and 30 September and avian species between 15 March and 30 September (MOECA, 2003).

There are very limited legal provisions for the domestic and international trade of wildlife species from Myanmar. Protected species and restrictions relating to hunting methods are defined under the 1994 *Myanmar Wildlife Protection Law* which states that capturing and “raising” any species requires the direct permission of the Director General of the Forest Department. Wildlife trade is therefore broadly considered to be illegal by government officials, while the legal framework is actually insufficient to deal with the complexities of the issue.

## METHODS

The study was undertaken between June 2007 and October 2010. The four main study areas were Putao, Tanai, Myitkyina and the town of Lazai, which is located on the border with China, as well as a further seven sub-study sites along the Myanmar-China border: Makonkhen,

Lweje, Pangwa, Kangfang, Hpimaw, Kambaiti and Muse. Although Muse is in the north of neighbouring Shan State, wildlife trade from Myitkyina passes through Mandalay as well as from Myitkyina via Bammaw, before being transported to Muse. Villages in the vicinity of Pannandin—located about 70 km from the border town of Makonkhen—and in the upper parts of Kachin State, are better placed for the transportation of wildlife to the market at Makonkhen than the nearer market in Putao, which is less easily accessible owing to the hilly terrain. A map of the study sites in Kachin State is shown in Fig. 1. The research was based mainly on field studies and involved interviews with local people and on direct observations. Visits to the four study sites were undertaken twice a year every day for a period of circa two weeks or more during the course of the survey period; seven border towns were visited during 2009, each for between three and 17 days.

In order to assess hunting and wildlife trade patterns, four sets of questionnaires were used. Information relating to identification of the species hunted, trade routes and sources was gathered via interviews with villagers, hunters, small-scale dealers, middlemen and other traders, with the aid of drawings and photographs of wildlife species of the region.

Identification of species follows Lekagul and McNeely (1977), Groves (2001), Martin *et al.* (2001), Win Maung and Win Ko Ko (2002) and Francis (2008). The conservation status of the species recorded is in accordance with national protection categories set down in the *Myanmar Wildlife Protection Law (MWPL)* (1994); the IUCN-Red List of Threatened Species (IUCN, 2010), and in the Appendices of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES, 2010).

## RESULTS

Wild animals in Kachin State are hunted for the use of their skins, bodies, derivatives and parts, as products or for use in traditional medicines. Live animals are also kept as pets and wild meat is offered for sale as food.





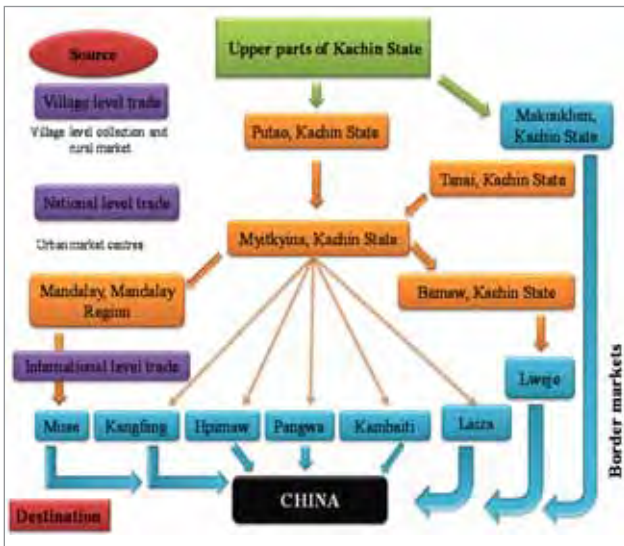


FIG. 2. MAJOR TRADE ROUTES OF WILDLIFE IN KACHIN STATE, MYANMAR.

A total of 46 wildlife species were recorded in trade, most of which are listed under nationally and/or globally threatened categories under the *Myanmar Wildlife Protection Law 1994 (MWPL)*, the IUCN Red List, and/or in the CITES Appendices. Twenty-two (or 48% of the total recorded in this survey), were of completely protected species listed in *MWPL*; 10 species (22% of total) were classified by IUCN as Endangered (IUCN, 2010); and 18 species (39% of total) were listed in CITES Appendix I (CITES, 2010). Six species were not legally protected.

According to the figures obtained from the market surveys, 27 mammal species, three bird species and one reptile species were recorded in trade in Putao environs; 24 mammal species, five bird species and six reptile species in Tanai environs; 11 mammal species, three reptile species and one amphibian species in Myitkyina environs and 22 mammal species, two bird species and two reptile species in Laiza, on the border with China; the highest number of traded wildlife parts on sale (75%) were recorded in Laiza, followed by Myitkyina, Putao and Tanai, respectively (Table 1).

A total of 14 wild animal body parts were recorded in trade between 2007 and 2009, including skulls, carapaces, antlers, horns, skins, canines, gall bladders, stomachs, paws, bones, dried penises, tusks, skeletons, phalanges, hooves, tongues, legs, and quills. A large proportion of these parts are used for traditional medicine. It was difficult to be certain that the figures recorded over the period of the survey did not include double-counting. While the sale of some items, such as meat, was likely to be frequent, it was less easy to establish turnover for some of the other items on sale.

According to interviews with local traders and from direct observations, wildlife from Kachin State is traded to China through eight major border towns: Makonkhen, Kangfang, Hpimaw, Pangwa, Laiza, Kambaiti, Lweje and Muse. Wildlife parts were seen for sale in all border towns apart from Kambaiti and Muse, where trade is locally prohibited.

## DISCUSSION

Kachin State is rich in natural resources; its close location to China and the need by people for hard currency has resulted in the unsustainable exploitation of the State's natural resources. Investigations during the course of the survey found that illegal wildlife dealers use well-established and highly organized cross-border networks.

Animal body parts are mainly used as ingredients in traditional medicines, as well as collectors' trophies, decorations and as luxury items. Live animals are sold as pets or for fresh food, as well as for zoological exhibits, or may be killed for just a single body part—for example, gall bladders from bears. Overall, information gathered from interviews and from direct observations, showed that the number of items in trade in Kachin State was found to be increasing each year, including, at most sites, sales of Chinese Serow *Capricornis milneedwardsii*, Red Muntjac *Muntiacus muntjak*, East Asian Porcupine *Hystrix brachyura*, Hoolock Gibbon *Hoolock hoolock*, Asiatic Black Bear *Ursus thibetanus*, Asian Elephant *Elephas maximus* and Tiger *Panthera tigris*. Conversely, it was reported that the sale of products of Sambar, and Yellow Tortoises *Indotestudo elongata* had declined over successive years. While the sale of wildlife at Myoma market, Putao, reportedly had been popular over the previous four years, sales had subsequently declined following intervention by the Nature and Wildlife and Conservation Division, Forestry Department, Ministry of Forestry, and participation of the Wildlife Conservation Society (Myanmar Program) (Than Zaw, *in litt.*, 2012); during the current study only wild meat was observed for sale at this market. Wildlife products were on sale at the airport market in Putao, which also regularly sells hunting gear such as jaw traps. The author found that most wildlife is not openly displayed in the airport market but held nearby and only shown to trusted customers.

The use of hunting weapons and the consumption of wild meat in Tanai environs is prohibited; it was reported that the range of wildlife products in trade in this area had declined compared with previously; during the course of the current survey, a total of 35 species (69% of which were mammals) was recorded in trade in the region, all of them protected species.

Wildlife on sale in markets in Myitkyina environs was principally intended for use as traditional medicine, for food and as souvenirs. Mammals were the most common animals used in traditional medicine and the skins of muntjacs and serows the most common animal products used for leather clothing.

In view of the testimonies of those interviewed that the trade in most wildlife species and related products was increasing each year, it is possible that these practices are contributing to the overexploitation of wildlife resources in the region.

In Laiza market, 26 wildlife species were recorded for sale during the survey period. The trade in Asian Elephant, Tiger, monkey species, Eld's Deer *Rucervus eldii*, Takin *Budorcas taxicolor*, cat species and Chinese Pangolin *Manis pentadactyla* is reported to have increased



Common Name	Scientific Name	Conservation Status		Observed Parts	Study Sites				Laiza
		IUCN	CITES		MWPL	Putao	Tanai	Myitkyina	
Asian Elephant	<i>Elephas maximus</i>	EN	I	CP	Skin parts	-	-	-	345
Tiger	<i>Panthera tigris</i>	EN	I	CP	Molar teeth	-	1	-	13
					Canines	1	-	1	-
					Bones	-	2	8	2
					Dry penises	-	-	2	1
Red Serow	<i>Capricornis rubidus</i>	EN	I	CP	Horns	2	-	-	-
Shorridge's Langur	<i>Trachypithecus shorridgei</i>	EN	I	P	Tails	-	1	-	-
Hog Deer	<i>Axis porcinus</i>	EN	I	SP	Live	-	1	-	-
Eld's Deer	<i>Rucervus eldii</i>	EN	I	CP	Antlers	-	-	-	7
Black Musk Deer	<i>Moschus moschiferus</i>	EN	I	CP	Skins	1	-	-	-
Chinese Pangolin	<i>Manis pentadactyla</i>	EN	II	CP	Skins	1	1	-	28
					Dead body	1	-	-	-
Yellow Tortoise	<i>Indotestudo elongata</i>	EN	II	P	Carapace	-	1	2	-
					Live	-	1	-	-
Hoolock Gibbon	<i>Hoolock hoolock</i>	EN	II	CP	Pet (live)	-	1	-	-
					Skulls	12	-	-	-
					Head with brain	-	-	10	89
					Bones	-	-	3	-
Asiatic Black Bear	<i>Ursus thibetanus</i>	VU	I	P	Skins	1	1	-	-
					Gall bladders	2	-	7	16
					Canines	-	-	10	54
Sun Bear	<i>Helarctos malayanus</i>	VU	I	CP	Skins	1	-	-	1
Red Panda	<i>Ailuurus fulgens</i>	VU	I	CP	Skins	1	-	1	-
Red Goral	<i>Nemorhaedus</i> spp.	VU	I	CP	Skins	2	-	-	-
					Horns	10	-	-	8
Clouded Leopard	<i>Neofelis nebulosa</i>	VU	I	CP	Skins	1	1	-	4
Rufous-necked Hornbill	<i>Aceros nipalensis</i>	VU	I	CP	Bills	1	1	-	-
					Live	-	1	-	-
Gaur	<i>Bos gaurus</i>	VU	I	CP	Horns	4	2	-	27
Takin	<i>Budorcas taxicolor</i>	VU	II	CP	Horns	4	1	-	8
Stump-Tailed Macaque	<i>Macaca arctoides</i>	VU	II	P	Skulls	20	1	-	8
Assamese Macaque	<i>Macaca assamensis</i>	VU	II	P	Skulls	20	-	-	-
					Pet (live)	1	-	-	-
Green Peafowl	<i>Pavo muticus</i>	VU	II	CP	Feathers	-	20	-	-
Pig-Tailed Macaque	<i>Macaca nemestrina</i>	VU	II	P	Skulls	-	2	-	-
Asiatic Soft Shell Turtle	<i>Amyda cartilaginea</i>	VU	II	P	Live	-	1	-	-
Malayan Box Turtle	<i>Cuora amboinensis</i>	VU	II	P	Live	-	1	-	-
Impressed Tortoise	<i>Manouria impressa</i>	VU	II	P	Live	-	1	-	-
Sambar	<i>Rusa unicolor</i>	VU	-	P	Antlers	11	4	11	58
Chinese Serow	<i>Capricornis milneedwardsii</i>	LR/nt	I	-	Skins	4	1	20	-
					Horns	8	2	10	12
					Hoofs	-	-	12	7
					Tongues	4	-	-	-
					Bills	2	-	-	16
Great Hornbill	<i>Buceros bicornis</i>	LR/nt	I	CP	Skins	2	1	-	2
Asian Golden Cat	<i>Pardofelis temminckii</i>	LR/nt	I	CP	Skins	-	1	-	7
Rock Python	<i>Python molurus</i>	LR/nt	I	P	Skins	-	1	1	7
Leopard Cat	<i>Prionailurus bengalensis</i>	LR/lc	II	P	Skins	1	-	-	5

Table 1. Species and total number of body parts recorded for sale in Kachin State, June 2007 to October 2010, and their conservation status.

Common Name	Scientific Name	Conservation Status			Observed Parts	Study Sites			
		IUCN	CITES	MWPL		Putao	Tanai	Myitkyina	Laiza
Wreathed Hornbill	<i>Rhyticeros undulatus</i>	LR/lc	II	CP	Bills	1	1	-	-
Rhesus Macaque	<i>Macaca mulatta</i>	LR/lc	II	P	Skulls	8	1	-	10
Oriental Pied Hornbill	<i>Anthracoceros albirostris</i>	LR/lc	II	CP	Bills	-	1	-	-
Grey Peacock Pheasant	<i>Polyplectron bicalcaratum</i>	LR/lc	II	CP	Live	-	1	-	1
					Feathers	-	-	-	20
Common Palm Civet	<i>Paradoxurus hermaphroditus</i>	LR/lc	III	P	Skins	1	1	-	-
Large Indian Civet	<i>Viverra zibetha</i>	LR/nt	III	P	Skins	-	1	-	-
Yellow-throated Marten	<i>Martes flavivula</i>	LR/lc	III	P	Skins	2	-	-	1
Small Indian Civet	<i>Viverricula indica</i>	LR/lc	III	CP	Skins	1	1	-	1
Reticulated Python	<i>Python reticulatus</i>	-	II	CP	Gall bladders	2	1	4	2
Red Muntjac	<i>Muntiacus muntjak</i>	LR/lc	-	SP	Skins	30	1	205	2
					Antlers	25	3	3	-
Eurasian Wild Pig	<i>Sus scrofa</i>	LR/lc	-	-	Tusks	20	2	160	35
East Asian Porcupine	<i>Hystrix brachyura</i>	LR/lc	-	-	Stomach	1	-	2	10
					Quills	-	-	85	2552
Hog Badger	<i>Arctonyx collaris</i>	LR/nt	-	-	Skins	1	-	-	-
Blue Sheep	<i>Pseudois nayaur</i>	LR/nt	-	-	Head with horns	1	-	1	-
Himalayan Newt	<i>Tylostrotion verrucosus</i>	LR/nt	-	-	Dry whole body	-	-	54	-
Total						211	64	862	3352
Percentage						5%	1%	19%	75%

**Table 1. ctd. Species and total number of body parts recorded for sale in Kachin State, June 2007 to October 2010, and their conservation status.**

Note: EN-Endangered species; VU-Vulnerable; LR/nt-Lower Risk near threatened; LR/lc-least concern; I-Appendix I; II-Appendix II; III-Appendix III; CP-Completely Protected species; P-Normally Protected; SP-Seasonally Protected

over successive years in this border town, although the trade in goral *Nemorhaedus* spp., serow *Capricornis* spp., bear species, sambar, Gaur, Great Hornbill and python species had reportedly declined (see Table 2).

Comparison of wildlife parts on sale at the four study sites indicates that the highest number of wildlife species was observed in Laiza, located on the border with China, followed by Myitkyina, Putao and Tanai (see Table 1).

No direct observations of wildlife being traded were made in Muse; however, traders mentioned during interview that wildlife species on sale at Muse wildlife market consisted mainly of freshwater turtles and snakes that had been sourced from all over Myanmar. These specimens are sold both for meat, but also for medicinal purposes and tonics in the form of jellies, soups and pills. These are taken to cure a range of illnesses including rheumatism, heart ailments and cancer, as well as to increase longevity. The sources of the products traded in Muse reportedly come mainly via the Mandalay region. The author was told that rare birds and live animals were supplied to zoos in China. The birds reportedly most commonly exported from this area include pheasants, parrots and hill mynas, but no trade was observed. There appeared to be a large discrepancy between the quantities recorded in the interview questionnaires and those observed by the author, which were significantly lower. This may have been due to traders' reluctance to disclose precise information.

According to the surveys, it was reported that Makonkhen, Kangfang, Hpimaw, Pangwa, Laiza, Kambaiti, Lweje and Muse were the final destination for wildlife traders in Kachin State. Wildlife parts found in Putao, Myitkyina and Tanai are likely to find their way to China through one of these eight towns. Owing to lax law enforcement, inadequate penalties, limited public awareness of the problem, weak border controls and the perception of high profit and low risk, the illegal smuggling of wildlife and derivatives in this region is still very active.

## CONCLUSIONS

The traditional hunting of wildlife by local tribes appears to be placing pressure on some species in Kachin State. Hunters are targeting species whose parts are valued by traders and are consequently helping to maintain a thriving trade in wildlife parts to cities like Putao, Myitkyina and the markets along the border with China. Some of the species encountered during the survey are facing some degree of threat and any increase in hunting may place further pressure on them. It is therefore essential that conservation and management strategies are devised to ensure the sustainability of these resources.

Common name	Scientific name	Observed parts	Quantities		
			2007	2008	2009
Asian Elephant	<i>Elephas maximus</i>	Pieces of skins	100	100	150
		Molar teeth	5	-	3
Tiger	<i>Panthera tigris</i>	Dried penises	-	-	3
		Bones	-	-	2
		Antlers	-	-	7
Eld's Deer	<i>Rucervus eldii</i>	Horns	-	8	-
Red Goral?	<i>Naemorhedus</i> spp.	Horns	8	4	-
Chinese Serow	<i>Capricornis rubidus</i>	Horns	8	4	-
		Legs with hoof	7	-	-
		Head with brain	25	20	44
Hoolock Gibbon	<i>Hoolock hoolock</i>	Skull	5	1	2
Stump-Tailed Macaque	<i>Macaca arctoides</i>	Skull	6	2	2
Rhesus Macaque	<i>Macaca mulatta</i>	Skull with canine	-	6	4
Asiatic Black Bear	<i>Ursus thibetanus</i>	Canines	-	39	20
		Skins	-	1	-
Sun Bear	<i>Helarctos malayanus</i>	Antlers (small/big)	20	20	18
Sambar	<i>Rusa unicolor</i>	Skull with horns	8	11	8
Gaur	<i>Bos gaurus</i>	Skull with horns	2	-	6
Takin	<i>Budorcas taxicolor</i>	Skins	-	-	1
Yellow-throated Marten	<i>Martes flavigula</i>	Skins	-	-	2
Asian Golden Cat	<i>Pardofelis temminckii</i>	Skins	-	1	-
Small Indian Civet	<i>Viverricula indica</i>	Skins	-	-	5
Leopard Cat	<i>Prionailurus bengalensis</i>	Skins	1	-	3
Clouded Leopard	<i>Neofelis nebulosa</i>	Skins	5	1	22
Chinese Pangolin	<i>Manis pentadactyla</i>	Skull with bill	-	10	6
Great Hornbill	<i>Buceros bicornis</i>	Feathers	20	-	-
Grey Peacock Pheasant	<i>Polyplectron bicalcaratum</i>	Skins	5	-	2
Rock Python	<i>Python molurus</i>	Gall bladder	-	-	2
Reticulated Python	<i>Python reticulata</i>	Antlers	-	2	-
Red Muntjac	<i>Muntiacus muntjak</i>	Tusks	-	20	15
Eurasian Wild Pig	<i>Sus scrofa</i>	Stomach	-	-	12
East Asian Porcupine	<i>Hystrix brachyura</i>	Quills	250	300	2000
		Total	467	546	2339
Percentage			14%	16%	70%

**Table 2. Comparative account of traded wildlife parts in Laiza market between 2007 and 2009.**

The income derived from wildlife poaching and trade is often vital for sustaining the livelihoods of impoverished hunters and traders. Some observers say small-scale hunters and traders have few alternatives for generating subsistence-level incomes. Further, some indigenous people may consider the hunting of certain animals to be a fundamental part of their culture, religion or tradition. Such considerations may differentiate the poor hunters from those traders engaged in wildlife trade for profit only. The hill tribes in Myanmar are generally considered to treat their environment and natural resources with respect. However, without job opportunities, considerations relating to sustainable development are likely less important to many hill dwellers whose living currently depends on the exploitation of their natural environment.

In order to manage hunting effectively, it is important to distinguish between the relative significance of hunting for subsistence purposes and that intended for commercial

trade. In Myanmar there is an expansive, informal and largely illegal parallel economy in which wildlife trade plays a part, although the trade has not been quantified. There is evidence to suggest a significant trade across the border with China (Li and Wang, 1999; Yi Ming *et al.*, 2000) and to other areas, including Thailand, through Mandalay, a major commercial centre south-west of the study area (Martin, 1997; Davidson, 1999). There is need for greater enforcement and awareness efforts in large, commercial towns, as well as in border areas, in addition to an examination into any trade patterns that may be emerging.

Another factor is the perceived low risk of capture or of penalties associated with wildlife trafficking. Such a perception can be the consequence of limited enforcement capabilities or willingness to punish such illegal behaviour. In addition, wildlife trade may be considered less risky than other high-value black markets; the penalties associated with wildlife crimes tend to be



substantially less severe than for other trafficking crimes. While it is difficult to determine the effects of trade in wildlife on the biodiversity of Kachin State owing to lack of data, it is apparent that such practices are an important factor to consider when assessing the risks.

Effective measures to control wildlife trade cannot be undertaken in the absence of data on the number and identification of species, their volume in trade, illegal routes and the countries involved, demand and distribution of wildlife and related products in the markets, the impact of trade on species' survival and on the sustainable use of wild animals and their habitats. This lack of information is hampering efforts to conserve the rich biodiversity of the region.

There are many factors indicating the rapid depletion of natural resources in Kachin State. High unemployment rates and associated social welfare issues are important issues relevant to conservation. There are many underlying causes for high unemployment among local people. Based on field observations, many Chinese labourers are gradually replacing local workers in the large-scale construction industry. Influential people with large-scale business activities are controlling not only the wildlife trade but also other booming trades in the study area, thereby leaving fewer opportunities for local people. China's high market demand for wildlife species is also contributing to the rapid deterioration of forest resources in Kachin State. Although there are strict regulations governing their collection, effective law enforcement is too weak to stop wildlife collection, transportation and demand.

At least several more protected areas should be established in the north, as well as buffer zones in areas outside these protected sites. Easy access across the Myanmar border by Chinese traders should be stopped. The continued degradation of north Myanmar's resources not only threatens the future biological wealth of the country, but could also deplete the abundant water resources in this region.

It is hoped that the findings of this investigation will lead to improved enforcement of the law with regard to the illegal trade in wildlife in Kachin State while supporting the sustainable hunting and trade in wildlife upon which so many depend for their livelihoods.

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THE AUTHOR (SECOND FROM RIGHT) DURING INTERVIEWS WITH HUNTERS IN PUTAO.



PIECES OF ELEPHANT SKIN, BEAR GALL BLADDER OIL, TIGER GLUE AND RED SEROW OIL, ON SALE AT A TRADITIONAL MEDICINE ROADSIDE STALL, MYITKYINA.



THE AUTHOR INTERVIEWING A STALL-HOLDER IN MYITKYINA.

Photographs: Sapai Min



**GIBBON HEADS FOR SALE AT LAIZA MARKET (LEFT); THE AUTHOR INTERVIEWING A HUNTER IN PANNANDIN (CENTRE); PIECES OF ELEPHANT SKIN, PORCUPINE QUILLS, RED MUNTJAC HEADS, HORNS AND LEGS OF RED SEROW, AT A ROADSIDE STALL SELLING TRADITIONAL MEDICINE, MYITKYINA ENVIRONS (RIGHT).**

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# Patterns and Dynamics of Bêche-de-mer Trade in Hong Kong and Mainland China:

## *Implications for Monitoring and Management*

*Allen W.L. To and Stanley K.H. Shea*

**G**lobally sea cucumber fisheries have been expanding to supply the growing demand in Asian countries for bêche-de-mer, the processed body wall of the sea cucumber, which is prized as a luxury food item. However, many sea cucumber fisheries are showing signs of harvest decline despite their importance ecologically and economically. Hong Kong remains the most important trade hub for bêche-de-mer and has played an important role in the re-export of bêche-de-mer to mainland China. Over the past 16 years (1996–2011), a growing number of countries have been supplying Hong Kong with dried bêche-de-mer, over 50% deriving from five countries. Nevertheless, the expansion in culture production and the direct importation of bêche-de-mer into mainland China, is leading to a reduction in Hong Kong's role. Viet Nam is now overtaking China as an important receiving country of Hong Kong's dried bêche-de-mer re-exports, a role that warrants investigation. Regular monitoring of Hong Kong's trade statistics in bêche-de-mer will be an important tool for examining the change in the pattern and dynamics for bêche-de-mer trade in Asia and to inform prompt management and conservation actions for these species.

## INTRODUCTION

Sea cucumbers and a variety of other marine species have traditionally been considered important health tonics and culinary delicacies in East Asia, with the region playing a key role in influencing the global demand for these resources (Clarke, 2002). Hong Kong is one of the most important economic centres in Asia; a duty-free port characterized by efficient transportation, it is a key consumer and entrepôt for many marine species, especially those considered to be luxury items, such as abalones (Clarke, 2002; To *et al.*, 2006), groupers (Sadovy *et al.*, 2003; Craig *et al.*, 2011), shark fin (Clarke, 2004) and bêche-de-mer (Sant, 1995; Clarke, 2002); more recently, Hong Kong has served as a stopover and gateway to mainland China for legal and illegal shipments of geoduck and lobster (Anon., 2012a). With such an important role, an analysis of Hong Kong's trade statistics for bêche-de-mer was undertaken in order to examine the trade pattern and dynamics from the demand side, for example the change in exporting countries involved in the trade and the trend in trade volumes. Such an analysis has not been undertaken in recent years and will be crucial to facilitate the monitoring of the trade and to provide



**ABALONE, BÊCHE-DE-MER, SHARK FIN AND FISH MAW (FISH SWIM BLADDER) ARE CONVENTIONALLY KNOWN AS THE TOP-FOUR DRIED SEAFOOD DELICACIES IN HONG KONG.**





Biologically, sea cucumbers are representatives of echinoderms, which also include sea urchins, sea stars and sand dollars. Sea cucumbers are important in the ecosystem as suspension feeders to regulate water quality (Massin, 1982), as deposit feeders to make the deposit finer and turn over sediment (Massin, 1982; Uthicke, 1999), as recyclers of nutrients in oligotrophic environments (Uthicke, 2001), and as prey to fisheries, such as sea stars and crustaceans (Francour, 1997). There are over 1200 species of sea cucumber worldwide (Du *et al.*, 2012) but only about 40 species are used to produce bêche-de-mer (Jun, 2010; Lin, 2012).

For a live sea cucumber to become a marketable dried bêche-de-mer, a series of steps have to be taken, all of which are essential to ensuring the highest quality product (Li, 2004). These steps can vary among species but generally include the immediate removal of viscera and sand inside the sea cucumber by fishermen on-board their vessels, rinsing it with sea water, and boiling it in water up to 90°C; further processing in salt and water for one to three weeks, and sun drying for a few days (Li, 2004; Kuang, 2011; Lin, 2012).

insight into potential future trends, which is relevant to the shaping of future conservation and management actions. The term “bêche-de-mer” will be used throughout this article to refer to the product in trade (the processed body wall of the sea cucumber), while “sea cucumber” will be used when referring to live animals or capture and culture fisheries.

## BACKGROUND

Bêche-de-mer, known in the trade in Hong Kong and mainland China as “*Hoi Sum*” and “*Hai Shen*” in Cantonese and Mandarin Chinese, respectively (translated as “ginseng of the sea” in English) (Clarke, 2002), is valued as a health tonic and a luxury food item (Lin, 2012); consumption is common at banquets and at Chinese festive meals. Abalone, bêche-de-mer, shark fin, fish maw (fish swim bladder) are considered to be the most expensive dried seafood delicacies in Chinese markets, with bêche-de-mer classified as one of the eight culinary treasures from the sea (Lin, 2012).

The first documented trade of bêche-de-mer took place over 1000 years ago from Papua New Guinea and New Caledonia to China (Conand and Byrne, 1993). The most important importers of bêche-de-mer worldwide today are Hong Kong, mainland China, Taiwan and Singapore (Clarke, 2002; Anderson, 2011). Indonesia, the Philippines, Japan, Australia and countries along the Pacific coast of South America and South Africa have traditionally been major exporters (Clarke, 2002; Lin, 2012). Most, if not all, of bêche-de-mer imported into Hong Kong is in dried form (Clarke, 2002; Lin, 2012; C.P. Mak pers. comm. to Allen To, June 2012<sup>1</sup>). Like other dried seafood products such as shark fins (Clarke, 2004) and abalones (To *et al.*, 2006), bêche-de-mer available in markets in Hong Kong is identified by “trade category”, not necessarily according to species, and products can be further grouped according to size, quality (dryness) and origin (Clarke, 2002; Lin, 2012). In the markets, a trade category may comprise more than one species within the same category.

Sea cucumbers are slow-moving, can be widely found in the world’s ocean and many of the species inhabit shallow waters, which means that, even with simple tools, fishermen can gain access to sea cucumber fisheries (Kinch *et al.*, 2008). The increasing market demand within Asia has facilitated the economic growth in many sea cucumber fisheries on which large numbers of people depend, particularly coastal communities in developing countries such as the Maldives (Joseph, 2005), the Solomon Islands (Nash and Ramofafia, 2006), Sri Lanka (Dissanayake *et al.*, 2010) and many African countries in the Indian Ocean (Conand, 2008). Being sessile and occurring close to shore, sea cucumbers represent a good source of income for coastal communities and use of this resource must be of long-term significance financially to these communities.

<sup>1</sup>C.P. Mak, Chairman, Hong Kong Dried Sea Food & Grocery Merchants Association Limited.

Nevertheless, many of these fisheries have not been properly monitored and managed (Choo, 2008; Conand, 2008), resulting in negative consequences for many sea cucumber fisheries (CITES, 2006) and a widespread decline in sea cucumber resources has been reported in many oceans (Conand, 2004; Kinch *et al.*, 2008; Choo, 2008; Toral-Granda, 2008). Even more worrying is that, once the stock has been reduced below a “threshold”, there may simply be too few adults to allow for recovery of the population (Uthicke, 2004).

Given that Hong Kong is regarded as one of the most important trade hubs of bêche-de-mer within Asia, and taking into consideration the ecological and economic importance of sea cucumber fisheries and the fact that many of these fisheries may be declining, it is critical to understand the trade pattern and dynamics from the demand side. Such knowledge will assist in monitoring the trade and may provide some insight into potential future consumer trends.

## **METHODS**

### **Statistics for Hong Kong**

The Census and Statistics Department of the Government of the Hong Kong Special Administrative Region (SAR) (Anon., 2012b) maintains a database of products imported, exported and re-exported into/from Hong Kong. The database places products into categories using the harmonized system code. At the time of this analysis, only a single code, 0307-9930 “beche-de-mer, dried, salted or in brine”, is relevant to this study. As noted in the description, this code places various forms of bêche-de-mer together. Information to separate quantitatively the dried form from other forms is not available. A separate code is used for frozen bêche-de-mer: 0307-9940 “molluscs and aquatic invertebrates, nesoi, frozen” and other forms of bêche-de-mer should be included under the code 1605-9090 “crustaceans, molluscs and other aquatic invertebrates, prepared or preserved, nesoi”. However, based on the available information that the majority of bêche-de-mer is imported in dried form (Clarke, 2002; Lin, 2012; C.P. Mak pers. comm. to Allen To, June 2012), it is inferred that products listed under 0307-9930 “beche-de-mer, dried, salted or in brine” largely represent the quantity of dried bêche-de-mer in trade in Hong Kong.

When compiling and using this dataset, care was taken to remove any double counting or misreporting. This occurred for some countries/territories for which the reported names in the Census and Statistics dataset changed in some of the years, for example “Egypt” and “Egypt Arab R”, and “Somalia” and “Somali Dem R”. In addition, for several years, Hong Kong was reported as the country of origin for some imports of dried bêche-de-mer. Though this cannot be totally ruled out, this is more likely misreporting. When accounting for the total trade volume, these figures are included. However, when compiling the data for the country analysis, the figures for the duplicated entries for Egypt and Somalia, and the few records (totalling 1474 kg) for Hong Kong as country of origin, were excluded.

Likewise, there are records of dried bêche-de-mer exports from Hong Kong to mainland China, Sri Lanka and the USA, totalling circa 33 t over the last 16 years. In theory, such exports should comprise locally harvested sea cucumber which has been processed into dried bêche-de-mer in Hong Kong. To date, such an industry is unlikely to be present on a commercial scale. Therefore, these figures are included with those of dried bêche-de-mer re-exports rather than exports.

### **Retail price of dried bêche-de-mer in Hong Kong**

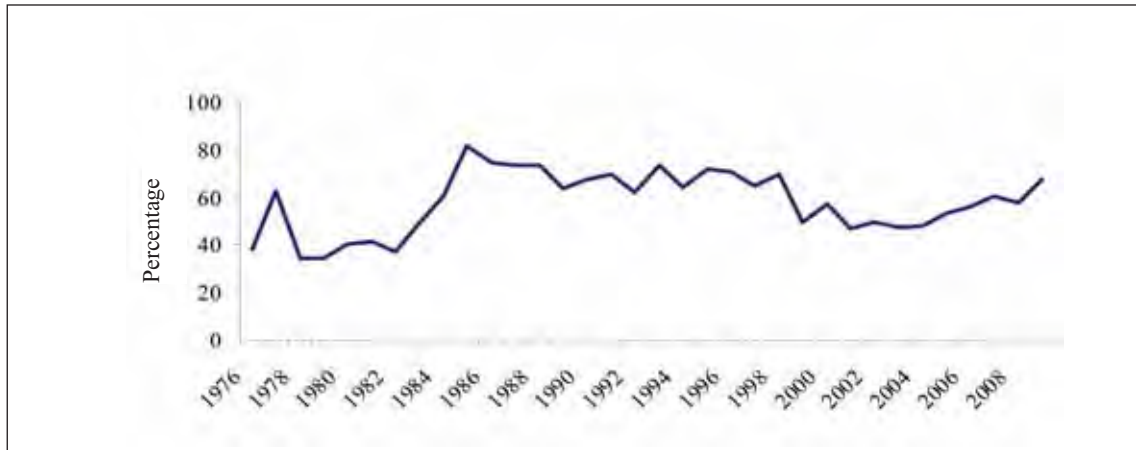
In order to get a snapshot of the prices for dried bêche-de-mer in Hong Kong, a brief survey was conducted along Des Voeux Road West, the main street in Hong Kong selling dried seafood. The lowest and highest prices were noted in order to gauge the price range of dried bêche-de-mer in the Hong Kong market.

### **Statistics for mainland China and the global context**

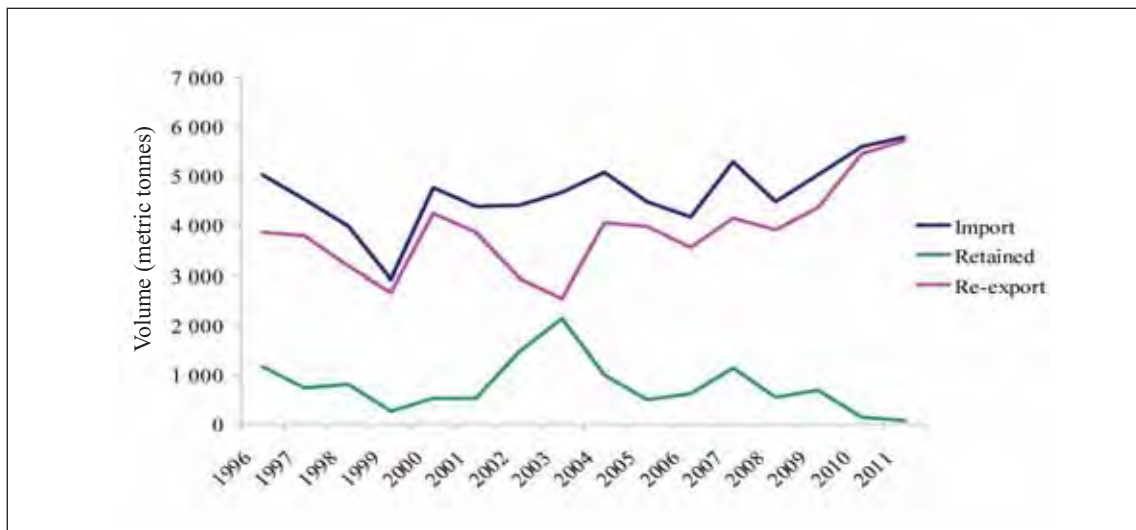
In order to examine the bêche-de-mer trade pattern between Hong Kong and mainland China, import statistics compiled by the Customs General Administration of P.R. China in Beijing, were reviewed for the period 1995 to 2011. The codes were either retrieved from the China Customs Statistical Yearbook or purchased directly from The Customs General Administration of P.R. China. The relevant code for bêche-de-mer trade is 0307-9920 “sea cucumber, frozen, dried, salted or in brine” (translated from Chinese).

However, any interpretation of data from this code unavoidably includes the trade in frozen bêche-de-mer, whose significance in the trade in mainland China cannot be quantified. The grouping of all bêche-de-mer product forms in mainland China statistics and the mixing with other non-sea cucumber molluscs in the codes for frozen, prepared and preserved product form in Hong Kong therefore renders direct and accurate matching of the trade statistics highly challenging.

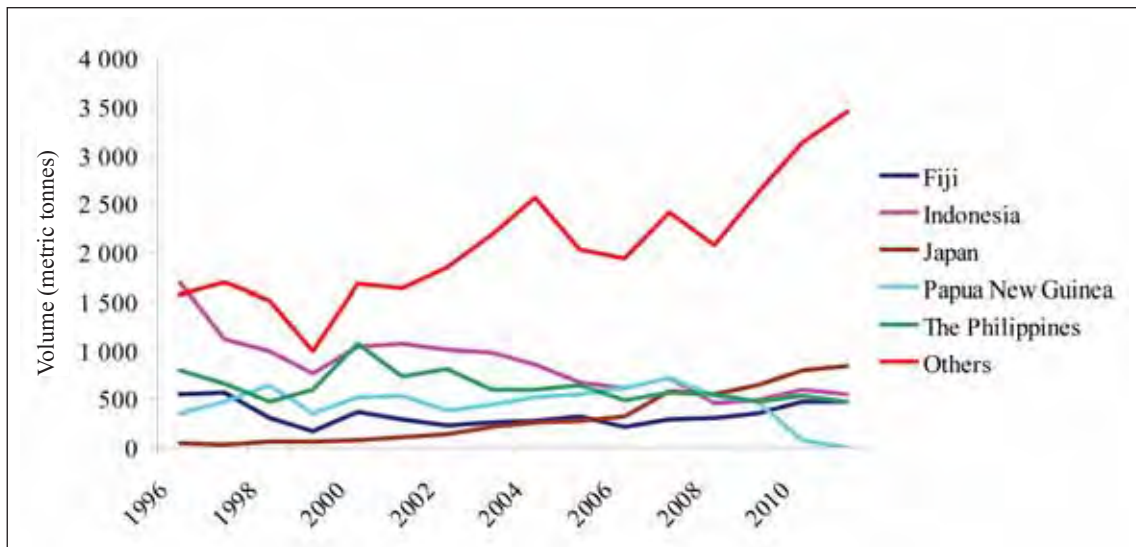
Data on capture production and culture production of sea cucumbers were also retrieved from the Food and Agricultural Organization of the United Nations (FAO) (Fishstat Plus, 2000; FAO, 2011) in order to allow analysis and interpretation of the use of bêche-de-mer products within mainland China. In addition, the FAO Fisheries Commodities Production and Trade database was used to retrieve global trade details of bêche-de-mer. This database includes the import volume by country, year, and by all forms of product. Using all the product forms and the respective volume for bêche-de-mer, the importance of Hong Kong as the global trade hub of bêche-de-mer can be evaluated. Notably for this FAO dataset, they use the code 0307-9930 “beche-de-mer, dried, salted or in brine” to represent the importation of bêche-de-mer into Hong Kong. Bêche-de-mer in other product forms, such as “prepared or preserved” and “frozen” are not included. The trade code might be more specific for bêche-de-mer for other countries/territories included in the FAO database.



**Fig. 1.** The percentage of total import volume of Hong Kong relative to the global import of bêche-de-mer, 1976–2009.  
Source: FAO



**Fig. 2.** Volume of bêche-de-mer imported and re-exported by Hong Kong during 1996–2011.  
Note that any quantity of bêche-de-mer export from Hong Kong is treated as re-export here.  
Source: The Census and Statistics Department of the Government of Hong Kong (SAR)



**Fig. 3.** The annual import volume of bêche-de-mer from the top five origins during 1996–2011.  
Source: The Census and Statistics Department of the Government of Hong Kong (SAR)



## RESULTS

### The significance of Hong Kong as the trade hub of bêche-de-mer

Based on the FAO statistics (Fig. 1), in the 1970s, Hong Kong was handling around 40% of the global imports of bêche-de-mer. However the role of Hong Kong has intensified over recent decades, and between 2000 and 2009, it was handling an average of 54.3% of global imports. Notably, there are confounding factors that could not be resolved in this study; for example, bêche-de-mer imports into Hong Kong in forms other than “dried, salted or in brine”, which were not considered, bêche-de-mer imports that went unreported or were misreported by other countries could not be assessed; furthermore, Hong Kong’s data are based on “dried” product, while data for other countries may include other forms of the product, meaning that the total “wet weight” handled by Hong Kong may be even larger. Therefore this quantitative significance of Hong Kong should be interpreted with care.

### Patterns in volumes and origins of imports

Since 1996, the importation of dried bêche-de-mer in Hong Kong has fluctuated, with an upward trend in recent years (Fig. 2). In 1998 and 1999, there was a major decline in imports of dried bêche-de-mer into Hong Kong, which coincided with a period of economic downturn in Asia, including Hong Kong. Soon after, however, the import volume resumed and fluctuated until 2008, since when imports have shown a more steady increase.

The number of countries/territories exporting dried bêche-de-mer to Hong Kong has shown a marked increase in recent years. While some 38 countries/territories supplied Hong Kong with bêche-de-mer in 1996, between 1996 and 2011, some 103 countries/territories supplied dried bêche-de-mer to Hong Kong, 69 in 2011 alone.

Using the average import figure over the 16-year period, only five countries contributed more than 5% of the total Hong Kong import volume. However, these countries in total supplied more than 50% of all dried bêche-de-mer into Hong Kong. These countries include Indonesia (17.0%), the Philippines (12.5%), Papua New Guinea (9.0%), Fiji (6.8%) and Japan (6.2%). The remaining 98 countries of origin account for 48.5% by volume.

Over the past 16 years, the import volume from the top three—namely Indonesia, the Philippines and Papua New Guinea—has shown a steady decline (Fig. 3). Comparing the volumes in 1996 with those for 2011, the figures decreased by 67.7%, 40.0%, and 99.4%, respectively. Imports from Fiji peaked in the mid-1990s and subsequently declined; recently they have started to grow but have not been able to reach their previous levels. Of the top five countries, only Japan has shown a steady increase: Hong Kong imported 16 times more dried bêche-de-mer from Japan in 2011 than it did in 1996.



DRYING BÊCHE-DE-MER AT NUKU'ALOFA, TONGA.

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This growth however does not seem to be able to make up for the “loss” from the top three countries and to cater to the demand from Hong Kong. It is notable from the dataset that since the mid-2000s, dried bêche-de-mer has increasingly been sourced from other origins outside these top five, such as Madagascar, Mexico, Peru and Seychelles.

Using the FAO dataset, of the five most important exporters to Hong Kong, Indonesia and the Philippines have shown a decline in the last 10 to 20 years, while exports from Papua New Guinea have fluctuated. Export data for Fiji are lacking from 2002 to 2009, while those for Japan are lacking from the FAO dataset. Notably, if such export quantity is compared with Hong Kong’s reported imports of dried bêche-de-mer from these countries, those of Papua New Guinea are consistently smaller than the latter, while for Indonesia and the Philippines, Hong Kong imports periodically exceed those of the reported exports from these countries (Fig. 4).

### Patterns in volumes and origins on re-exports

Taking the import and re-export data over the past 16 years as a whole, 83.5% of the total dried bêche-de-mer imported into Hong Kong was immediately or subsequently re-exported (Fig. 2). It may be a common understanding that the difference between import and re-export volumes should be regarded as domestic consumption (if local production is negligible), such as is the case for some live and fresh seafood which are not normally kept for more than half a year. However, in the case of dried bêche-de-mer, the difference in volume may be attributed not to consumption but to the stockpiling of this product, as has been reported for other dried products such as shark fins and abalones in Hong Kong (Clarke, 2002; To *et al.*, 2006). For dried bêche-de-mer, it was reported to be normally stored for no more than three years (C.P. Mak pers. comm. to Allen To, June 2012).

Over the past 16 years, dried bêche-de-mer was re-exported to 53 countries/territories from Hong Kong; Viet Nam and mainland China dominated this trade flow, the latter once the single-most important destination of dried bêche-de-mer re-exports from Hong Kong, with re-exports to that country peaking in 2000. Since then, re-exports to mainland China have dropped continuously,

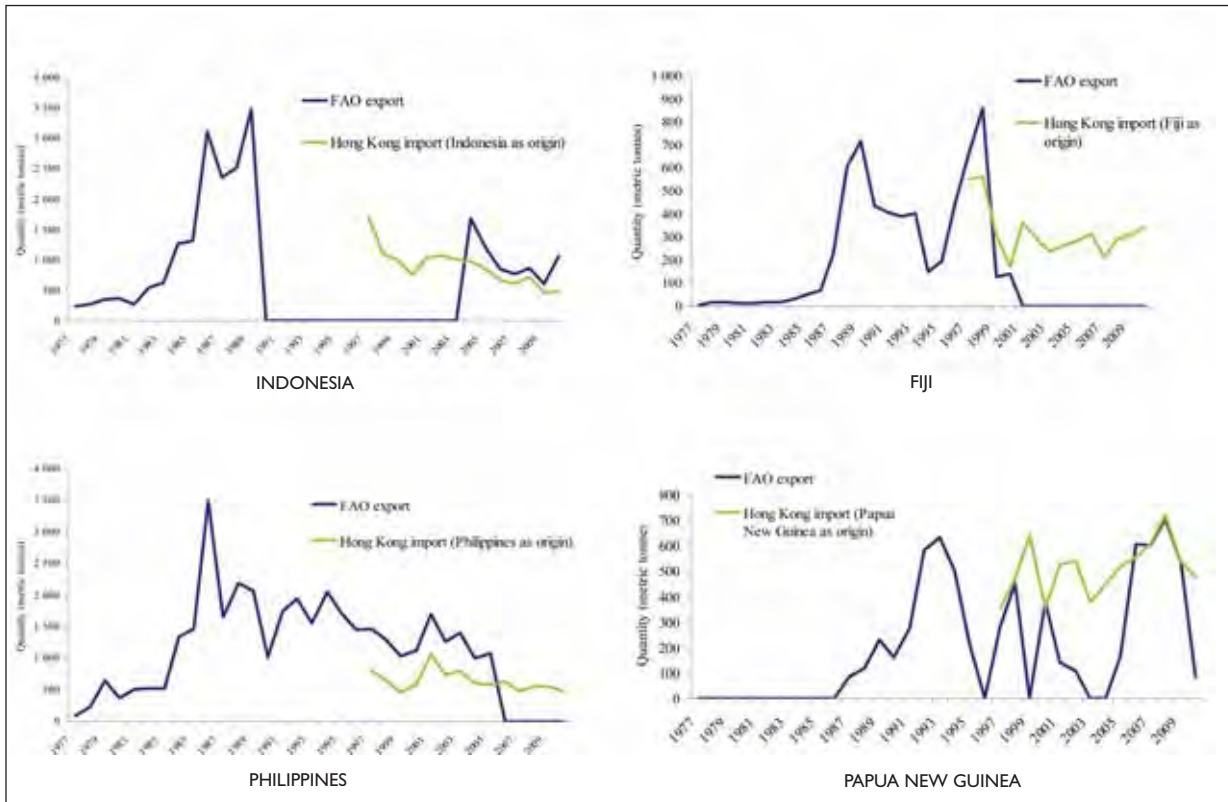


Fig. 4. Reported exports of bêche-de-mer from Indonesia, Fiji, Philippines and Papua New Guinea to Hong Kong, and Hong Kong's reported imports of dried bêche-de-mer from these countries.

Sources: FAO; The Census and Statistics Department of the Government of Hong Kong (SAR)

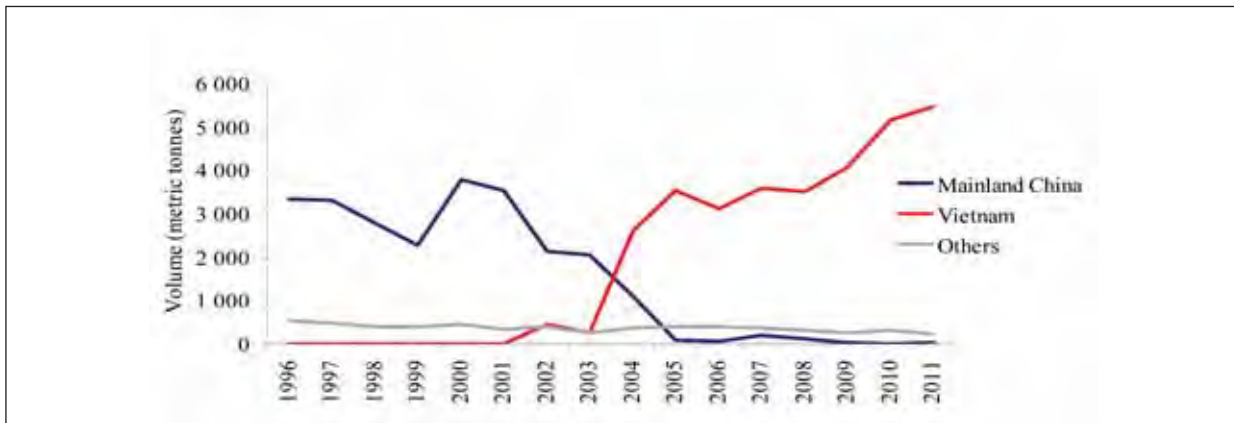


Fig. 5. The re-export volume of bêche-de-mer to the top two destinations, mainland China and Viet Nam, 1996–2011.

Source: The Census and Statistics Department of the Government of Hong Kong (SAR)

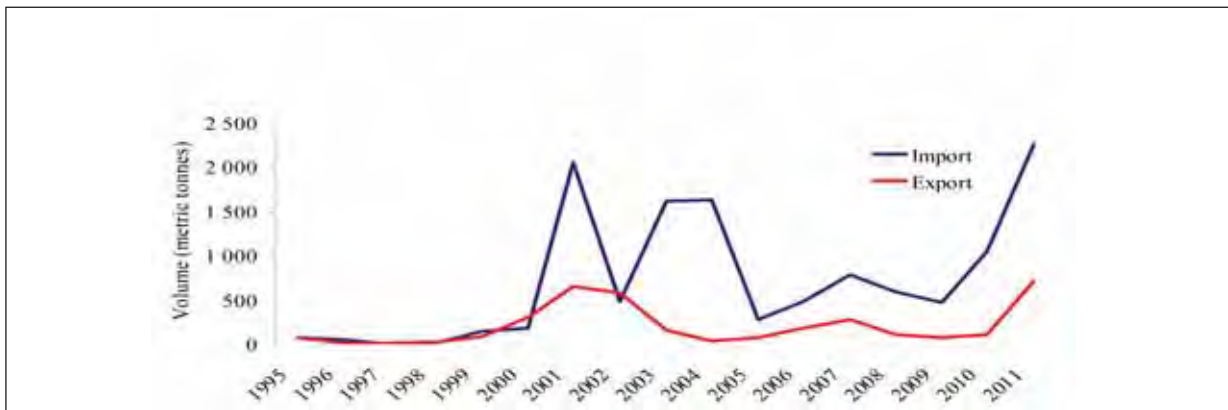


Fig. 6. The import and export volume of bêche-de-mer in mainland China, 1998–2011.

Sources: China Customs Statistical Yearbook and The Customs General Administration of PR China

reaching their lowest figure in 2010, a difference in volume of more than 3700 t. A comparison of the 1996 and 2011 re-export volume to mainland China shows a 99.3% decline. While almost at the same time that the re-export volume to mainland China was around mid-way in its decline, re-exports to Viet Nam took off. From the dataset there is almost no record of dried bêche-de-mer re-export to Viet Nam until 2002. In 2004, re-export volume to Viet Nam surpassed that to mainland China, and thereafter increased until peaking in 2011. Taking all the re-export volume in the past 16 years as a whole, a total of 32.2% and 59.8% of re-exports are destined to mainland China and Viet Nam respectively.

### Retail price of dried bêche-de-mer in Hong Kong

A total of 20 shops along Des Voeux Road West were randomly visited and retail prices of dried bêche-de-mer were noted. For a great variety of trade categories, the retail price ranged from HKD794–3616/kg (the equivalent of USD102–466/kg in July 2012). Although the species on sale could not be identified on the spot, it is worth mentioning that this price range covers a considerable variety of sea cucumber species, judging from the shapes and trade categories. Based on a snapshot survey, a separate price range of HKD6614–16 500/kg (the equivalent of USD853–2127/kg in June 2012) was associated with the sale of the Japanese Sea Cucumber *Apostichopus japonicus*. This species of dried bêche-de-mer can be sourced from cold waters such as the seas around Japan, South Korea, the northern provinces of mainland China, Russia, and can also be produced by aquaculture (Jun, 2010; Li and Cheng, 2011).

### Mainland China import and export statistics

Mainland China's import statistics for bêche-de-mer have been highly fluctuating over the past decade (Fig. 6). Prior to 2000, imports had been low but the following year were among the highest ever recorded by mainland China in the dataset analysed. Since then, they have fluctuated with a downward trend and dropped to an average of about 536 t a year between 2005 and 2008, thereafter increasing and reaching 2255 t by 2011. From the dataset, most imported bêche-de-mer seemed to be retained within mainland China. A detailed breakdown of the origin of imports revealed a sudden surge in imports from Iceland—about 235 t in 2009—and soared to about 1591 t in 2011, contributing to about 71% by volume of all imported bêche-de-mer into mainland China for that year. The recent surge in mainland China's imports of sea cucumber is mainly supported by an increase in exports from Iceland.

### Mainland China: capture and culture production

Based on the FAO dataset, there is no record of sea cucumber capture production in mainland China between 1995 and 2010 (Fishstat Plus, 2000; FAO, 2011). Culture production, however, has been recorded from 2003, reaching a peak in 2010 with 130 t in wet weight.

## DISCUSSION

### The trade pattern between Hong Kong and source countries

Hong Kong is an important trade hub of bêche-de-mer product, handling 54.3% of global imports by volume. The trade data in Hong Kong are considered a relatively reliable dataset given the lower incentive to misreport as Hong Kong is a duty-free port (Clarke, 2002). Changes in the global bêche-de-mer pattern and dynamics should at a certain level be reflected in this “bottleneck” city, where more than half of the global bêche-de-mer trade took place. Analysis of the trade data of dried bêche-de-mer in Hong Kong suggests that three out of the top five most important origins of dried bêche-de-mer have shown a marked decline in volume exported to Hong Kong and that, in recent years Hong Kong has been sourcing dried bêche-de-mer increasingly from origins other than these top five suppliers.

The decline in Hong Kong's imports from the Philippines, Indonesia and Papua New Guinea may be linked to the shift in export destinations by these three countries, such that exports go to other entrepôts or consumption countries instead of going to or through Hong Kong. However, the FAO dataset show otherwise. Hong Kong's import data for Indonesia and the Philippines closely match the fluctuations experienced with all the exporting countries, and contribute a considerable share of the total export. Notably, from time to time, Hong Kong imports exceed those of the reported exports from these countries, potentially implying misreporting. If it is assumed that FAO data are reliable for Indonesia and the Philippines, it suggests that the decline in Hong Kong's imports from these two countries is not due to a shift in export destination. While for Papua New Guinea, the import record in Hong Kong very often exceeds the export quantity in the FAO dataset, this may imply significant and consistent under-reporting. The situation in Papua New Guinea therefore warrants further investigation.

BÊCHE-DE-MER  
FROM AUSTRALIA,  
AT THE DRIED  
SEAFOOD  
MARKET,  
DES VOEUX ROAD  
WEST,  
HONG KONG.



FION CHEUNG



A recent study by Anderson *et al.* (2011) reviewed the catch trends of major sea cucumber fisheries worldwide. Within that analysis, of the top five origins of dried *bêche-de-mer* in Hong Kong identified in this study, four have seen their catches decline since the early 1990s. Such decline is common throughout the world and over 80% of global sea cucumber fisheries are showing a similar pattern, with Japan being one of the very few exceptions where catches have started to increase in recent years (Anderson *et al.*, 2011). Such depletion has led to expansion in the number of origins to keep up with the demand, which has subsequently led to depletion of sea cucumbers worldwide (Anderson *et al.*, 2011). The observation of a decline in some of the traditionally important suppliers to Hong Kong and the increasing supply from other countries may be a reflection of a global serial depletion of sea cucumber fisheries.

### **The trade pattern in mainland China in relation to Hong Kong**

It is certain that the recent decline of re-exports to mainland China does not reflect any drop in the popularity of consuming *bêche-de-mer* in mainland China. On the contrary, consumption is as popular as ever and increasing (Clarke, 2002; B. Wen, Co-Director of Pacific Environment's China Program, pers. comm. to Allen To, June 2012). Such a discrepancy in the supply of re-exports from Hong Kong, and an increasing demand from mainland China can only be explained if: a) there has been a surge in wild capture or culture production of sea cucumber within mainland China; b) supplies are coming directly from the countries of origin; c) there is a shift in the importation of product forms from dried to frozen, which is otherwise not captured in the code analysed for Hong Kong in this study.

From the most recent FAO dataset for 1995–2009, there has been no recorded capture production of sea cucumber within mainland China (Fishstat Plus, 2000; FAO, 2011). An earlier global review of the capture fishery production suggested a consistent overreporting of catch production by mainland China (Watson and Pauly, 2001). While for sea cucumbers, the opposite is the case. For example, Chen (2004) reported that sea cucumber capture production within mainland China, at least for 2001 and 2002, was 358 and 470 t, respectively. It seems therefore that the FAO statistics do not reflect the actual catch production within mainland China.

As reported in the FAO data, culture production has been documented since 2003 and peaked at 130 t in wet weight in 2010; however the actual production volume seems to be more than is reported in the FAO data (Chen, 2004; B. Wen pers. comm. to Allen To, June 2012). The coastal areas in the northern provinces of mainland China, such as Liaoning and Shandong, began a large-scale sea cucumber culture in the 1990s that has intensified since 2002 (Li and Cheng, 2011), and production from culture has subsequently increased. There are approximately 180 sea cucumber hatcheries and some have even established their own retail brands (Li and Cheng, 2011). Chen

(2004) suggested that culture production of the Japanese Sea Cucumber in mainland China overall would reach 6750 t (dry weight) or an equivalent wet weight of 135 000–202 500 t. A more recent study by Li and Cheng (2011) revealed that production should be around 50 000 t (wet weight) for 2009 in Dalian alone, equivalent to a dry weight of about 1667–2500 t using the ratio given by Chen (2004). Assuming that these estimates are reliable, it implies that the increasing culture production, and an unknown volume of catch production may be able to supply the demand in mainland China and account for a large part, if not all, of the lowered re-export of dried *bêche-de-mer* from Hong Kong to mainland China in recent years.

However, it is important to note that the main sea cucumber species cultured in mainland China is the Japanese Sea Cucumber; the presence of all the other sea cucumber species involved in the trade, as evidenced from discussions with traders in Hong Kong (C.P. Mak pers. comm. to Allen To, June 2012), and the authors' observations at the dried seafood markets and supermarkets in Guangzhou, can therefore not be so easily explained.

Furthermore, importation of *bêche-de-mer* into mainland China had been rather stagnant and at a low level prior to 2009, which would suggest that direct importation from source countries had not increased in order to supplement the culture production in mainland China, or to meet the demand for species other than Japanese Sea Cucumbers. However, import volumes by mainland China show that, since 2009, Iceland is supplying an increasing volume of *bêche-de-mer*, becoming the principal source of *bêche-de-mer* in 2011. Based on the statistics in mainland China, in 2011 about 1241 t of *bêche-de-mer* should have been directly imported from Iceland. This means that about 78% of imports from Iceland should be direct imports from this sea cucumber-producing country, without going through Hong Kong.

If the statistics in Hong Kong are also reviewed in relation to this trend, the code 0307-9930 "*bêche-de-mer*, dried salted or in brine" showed that only about 23 t of dried *bêche-de-mer* re-exports from Hong Kong originated from Iceland in 2009 and there were no records for 2010 and 2011. If the search is broadened to investigate other *bêche-de-mer* product types in Hong Kong, two additional codes, which are not used in any other section for analysis, are considered for this part. These include 1605-9090 "*crustaceans, molluscs and other aquatic invertebrates, prepared or preserved, nesoi*" and 0307-9940 "*molluscs and aquatic invertebrates, nesoi, frozen*". As noted earlier, these two codes include not only *bêche-de-mer*, but also other crustaceans and molluscs. This means that any analysis requires cautious interpretation. For the former code, there was no record of Hong Kong re-exports originating from Iceland in 2009 and 2010, but there was a record of about 37 t in 2011, while for the latter code, an average of about 45 t originating from Iceland was re-exported from Hong Kong annually between 2009 and 2011. Such volume, even if consisting entirely of *bêche-de-mer* and re-

exported to mainland China, is far from able to account fully for the 1591 t of bêche-de-mer from Iceland imported into mainland China in 2011. Therefore, based on the statistics from Hong Kong, Hong Kong is not involved in the recent large volume of bêche-de-mer imported into mainland China that originated from Iceland. The statistics in mainland China show that mainland China has recently started importing a large volume of bêche-de-mer directly from the supply countries, in this case Iceland.

### **Viet Nam—the next top destination?**

It is a common understanding that given the growing human population and the booming economy in mainland China, consumption of luxury marine resources will become increasingly popular, and that mainland China will subsequently have a considerable impact on the status of many of the marine resources (Clarke, 2002; To *et al.*, 2006; Hanson *et al.*, 2011). However, since 2004, re-exports to Viet Nam have overtaken those to mainland China. This analysis shows that mainland China has increased culture production and imported bêche-de-mer directly from supply countries, resulting in a decline of re-exports from Hong Kong. However, little information is available to explain the trend showing a huge increase in re-exports from Hong Kong to Viet Nam. There are reports of sea cucumber culture production in Viet Nam based on wild-caught individuals (Pitt and Duy, 2003) and

that sea cucumber resources in certain parts of south Vietnamese waters have been depleted (Otero-Villanueva and Ut, 2007). However, relatively little has been examined and documented regarding the trade and consumption of bêche-de-mer in Viet Nam. It has been speculated that with the continuous increase in workers' salaries and the increasingly costly business environment in mainland China, some of the processing or packaging work which used to be based in mainland China, may have shifted to Viet Nam (M. Ng, pers. comm. to Allen To, May 2012<sup>2</sup>). The growing number of tourists to Viet Nam, especially from Hong Kong and mainland China, may also account for an increase in the consumption of dried bêche-de-mer within Viet Nam (B. Wen, pers. comm. to Allen To, June 2012) but these factors have not been investigated in this study and the main reason for the huge volume of re-exports from Hong Kong to Viet Nam remains unclear.

### **CONCLUSIONS**

Hong Kong has been regarded as the most important trade hub of bêche-de-mer and this study shows that its role in this regard has not changed. A majority of the dried bêche-de-mer imported into Hong Kong, however, is subsequently re-exported to other nearby countries. While mainland China used to be the single most important receiving country of Hong Kong's re-exports due to the popularity of bêche-de-mer consumption in that

<sup>2</sup>Merlinda Ng, Sales Director, Worldwide Seafood, one of the major seafood suppliers in Hong Kong which also does business in frozen sea cucumbers.



**DRYING VARIOUS TYPES OF BÊCHE-DE-MER AT NUKU'ALOFA, TONGA.**

The sea cucumbers illustrated here were caught in the waters of the Ha'apai, Vava'u- and Tongatapu island groups. The factory reportedly processes at least a tonne of bêche-de-mer (wet weight) per week.

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PHOTOGRAPHS: ALLEN TO

**BÊCHE-DE-MER (FROM AUSTRALIA) AT A MARKET STALL (LEFT), AND ON SALE IN A SHOP SELLING DRIED SEAFOOD (RIGHT), DESVOEUX ROAD WEST, HONG KONG.**

country, re-exports to mainland China have diminished significantly in recent years. It is clear from this study that Viet Nam has overtaken mainland China to become the single most important receiving country of Hong Kong's re-exports. In mainland China, the booming culture production and the direct importation from the supply countries have lowered that country's dependency on re-exports from Hong Kong. While mainland China is and will likely remain an important consumer of bêche-de-mer, the role of Viet Nam in this trade warrants further investigation. Closer examination of this apparent emerging pattern in the bêche-de-mer trade will enable more effective monitoring and management of the industry.

## RECOMMENDATIONS

Prompt management and conservation action needs to be identified and implemented effectively to ensure the long-term sustainability of sea cucumber resources. To this end, the following recommendations should be noted:

- Given the expected increase in the popularity of consuming bêche-de-mer, such as in mainland China, and the fact that many sea cucumber fisheries worldwide are showing signs of overexploitation, effective management of sea cucumber fisheries are crucial, particularly for those countries important to this trade, including, but not limited to, Indonesia, the Philippines, Papua New Guinea, Fiji and Japan.
- In Hong Kong's statistics, currently, frozen bêche-de-mer is grouped with other molluscs and aquatic invertebrates, hindering detailed analysis of this trend. Separation of bêche-de-mer from this mixed group will be beneficial to the monitoring of trade flow in this territory.

- Despite mainland China's reduced reliance on Hong Kong for dried bêche-de-mer, Hong Kong is still an important trade hub for this product. Regular monitoring and analysis of its trade pattern and dynamics in Hong Kong can provide a quick insight into the trend of this trade to inform future monitoring, management and conservation actions.

- It is unclear from this study of the role of Viet Nam and its relative importance as a consumer or processor in the bêche-de-mer trade. Future study should thoroughly examine this aspect which can inform relevant stakeholders of the actions needed for proper monitoring, management and conservation.

- The import statistics in Hong Kong based on the Census and Statistics Department and export statistics recording the sea cucumber origins based on the FAO dataset show discrepancies, and, in some cases, a significant gap between these two datasets, as in the case of Papua New Guinea. It would be valuable if such discrepancies can be investigated and resolved so as to increase further the accuracy of the FAO dataset.

- As in the case of mainland China's capture and culture production of sea cucumber, there exists a significant gap between data in the FAO dataset, and the reports of such production in mainland China obtained through interviews with traders and from site visits. The production volume in FAO data is generally much smaller than suggested in these reports. It could be a valuable source of data for the FAO dataset if the production quantities in these reports can be incorporated, once these data have been thoroughly validated.



## ACKNOWLEDGEMENTS

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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 *TRAFFIC Bulletin* carries a selection of seizures and prosecutions. Readers are asked to refer to the seizures section of the *TRAFFIC* website ([www.traffic.org](http://www.traffic.org)) for regular updates on cases reported from around the world.

## ABALONE

**AUSTRALIA:** On 25 September 2012, a man was sentenced to four years' imprisonment, reportedly the toughest sentence ever to be imposed for abalone trafficking in New South Wales. The man's son was gaoled for 19 months. In separate events, authorities seized 389 kg (almost 4500 abalones) from the two, who were allegedly ringleaders of a large syndicate on the south coast.

[www.abc.net.au/rural/news/content/201209/s3597584.htm](http://www.abc.net.au/rural/news/content/201209/s3597584.htm)  
25 September 2012

**CANADA:** In June 2012, Kai Kin Ng, owner of Kin Seafood Importing Corporation, was fined USD40 000 for illegal possession of Northern Abalone *Haliotis kamschatkana*, a species listed as endangered under the *Species at Risk Act*. Authorities seized 960 kg of abalones from the defendant's business premises in Richmond in 2010.

[www.worldfishing.net/news/101/seafood-importer-is-fined-us\\$40,000,19June2012](http://www.worldfishing.net/news/101/seafood-importer-is-fined-us$40,000,19June2012)

**SOUTH AFRICA:** On 17 July 2012, three people were arrested in Milnerton, Western Cape, in possession of bags holding 4315 abalones.

On 13 September 2012, the Maitland Flying Squad seized 2000 abalones from a vehicle in Capricorn, Muizenberg, Western Cape. Two men were detained.

On 21 September 2012, the South African Police Service (SAPS) in Stanford, Western Cape, seized bags of abalones from bushes near a car that had been abandoned following a high-speed chase. While still patrolling the area, the SAPS and the K9 Unit recovered over 8000 abalones from bags inside another vehicle. One person was arrested and the abalones handed over to the Department of Agriculture, Forestry and Fisheries. In a separate incident on the same day, police in Lwandle, Western Cape, arrested four people who were found in the process of counting some 2000 abalones, which were confiscated.

Media Statements by Western Cape Media Centre, Corporate Communication, South African Police Service, September 2012: [www.saps.gov.za](http://www.saps.gov.za)

**USA:** In April 2012, at Mendocino County Superior Court, Qiong Wang of San Francisco pleaded guilty to taking abalone for commercial purposes and was sentenced to one year in gaol and three years' probation. He was also fined USD20 000, his vehicle and diving equipment were forfeited and his fishing licence revoked

### 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 instrument 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.

All imports into the European Union of CITES Appendix II-listed species require both an export permit/re-export certificate and an import permit.

for life. Wang had been caught in Mendocino County taking 96 abalones out of season over the course of 17 days in February 2012, five days after he had been released from gaol on an earlier poaching incident. The abalone season is closed between 1 December and 1 April.

On 12 September 2012, Hoang Tan Dinh, of Marina, California, was sentenced to three years' probation and fined USD15 000 for possession of 22 Black Abalones *Haliotis cracherodii* for sale. He was also sentenced to a 90-days' suspended gaol sentence; his commercial fishing licence was permanently revoked and he was prohibited from recreational fishing during probation.

[www.pressdemocrat.com/article/20110421/ARTICLES/110429860/1350?Title=Abalone-poacher-gets-one-year-jail,21April2012](http://www.pressdemocrat.com/article/20110421/ARTICLES/110429860/1350?Title=Abalone-poacher-gets-one-year-jail,21April2012); [www.thecalifornian.com/article/20120921/NEWS09/309210073/Marina-man-sentenced-poaching-black-abalone,21September2012](http://www.thecalifornian.com/article/20120921/NEWS09/309210073/Marina-man-sentenced-poaching-black-abalone,21September2012)

**ZIMBABWE:** On 1 May 2012, at Beitbridge, on the border with South Africa, a South African lorry driver was arrested as he attempted to smuggle into the country some 500 packets of abalones concealed under a consignment of charcoal. The abalone shipment was reported to have been ordered by a company in Harare but was believed to have been destined for the Far East. The suspect was released on bail.

[www.newzimbabwe.com/NEWS-7942-Truck+driver+in+US\\$4m+shellfish+bust/NEWS.aspx,11May2012](http://www.newzimbabwe.com/NEWS-7942-Truck+driver+in+US$4m+shellfish+bust/NEWS.aspx,11May2012)

## BIG CATS

**CHINA:** On 10 May 2012, at Zhengzhou Middle People's Court, Henan province, Wang Yunnan was sentenced to five years' imprisonment and fined CNY20 000 (USD3100) for smuggling the skins of two Leopards *Panthera pardus* (CITES I) and completely protected in China).

Post officials of Zhengzhou Customs had detected the skins in a parcel arriving from Senegal on 20 February and which were identified by the Judicial Identification Center of

National Forest Police Bureau. Wang Yunnan, a businessman in Senegal, had sent the skins to his wife in Zhengzhou. He was arrested in July following his return to China.

On 14 June 2012, Manzhouli Customs, Inner Mongolia, seized 28 pieces of Amur Tiger *Panthera tigris* ssp. *altaica* (CITES I) bone (150 g) from a Chinese national returning from Russia. The items were found in plastic bags concealed in the suspect's socks and later identified by the National Wildlife Detection Center.

On 3 August 2012, it was reported that officials in Hunchun had seized 40 bottles of Tiger *Panthera tigris* (CITES I) bone wine.

<http://zy.takungpao.com/n/20120510/123842.html>; [www.nmg.xinhuanet.com/xwzx/2012-06/24/content\\_25427768.htm](http://www.nmg.xinhuanet.com/xwzx/2012-06/24/content_25427768.htm); [www.ybnews.cn/news/newsyb/201208/144313.html](http://www.ybnews.cn/news/newsyb/201208/144313.html) (in Chinese), 3 August 2012

**INDIA:** On 1 August 2012, in Gurgaon, Haryana, a man was arrested in possession of a Tiger skin and skeleton (and two live turtles, ivory and poaching equipment). The suspect had been arrested in 2009 for possession of a Tiger skin and skeleton but released on bail and disappeared. He had been sought in connection with a number of other cases.

On 28 September 2012, Rani Chand was sentenced in Uttarakhand to seven years' imprisonment for the illegal trade in 2004 of skins of two Leopards *Panthera pardus* (CITES II) and two jackals. This is only the second time in India that the maximum punishment has been imposed for a wildlife offence under the *Wildlife Protection Act*. Chand, the wife of convicted poacher Sansar Chand, had reportedly been involved with other family members of spearheading illegal wildlife trade activities in northern India.

[www.traffic.org/home/2012/8/3/notorious-wildlife-dealer-caught-red-handed-in-india.html](http://www.traffic.org/home/2012/8/3/notorious-wildlife-dealer-caught-red-handed-in-india.html); <http://articles.timesofindia.indiatimes.com/2012-09-29/flora-fauna/34163341/wild-life-trade-7-yr-jail-term-sansar-chand>



**INDONESIA:** In July 2012, police confiscated 14 stuffed Tigers *Panthera tigris* and other animals from the home of a taxidermist in Depok, West Java. Among the items seized were two Leopards *Panthera pardus*, one Clouded Leopard *Neofelis nebulosa*, a Lion *Panthera leo*, as well as two sacks of Tiger pelts, and a stuffed Tiger head, all CITES I-listed species.

[www.thejakartaglobe.com/news/stuffed-animals-pelts-to-be-tested-by-indonesian-police/532275](http://www.thejakartaglobe.com/news/stuffed-animals-pelts-to-be-tested-by-indonesian-police/532275), 24 July 2012

**LIBERIA:** On 26 August 2012, at Roberts International Airport, a Leopard *Panthera pardus* (CITES I) skin was detected during the screening of luggage belonging to a foreign national leaving the country. The authorities alerted other collaborating security agencies, including the Liberia National Police, INTERPOL and Customs and refused all pleas from the suspect for clear passage of the illicit shipment.

[www.liberianobserver.com/index.php/news/item/2574-leopard-skin-trafficker-arrested-by-ria-security](http://www.liberianobserver.com/index.php/news/item/2574-leopard-skin-trafficker-arrested-by-ria-security), 21 September 2012

**RUSSIA:** On 27 August 2012, it was announced that Primorsky province enforcement agencies, in co-operation with WWF Russia, had seized the skins of eight Amur Tigers *Panthera tigris* ssp. *altaica* (CITES I) and other wildlife products, and arrested one person. Preliminary examination of the products lead police to believe that the suspect was engaged in buying and reselling wildlife products on China's domestic market. According to Sergei Aramilev, at WWF-Russia's Amur branch, the Tiger population has suffered a severe loss as the skins belonged to a male Tiger, two females, one young Tiger and four cubs. More female Tiger(s) were likely killed and sold since there were no skins of nursing females and yet one of the cubs was suckling. Taking into account that only between eight and 11 Tigers roam over 120 000 hectares of the Lazovsky Nature Reserve, theoretically poachers have destroyed a similar-sized Tiger group that would have covered a similar area, he said. The case is being investigated.

[www.wwf.ru/resources/news/article/eng/10031](http://www.wwf.ru/resources/news/article/eng/10031), 27 August 2012

**UK:** On 22 July 2012, at Felixstowe Port, herbal remedies and massage oils purported to contain ground Tiger *Panthera tigris* (CITES I) claws were seized by border officials. Forty-five large boxes containing these and other products had been illegally imported from India and were bound for an address in Birmingham. Cycads, Agarwood *Aquilaria* and goat meat were also listed in the ingredients of the herbal remedies and five-litre bottles of massage oil. Details of the seizure have been referred to Customs authorities in India, which will decide whether to take action against the exporter. The importer in Birmingham was contacted by officials and issued with a warning, a Border Force official said.

[www.independent.co.uk/news/uk/crime/tiger-claw-products-seized-at-suffolk-port-8053405.html](http://www.independent.co.uk/news/uk/crime/tiger-claw-products-seized-at-suffolk-port-8053405.html), 16 August 2012; [www.ipswichstar.co.uk/news/felixstowe\\_tiger\\_claws\\_found\\_in\\_haul\\_of\\_herbal\\_medicines\\_at\\_britain\\_s\\_top\\_port\\_1\\_1484300](http://www.ipswichstar.co.uk/news/felixstowe_tiger_claws_found_in_haul_of_herbal_medicines_at_britain_s_top_port_1_1484300), 16 August 2012

## IVORY

A three-month operation conducted by INTERPOL has led to more than 200 arrests and yielded nearly two tonnes of ivory. Operation Worthy, involving 320 officials from the police, Customs and environmental protection agencies, and the biggest international operation against ivory traffickers to date, was conducted across 14 African countries; 20 kg of rhinoceros (CITES I) horn, skins of Leopard *Panthera pardus* (I), Cheetah *Acinonyx jubatus* (I), crocodile (I/II) and python (II) were also seized. Countries participating in the operation were South Africa, Botswana, Ethiopia, Ghana, Guinea, Kenya, Liberia, Mozambique, Namibia, Nigeria, Rwanda, Swaziland, Zambia and Zimbabwe; some of these cases are referred to in more detail below.

[www.news24.com/SciTech/News/Interpol-seizes-ivory-200-held-20120619](http://www.news24.com/SciTech/News/Interpol-seizes-ivory-200-held-20120619), 19 June 2012

**CHINA:** On 18 March 2012, at Shenyang Intermediate People's Court, Li Dongmei was sentenced to eight years in gaol and a fine of up to CNY50 000 (USD7900) for smuggling 8.4 kg of ivory from France and selling it on the internet.

On 9 May 2012, at Chongqing First Middle People's Court, a suspect was accused of smuggling ivory (2.63 kg) into the country between 2007 and January 2012, during his period of employment in Nigeria. On 17 January 2012, he had concealed ivory products, including five carvings, seven bracelets, and two seals in carry-on luggage on a flight from Nigeria, via Qatar; he was arrested the following day.

On 19 June 2012, it was announced that Hongkou district police had seized more than 780 ivory carvings and arrested five people suspected of participating in the illegal ivory trade.

It was reportedly the largest amount of illegal ivory seized in the past five years in Shanghai; the police believe that they have broken up an ivory smuggling syndicate that has operated for more than a decade in the city. They were able to track down the suspects after arresting a man in January who sold ivory carvings at a market, and who provided information that led to the arrest of the five suspects, all of whom were related to him. The informant was sentenced to seven years in gaol and fined CNY30 000 (USD4742).

Plain-clothes police officers collected evidence of the ivory smuggling ring after following the suspects for two weeks; they were arrested on 9 May 2012 during a raid of two shops that sold illegal ivory pieces in Huangpu district.

In June 2012, a man was sentenced to 2.5 years in gaol with four years' probation and fined CNY4000 (USD645) after he attempted to purchase an ivory statue from an internet auction website.

<http://gongyi.people.com.cn/h/2012/0321/c227937-1491588153.htm?anchor=1> (in Chinese); [http://cq.cqnews.net/html/2012-05/09/content\\_15490468.htm](http://cq.cqnews.net/html/2012-05/09/content_15490468.htm); [www.globaltimes.cn/content/716215.shtml](http://www.globaltimes.cn/content/716215.shtml), 20 June 2012; [www.cwca.org.cn/Article/ShowArticle.asp?ArticleID=26434](http://www.cwca.org.cn/Article/ShowArticle.asp?ArticleID=26434) (in Chinese)

**GUINEA:** On 28 March 2012, seven suspected traffickers of protected species were arrested, reportedly a first in the country since independence in 1958; 80 kg of sculpted ivory were seized.

On 19/21 May 2012, police in Conakry seized over 800 ivory pieces, including sculptures and elephant tusks, during a raid that led to six arrests.

[www.starafrica.com/en/news/detail-news/view/guinea-police-seize-800-pieces-of-ivory-234424.html](http://www.starafrica.com/en/news/detail-news/view/guinea-police-seize-800-pieces-of-ivory-234424.html), 25 May 2012

**KENYA:** On 14 September 2012, officials seized 62 pieces of elephant ivory (255 kg) at Jomo Kenyatta International Airport. Preliminary investigation indicated that the shipment had been bound for Kuala Lumpur, Malaysia, via Doha, Qatar. Declared as avocados, the consignment had been sprayed with pepper and tobacco in an attempt to avoid detection by sniffer dogs. The owners of the shipment fled the scene before being arrested. The origin of the seizure has not been established.

On 22 September 2012, authorities seized a suitcase carrying carved ivory that had arrived from Luanda, Angola, bound for Bangkok. The items had been packed in a suitcase but the name on the tag was not on the list of passengers on board the plane. Police said this is one of the methods criminals use to transport ivory. A Chinese national was being sought.

The previous day, another person was arrested in Mlango Kubwa trying to sell genuine and fake ivory.

[Kenyan Wildlife Service, 18 September 2012](http://www.kenyanwildliveservice.com/18-september-2012); [www.standardmedia.co.ke/?articleID=2000066828&story\\_title=Police-uneearth-illegal-ivory-from-Angola](http://www.standardmedia.co.ke/?articleID=2000066828&story_title=Police-uneearth-illegal-ivory-from-Angola), 24 September 2012

**MOZAMBIQUE:** It was reported in June 2012 that police at Maputo International Airport had arrested two Chinese nationals arriving from Nairobi with 25 kg of ivory in their possession. The two were in transit to an undisclosed destination. The items were distributed in small packets inside the suspects' luggage, reportedly in an attempt to avoid detection.

[www.bernama.com/bernama/v6/newsindex.php?id=671093](http://www.bernama.com/bernama/v6/newsindex.php?id=671093), 6 June 2012

**SOUTH AFRICA:** On 10 July 2012, Customs officials and members of the SA Revenue Service (Sars) dog unit seized 46 elephant tusks (400–500 kg) following a routine inspection of two cargo containers at a storage facility near Cape Town International Airport; two people were arrested. The illegal cargo was destined for Hong Kong. The origin of the tusks was not clear and the case was under investigation.

[www.iol.co.za/capetimes/huge-ivory-bust-at-city-airport-1.1338864#T\\_lq\\_jvgn-Y](http://www.iol.co.za/capetimes/huge-ivory-bust-at-city-airport-1.1338864#T_lq_jvgn-Y), 11 July 2012

**SRI LANKA:** On 22 May 2012, the Central Intelligence Unit of Sri Lanka Customs seized 400 ivory tusks and logs that had transhipped through Colombo's sea port from Kenya, destined for Dubai. The ivory was believed to be of South African origin. According to Customs officials, this was one of the largest consignments of illegal ivory ever detected in the country.

[www.colombopage.com/archive\\_12/May22\\_1337702547CH.php](http://www.colombopage.com/archive_12/May22_1337702547CH.php), 22 May 2012

**USA:** On 12 July 2012, two New York ivory dealers pleaded guilty to selling and offering for sale circa one tonne of illegal ivory, including jewellery and carved tusks.

Under plea agreements, Mukesh Gupta and his company Raja Jewels were ordered to forfeit the ivory and fined USD45 000, which will be donated to the Wildlife Conservation Society (WCS) for projects relating to elephant conservation. Johnson Jung-Chien Lu and his company, New York Jewellery Mart Corp, were also ordered to forfeit the ivory in their possession and to donate USD10 000 to WCS.

*District Attorney, New York County media release, 12 July 2012*

**THAILAND:** On 25 April 2012, authorities at Suvarnabhumi Airport seized 22 elephant tusks, and 44 sawn pieces of ivory (58.54 kg) from boxes falsely declared as gemstones and shipped from Nigeria.

*www.mcot.net/cfcustom/cache\_page/357799.html, 25 April 2012*

**VIET NAM:** On 18 July 2012, Customs officials at Tan Son Nhat Airport in Ho Chi Minh City seized 137 kg of ivory from the luggage of two Vietnamese passengers. The items had been transported from Angola via Kenya, and were destined for a customer in Ho Chi Minh City.

On 17 September 2012, at Noi Bai International Airport, Hanoi, a woman was caught with 677 pieces of ivory, as well as 15 bracelets, 90 pairs of chopsticks, and 10 chains made of ivory (19 kg in total). The suspect confessed to bringing the ivory from Angola to sell in Viet Nam.

*www.tuotirenews.vn/cmlink/tuotirenews/society/vietnam-police-seize-137-kilos-of-ivory-from-kenya-1.80353, 19 July 2012; Thanh Nien News: www.thanhniennews.com/index/pages/20120919-woman-caught-with-ivory-tusks-at-vietnam-airport.aspx, 19 September 2012*

**ZIMBABWE:** It was reported on 28 May 2012 that game rangers had killed a poacher and seized 28 elephant tusks during a weekend raid in Binga. This brought to 50 the number of tusks recovered in the region in less than a week; a gunfight the previous week left one poacher wounded and yielded 22 tusks.

*www.news24.com/Africa/Zimbabwe/Zim-rangers-kill-poacher-seize-28-tusks-20120528, 28 May 2012*

## PANGOLIN

### All pangolin species are listed in CITES Appendix II.

Forty people were arrested during June and July 2012 in five South-east Asian countries in the largest co-ordinated operation against the illegal poaching and trade in pangolins *Manis*. Operation Libra, co-ordinated by INTERPOL's Environmental Crime Programme, involved investigations and enforcement actions across Indonesia, Lao PDR, Malaysia, Thailand and Viet Nam. Conducted with the assistance of the World Customs Organization and the ASEAN-Wildlife Enforcement Network, the operation included raids on restaurants and other

premises and led to the arrest of more than 40 individuals, with some 200 additional cases currently under investigation across the region. Some 1220 pangolins were recovered, almost half of them still alive. In addition to pangolins, birds, snakes and eight Tiger cubs were also seized.

*Environment News Service: http://ens-newswire.com/2012/09/03/pangolin-traffickers-across-southeast-asia-busted/, 3 September 2012*

**CHINA:** On 11 May 2012, at Tengchong County People's Court, Yunnan province, Cai Qiang and Cai Xue were each sentenced to 10 years in gaol and fined CNY8000 (USD1200). On 25 November 2011, the two, along with their employer [sentence not known] transported 42 pangolins from Zhanggeng village, Longchuan county, Yunnan province, but were intercepted when passing the Xinzhai section of Tengchong county.

On 13 May 2012, Shenzhen Bay Customs intercepted a bus travelling from Hong Kong to Shenzhen. A Chinese passenger was found to be carrying 12 bags of pangolin scales (25.4 kg). The suspect confessed to obtaining the scales when he worked in Pakistan and had planned to sell them in China. The case is under investigation.

On 17 June 2012, Beijing Airport Customs confiscated 42 kg of pangolin scales (and 0.31 kg of rhino horns), which were being carried by two Chinese nationals returning from Doha, Qatar.

*http://yn.xinhuanet.com/newscenter/2012-05/11/c\_131581343.htm; www.customs.gov.cn/publish/portal0/tab39267/info365276.htm; www.customs.gov.cn/publish/portal0/tab39267/info375634.htm*

### HONG KONG SPECIAL

**ADMINISTRATIVE REGION:** On 26 June 2012, Customs officials seized 208 kg of pangolin scales in Sai Kung, which were being loaded onto a speedboat. Seven suspects escaped. Also seized were 11 kg of birds' nests, a delicacy in Chinese cuisine.

On 2 August 2012, marine officials seized 20 boxes containing 600 kg of frozen pangolins from a boat in Deep Bay, bound for mainland China. Two people evaded capture.

*http://thestar.com.my/news/story.asp?file=/2012/6/28/reutersworld/20120628141016&sec=reutersworld, 28 June 2012; South China Morning Post, 4 August 2012*

**INDIA:** Pangolin scales (19.8 kg) handed over to the Central Forest Division by Sekmai police, Manipur, in July, were recently incinerated at the Forest Training School, Koirengi, following a court proceeding.

On 6 September 2012, Customs officials seized more than 386 kg of pangolin scales at Tuirial Airfield village, reportedly bound for Myanmar. One person was arrested.

*www.e-pao.net/GP.asp?src=Snipp7.200912.sep12, 19 September 2012; www.business-standard.com/generalnews/news/pangolin-scales-seized-in-mizoram/533621, 7 September 2012*

**INDONESIA:** On 28 July 2012, police in Medan, north Sumatra, seized sacks containing

85 pangolins from a bus station. Most specimens were alive. They were thought to be en route via Malaysia to Hong Kong or mainland China. No arrests were made but the case is being investigated and the animals were to be released in the wild.

*www.google.com/hostednews/afp/article/ALeqM5gnLzIXR3l8SyNryS1B5gMKDqWFWg?docId=CNG.8e48523cf8117b8f862f81dcf0fc05e5.471*

**MALAYSIA:** On 10 May 2012, the Penang Wildlife and National Parks Department seized 94 live pangolins from the cargo complex in Batu Maung, George Town. The animals were in 40 boxes together with live crabs. The specimens were believed to have been brought in from a neighbouring country and were headed for Hong Kong.

*www.nst.com.my/nation/general/bid-to-smuggle-pangolins-among-live-crabs-foiled-1.82991#ixzz246ZjzHv2, 12 May 2012*

On 2 June 2012, police in Kota Baru seized 171 pangolins *Manis javanica* and arrested five people in two operations: two men were detained by police at a roadblock in Jeli; 16 pangolins were seized. A police team in Bachok seized 155 pangolins packed into nets at a house in Kampung Alur Tok Majan; the animals and three suspects were handed over to the State Wildlife and National Parks Department. The pangolins were believed to have been brought into Kelantan from other States, bound for Thailand through Bukit Kayu Hitam in Kedah and Rantau Panjang.

*www.nst.com.my/nation/general/171-pangolins-bound-for-thailand-seized-1.90678, 4 June 2012*

**NEPAL:** On 25 June 2012, Sindhupalchowk police detained a person found in possession of nearly 40 kg of pangolin scales. He was arrested at Khokundol bazaar, along the Araniko highway, en route to the border with China.

On 14 September 2012, police in Bhadrapur confiscated 13.6 kg of pangolin scales from a house in Mechinagar municipality. The suspect was being sought.

*www.thehimalayantimes.com/fullNews.php?headline=One+held+with+pangolin+scales&NewsID=337426; www.myrepublica.com/portal/index.php?action=news\_details&news\_id=41777, 15 September 2012*

**UGANDA:** In early 2012, police arrested a man for allegedly trying to sell about 115 kg of pangolin scales. The suspect, from Kisoro, was intercepted as he was driving to meet clients in Kampala. He claimed that he had many suppliers and that he always exported the pangolin scales to China. He declined to reveal the identity of the Chinese men who buy the scales from him but stated that he received deliveries from Gulu, Mbarara, Fort Portal, Mukono [within Uganda], as well as the Democratic Republic of Congo "and other places".

According to the Ugandan Wildlife Authority (UWA), wealthy Chinese were encouraging the illegal trade.

"UWA is now implementing an aggressive campaign to stop the killing of pangolins by cutting off the ready market provided by the

Chinese nationals”, Lillian Nsubuga Public Relations Manager explained. She noted that in May, a person was arrested in Kampala with kilograms of pangolin scales. She added that informers had mentioned that some Chinese in Uganda are buying the pangolin scales and shipping them to Asia.

[www.newvision.co.ug/news/632887-police-fail-attempt-to-smuggle-pangolin-scales.html](http://www.newvision.co.ug/news/632887-police-fail-attempt-to-smuggle-pangolin-scales.html), 12 July 2012

**VIET NAM:** During Operation Libra (see above), Indonesian authorities discovered a shipment of 260 cartons of frozen pangolins (five tonnes) bound for Viet Nam. INTERPOL's I-24/7 secure communications system was used and additional assistance provided by the World Customs Organization (WCO) to track the shipment to Hai Phong, Viet Nam, where it was intercepted by Customs. The two countries are working together to identify the suspects.

In April 2012, enforcement authorities acting on information seized 71 live pangolins from a car in Nghe An province.

On 4 September 2012, police in Ha Tinh province seized sacks containing 119 live pangolins (and four live Tiger *Panthera tigris* (CITES I) cubs) being transported by car. The consignment was reported to have come from Lao PDR. Two men were arrested.

“Countries with wild pangolin populations and those key to the ongoing illegal trade are ramping up efforts to combat the problem,” said TRAFFIC's Naomi Doak, Greater Mekong Programme Co-ordinator.

“However, without stricter enforcement of current laws and tougher sentences for illegal wildlife traders, the future for this species in Asia looks very bleak,” said Dr Doak.

*Environment News Service: http://ienvs-news.com/2012/09/03/pangolin-traffickers-across-southeast-asia-busted/, 3 September 2012; www.tigertime.info/tiger-blog.php?entry\_id=1346924172&title=four-live-tiger-cubs-seized-in-vietnam, 6 September 2012*

## RHINOCEROS

### All rhinoceroses Rhinocerotidae are listed in CITES Appendix I

**GERMANY:** In September 2012, two Britons were convicted at Offenburg district court of the theft of two rhinoceros horns from the city's Ritterhaus Museum in February 2012 (see *TRAFFIC Bulletin* (24(1):28). The two, who were described as members of a global network of rhinoceros horn traders organized from the UK and Ireland, were sentenced to gaol terms of 3 and 2.5 years, respectively. A third person remains at large. The horns have not been traced.

[www.spiegel.de/panorama/justiz/diebstahl-von-nashorn-hoernern-zwei-briten-muessen-in-haft-a-855868.html](http://www.spiegel.de/panorama/justiz/diebstahl-von-nashorn-hoernern-zwei-briten-muessen-in-haft-a-855868.html), 14 September 2012

**INDIA:** On 6 July 2012, two poachers were arrested in connection with the killing of a Great Indian Rhinoceros *Rhinoceros unicornis* in Pobitora Wildlife Sanctuary, Assam. Another person who had allegedly shot the adult male rhinoceros two days earlier evaded capture.

The three had arrived by boat and fled with the animal's horn after it had been killed.

On 16 September 2012, a Great Indian Rhinoceros was killed by poachers in Kaziranga National Park's (KNP) Bagori forest range. The adult male had been shot and its horn removed. An axe was found at the scene. Five days earlier, a female Great Indian Rhinoceros was killed in the park and dehorned. Six poachers were later arrested during a joint operation conducted by police and forest personnel in and around KNP. A rifle was recovered during the operation and the poachers were taken into custody.

[www.business-standard.com/generalnews/news/two-poachers-arrested/289711](http://www.business-standard.com/generalnews/news/two-poachers-arrested/289711), 6 July 2012; <http://timesofindia.indiatimes.com/home/environment/wild-wacky/Another-rhino-killed-horn-chopped-off/article-show/16426179.cms>; [www.business-standard.com/generalnews/news/six-poachers-arrested-in-kaziranga/586891](http://www.business-standard.com/generalnews/news/six-poachers-arrested-in-kaziranga/586891)

**MOZAMBIQUE:** In May 2012, at Maputo International Airport, Customs officers arrested a Vietnamese national as he prepared to board a flight with seven rhinoceros horns in his possession. The suspect remains in custody.

[www.bemama.com/bemama/v6/newsindex.php?id=671093](http://www.bemama.com/bemama/v6/newsindex.php?id=671093) 6 June 2012

**PHILIPPINES:** On 7 September 2012, authorities at Manila port seized six rhinoceros horns (8.5 kg) that had arrived from Mozambique on 25 August, concealed inside a shipment containing 300 sacks of cashew nuts. No arrests have been made.

TRAFFIC's Chris Shepherd said the only previous known smuggling through Manila was two years ago when two White Rhinoceros *Ceratotherium simum* horns were found among seized elephant tusks.

“The Philippines would not have been the end destination. It would have been Viet Nam, and possibly China”, Shepherd said.

“There seems to have been a definite increase in enforcement efforts in the source countries, but we're not seeing any definite actions in the consumer countries to shut the markets down,” he added.

[www.nzherald.co.nz/world/news/article.cfm?c\\_id=2&object\\_id=10832477](http://www.nzherald.co.nz/world/news/article.cfm?c_id=2&object_id=10832477), 7 September 2012

**SOUTH AFRICA:** On 10 May 2012, three rhinoceros poachers were arrested in Crocodile Bridge Ranger Section of Kruger National Park (KNP) during a joint operation between South African National Parks (SANParks) Environmental Crime Investigators and rangers, the South African Police Services (SAPS) and South African National Defence Force (SANDF). The team had come upon the carcasses of a female rhinoceros and a calf, both of which had been dehorned; during a follow-up investigation they came into contact with the three who were armed. A shoot-out led to one suspect being fatally wounded; the other two were arrested. Four fresh rhinoceros horns, a hunting rifle and an axe were recovered from the poachers.

On 27 August 2012, at Shangoni Section of the park, rangers and investigators again came into contact with a group of suspected

poachers, one of whom was fatally wounded. A firearm and a set of rhino horns were recovered. On the same day, in the Lower Sabie Section of KNP, three suspected poachers were arrested and a firearm and an axe were recovered. In a follow-up anti-poaching operation at the Crocodile Bridge Section the following day, rangers encountered another group of suspected poachers; one of the group was wounded and two were fatally wounded. A firearm and two axes were recovered.

On 31 August 2012, at Nelspruit Regional Court, Mozambican citizen, Ali Cossa, and Gerson Nkuna of South Africa, were each sentenced to 29 years' imprisonment for killing a rhinoceros cow and calf at the Nwanetsi Section of KNP in June. They were each sentenced to 10 years' imprisonment for killing an adult female rhinoceros, and another 10 years each for killing a calf. They were further sentenced to an effective four years each on charges of possession of illegal firearms and two years for illegal possession of ammunition as well as three years each for trespassing. Cossa received a further three-month sentence for being an undocumented migrant in the country.

On 14 June 2012, at Germiston Magistrates' Court, Johannesburg, a resident of KwaZulu-Natal (KZN), three Chinese nationals, one Malawian and two Vietnamese faced charges of dealing in rhinoceros horn. All suspects were arrested two weeks earlier during two sting operations in Gauteng. It has been alleged they were linked to an international syndicate dealing in rhinoceros horns. During both raids, police seized 12 horns, apparently destined for China, as well as elephant tusks and Leopard *Panthera pardus* (CITES I) skins.

The arrests came after a six-month covert operation in KZN and Gauteng that investigated the sale of rhino horns to international buyers.

In July 2012, an appeals court upheld an eight-year gaol sentence imposed in March on J. Els, a game farm owner from Thabazimbi, who had been found guilty of the illegal possession of 38 rhinoceros horns (see *TRAFFIC Bulletin* 24(1):29).

Els had purchased 30 horns from the manager of another game farm who later committed suicide. Els was arrested in October 2010 and later sentenced for transporting the horns without a permit. The horns had been cut from rhinoceroses that had been drugged. He was given a suspended sentence for the illegal possession of eight horns from his own animals and ordered to pay R1m (USD121 000) to the country's environmental police.

On 20 July 2012, law enforcement agencies seized R1m of Els's assets, including his game farm, other goods, company shares, and the contents of his bank accounts. None of the rhinoceros horns was recovered, which Els claimed had been stolen.

In August 2012, at Vryheid Regional Court, two farmers from KZN, Ewart Potgieter and Riaan Vermaak, were sentenced to 18 years' and 10 and-half-years' imprisonment, respectively; they will serve 11 years and seven-and-a-half years. The two, with other accomplices who were to appear in court at a later date, were arrested five months earlier during a sting operation.



**UK:** In July 2012, at Norwich Crown Court, Nihad Mahmud, an Iraqi immigrant of no fixed address, was gaoled for two-and-a-half years for attempting to steal a rhinoceros horn from Norwich Castle in February 2012. Three others involved in the incident have not been caught (see also *TRAFFIC Bulletin* 24(1):29). The museum has replaced the horn with a replica.

On 7 September 2012, at Guildford Crown Court, Jamie Channon and Tony Moore were gaoled for seven and five years, respectively, for stealing a rhinoceros head from Haslemere Educational Museum in May 2011. The men will serve half of their sentences.

sentences on condition they would not contravene any section of the *Wildlife Act*. It was also ruled that a further three-year gaol term would run concurrently for each of the accused persons. The three were convicted of killing a male rhinoceros at a farm in Macheke; they were arrested as they attempted to smuggle the horns (8.2 kg) to South Africa. They were also ordered to pay the owner of the farm where the rhinoceros was killed ZWD20 000 (USD55) in compensation.

[www.zoutnet.co.za/details/17-08-2012/21\\_years\\_in\\_jail\\_for\\_two\\_rhino\\_poachers/14483](http://www.zoutnet.co.za/details/17-08-2012/21_years_in_jail_for_two_rhino_poachers/14483), 17 August 2012; [www.newsday.co.zw/article/2012-06-29-poachers-jailed-17-years](http://www.newsday.co.zw/article/2012-06-29-poachers-jailed-17-years), 29 June 2012

On 10 October 2012, Manipur police seized a further 30 Tokay Geckos from two people during an operation in Thoubal district; the following day, a local court fined each of them Rs 10 000 (USD 190).

It is reported that most of the specimens of this species caught in Manipur are taken to Thailand via Myanmar, for onward transportation to Malaysia and Indonesia.

[www.deccanherald.com/content/247765/483-star-tortoises-seized-bia.html](http://www.deccanherald.com/content/247765/483-star-tortoises-seized-bia.html), 7 May 2012; <http://sevensisterspost.com/tokay-geckos-seized-in-manipur/>; <http://timesofindia.indiatimes.com/city/guwahati/30-tokay-geckos-seized-in-Manipur/articleshow/16759303.cms>; <http://m.timesofindia.com/city/guwahati/Tokay-gecko-poachers-fined-Rs-10000-each/articleshow/16777034.cms>

“ IF THE BATTLE AGAINST WILDLIFE CRIME IS TO BE WON, THE OUTCOME OF CASES THAT ARE PROSECUTED MUST BE MORE WIDELY PUBLICIZED SO THAT PEOPLE ARE AWARE OF THE HEAVY PRICE THEY PAY FOR TRAFFICKING WILDLIFE. ” William Schaedla, *TRAFFIC*

**NEW ZEALAND:** On 4 May 2012, at Christchurch District Court, Andreas Hahn, a German national, pleaded guilty to charges of hunting and possessing four South Island Tree Geckos *Naultinus gemmeus* (CITES II) which he had attempted to smuggle out of the country. The judge accepted that Hahn was more of a “mad collector” than a “cynical commercial poacher” and gaoled him for four months. The geckos were released into the wild.

[www.nzherald.co.nz/nz/news/article.cfm?c\\_id=1&objectid=10803541&ref=rss](http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=10803541&ref=rss), 4 May 2012

SANParks media releases: [www.sanparks.org/](http://www.sanparks.org/), 10 May/29 August/31 August 2012; [www.iol.co.za/dailynews/news/rhino-horn-bust-1.1318975#.UFryCVH4JvI](http://www.iol.co.za/dailynews/news/rhino-horn-bust-1.1318975#.UFryCVH4JvI), 14 June 2012 [www.google.com/hostednews/afp/article/ALeqM5jkYSLtM MON5CsPgOXSa1ILLUhwq?docId=CNG.3d4dfb998642cb4dc07e4b704572326d.241](http://www.google.com/hostednews/afp/article/ALeqM5jkYSLtM MON5CsPgOXSa1ILLUhwq?docId=CNG.3d4dfb998642cb4dc07e4b704572326d.241); [www.news24.com/SouthAfrica/News/RI11m-in-assets-seized-from-game-farmer-20120720](http://www.news24.com/SouthAfrica/News/RI11m-in-assets-seized-from-game-farmer-20120720), 20 July 2012; [www.iol.co.za/news/crime-courts/rhino-poachers-sentenced-to-28-years-11363903#.UFsDa1H4JvI](http://www.iol.co.za/news/crime-courts/rhino-poachers-sentenced-to-28-years-11363903#.UFsDa1H4JvI), 16 August 2012; [www.bbc.co.uk/news/uk-england-norfolk-18810176](http://www.bbc.co.uk/news/uk-england-norfolk-18810176), 12 July 2012; [www.getsurrey.co.uk/news/s/2120509\\_pair\\_jailed\\_for\\_haslemere\\_museum\\_rhino\\_head\\_theft](http://www.getsurrey.co.uk/news/s/2120509_pair_jailed_for_haslemere_museum_rhino_head_theft), 13 September 2012

**ZIMBABWE:** It was reported on 17 August 2012 that two people had been sentenced to an effective 21 years in gaol for killing and dehorning two Black Rhinoceroses *Diceros bicornis* in Buby Valley Conservancy outside Beitbridge. Mateu Mahlangu of Johannesburg and Dovhani Sibanda of Driehoek village, Beitbridge, pleaded not guilty to charges of killing an endangered species and possession of rhinoceros horns and an unlicensed firearm.

On 8 April 2012, the two men reportedly shot and killed the two animals and removed the horns before taking them to Sibanda's home, where they removed a tracking transmitter from one of the horns and burnt it. The device is used in tracking and monitoring the movement of rhinoceroses within the sanctuary.

The offence was discovered by game rangers who reported the matter to police. Four rhinoceros horns, knives and a firearm and ammunition, were also recovered from where they were hidden underground. The court heard that the two men intended to smuggle the horns into South Africa.

On 28 June 2012, Zivanai Masvaire, Charles Dowerowe and Shepherd Naite were sentenced to 17 years' imprisonment for rhinoceros poaching; Masvaire and Dowerowe will each serve an effective nine years in gaol, while Naite will complete seven years after two years were suspended from their respective

## REPTILES and AMPHIBIANS

**BANGLADESH:** On 7 August 2012, police at Shahjalal International Airport seized 108 live Tricarinata Hill Turtles *Melanochelys tricarinata* (CITES I) being smuggled to Thailand. Two people were arrested.

[www.asianturtleprogram.org/pages/turtle-bulletin/Bulletin\\_41\\_12th\\_Aug12/Bulletin\\_41\\_12th\\_Aug12.htm](http://www.asianturtleprogram.org/pages/turtle-bulletin/Bulletin_41_12th_Aug12/Bulletin_41_12th_Aug12.htm), 12 August 2012

**ECUADOR:** On 8 July 2012, Galapagos National Park officials at Baltra Island airport detected four Galapagos Land Iguanas *Conolophus subcristatus* (CITES II/IUCN Red List: Vulnerable) in the luggage of a German national during routine x-ray inspection of luggage, assisted by police sniffer dogs. The suspect, who was gaoled while he awaits sentencing, is reported to have been prosecuted in December 2011 for exporting a Fiji Crested Iguana *Brachylophus vitiensis* (CITES I).

[http://elcomercio.com/sociedad/ciudadano-intentaba-las-Galapagos-arrestado\\_0\\_733726715.html](http://elcomercio.com/sociedad/ciudadano-intentaba-las-Galapagos-arrestado_0_733726715.html), 9 July 2012

**INDIA:** On 7 May 2012, it was reported that the Air Intelligence Unit (AIU) of Customs at Bengaluru International Airport had seized 483 live Indian Star Tortoises *Geochelone elegans* (CITES II) that were being smuggled to Bangkok, Thailand, by an Indian national.

On 30 July 2012, Bishnupur District Divisional Forest Office, and Nambol police seized eight Tokay Geckos *Gekko gekko* in the Kamong area, Bishnupur District, Manipur; another seizure involving this species had been made in the same location in the recent past.

**THAILAND:** On 27 August 2012, at Bangkok's Suvarnabhumi International Airport, police and Customs officers seized 890 juvenile Indian Star Tortoises *Geochelone elegans* (CITES II) concealed in six pillow cases in a suitcase being brought into the country from Calcutta. One Indian national was arrested. Days earlier, TRAFFIC observed at least 122 Indian Star Tortoises openly for sale at Bangkok's weekend market, Chatuchak.

The species is legally protected across its range in India, Sri Lanka and Pakistan and exports from these countries are prohibited. All three countries have banned the species' international commercial export under national legislation, making all shipments from these countries illegal anywhere in the world.

TRAFFIC urged Thai authorities to increase enforcement efforts at local markets to remove Indian Star Tortoises, while working with their counterparts in India to ensure a speedy repatriation of the tortoises, as authorities in Malaysia and Indonesia have done in the past.

[www.traffic.org/home/2012/8/29/almost-900-star-tortoises-seized-in-thailand.html](http://www.traffic.org/home/2012/8/29/almost-900-star-tortoises-seized-in-thailand.html), 29 August 2012

**USA:** On 26 April 2012, Elidoro Soria Fonseca was sentenced to two years' imprisonment following his attempt to smuggle into the USA from Mexico iguana (CITES II) meat derived from 110 animals. US Customs and Border Protection Officials were alerted by the smell coming from Fonseca's vehicle at the Otay Mesa border crossing in June 2011. Inside were 110 headless, skinned and deboned iguanas packed in ice.

[www.utsandiego.com/news/2012/apr/26/iguana-meat-smuggler-gets-two-years/](http://www.utsandiego.com/news/2012/apr/26/iguana-meat-smuggler-gets-two-years/), 26 April 2012

## FLORA

**CANADA:** On 11 September 2012, at Richmond Provincial Court, J&A Health Food International Ltd was fined CAD45 000 (USD45 700) for importing wild American Ginseng *Panax quinquefolius* (CITES II) roots and orchid species *Dendrobium* spp. (I/II) without a permit. The company was ordered to forfeit 19 kg of ginseng (wild and cultivated) and five kilogrammes of orchids. The plants, seized on 28 January 2010, had been concealed in a shipment of legally-acquired ginseng roots.

The penalties consist of a fine of CAD2500 for each of three counts under the *Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act* (WAPPRITA); CAD7500 was to be directed to the Environmental Damages Fund and CAD30 000 was awarded directly to TRAFFIC.

[www.ec.gc.ca/alef-ewe/default.asp?lang=En&n=3E7B1278-1](http://www.ec.gc.ca/alef-ewe/default.asp?lang=En&n=3E7B1278-1), 25 September 2012

**CHILE:** On 11 September 2012, the Chilean Supreme Court upheld a guilty verdict in the case of the former mayor of Fresia, Puerto Montt, Nelson Schwerter, accused in 1996 of illegally trading in *Alerce Fitroya cupressoides* (CITES I/nationally protected). The decision upheld the verdicts of lower courts maintaining that Schwerter knew the *Alerce* wood he had exported had been obtained by illegal means. He had been accused of building an illegal network of loggers who took much of the *Alerce* they trafficked from Forestal Sarao company property, one of Chile's privately owned natural reserves which was established in 1988 to protect *Alerce*.

While the controversy was first made public in the mid-1990s, Schwerter and some 30 associates were not convicted until 2009. In April 2011, the decision was upheld for 12 of the accused in a Court of Appeals and Schwerter's was the only case outstanding to be brought to the Supreme Court.

[www.santiagotimes.cl/chile/other/25176-former-mayor-convicted-of-trafficking-chilean-endangered-species](http://www.santiagotimes.cl/chile/other/25176-former-mayor-convicted-of-trafficking-chilean-endangered-species), 14 September 2012

**CHINA:** In May 2012, Dalian Customs seized 440 seedlings of Chinese Yew *Taxus chinensis* (CITES II) from a suspect from South Korea.

On 4 May 2012, at Luohu Port, Guangdong Province, Customs officials seized 9.5 kg of agarwood *Aquilaria* (CITES II) from the backpack of a passenger. During the first five months of the year, Luohu Customs have reportedly uncovered 19 cases involving the illegal transportation of agarwood (total weight 56.2kg).

Also in May, Wuhan Customs seized 460 *Cymbidium* (CITES I/II) orchids from a foreign national travelling to South Korea.

[www.customs.gov.cn/publish/portal0/tab39267/info372255.htm](http://www.customs.gov.cn/publish/portal0/tab39267/info372255.htm) (in Chinese), 20 June 2012; [www.legaldaily.com.cn/index/content/2012-05/10/content\\_3561008.htm?node=20908](http://www.legaldaily.com.cn/index/content/2012-05/10/content_3561008.htm?node=20908); [www.customs.gov.cn/publish/portal0/tab39267/info372004.htm](http://www.customs.gov.cn/publish/portal0/tab39267/info372004.htm) (in Chinese), 20 June 2012

**INDIA:** The Directorate of Revenue Intelligence (DRI) seized around 611.76 t of Red Sandalwood (*Pterocarpus santalinus* (CITES II)) across the country during 2011–12 fiscal year. It

is reported that DRI officials suspect that around double the quantity of the seized goods has been successfully smuggled out of India. DRI's data point out that this period experienced the highest quantity of Red Sandalwood being smuggled out of the country, with some 34 cases registered across the country. By comparison, during 2010–11, there were 27 cases registered and 373.3 t of Red Sandalwood was seized; 337.2 t was seized in 2009–10.

The following are a selection of recent cases involving the illegal trade in Red Sandalwood:

On 4 April 2012, police seized 600 Red Sandalwood logs and 150 teak logs (total weight 15 t) at Eguya Tambaalappalli village, YSR district.

On 1 September 2012, Customs officials arrested 11 people in locations in Ramanathapuram and Madurai in connection with an alleged bid to smuggle Red Sandalwood to Sri Lanka from Olaikuda.

On 8 September, police seized seven tonnes of Red Sandalwood logs near Vaniyambadi toll plaza; one person was arrested and a vehicle seized. The wood, which was being transported from Chennai to Hosur, was handed over to the Forest Department Depot at Tirupattur.

On 15 September, Tirupati forest staff and Chandragiri police recovered 10 t of Red Sandalwood logs during three separate incidents. The wood was being transported at Chandamamapalle near Srinivasa Mangapuram.

<http://ibnlive.in.com/news/smuggling-of-red-sanders-on-the-rise/289115-60-122.html>, 9 September 2012; <http://ibnlive.in.com/generalnewsfeed/news/police-seize-wood-logs-worth-rs-3-cr-in-ap-village/983369.html>, 5 April 2012; <http://ibnlive.in.com/generalnewsfeed/news/11-held-for-bid-to-smuggle-red-sanders/1055688.html>, 1 September 2012; <http://ibnlive.in.com/news/red-sanders-worth-rs-35-lakh-seized/289814-60-118.html>, 11 September 2012; <http://ibnlive.in.com/news/red-sanders-seized/291957-60-114.html>, 18 September 2012

## OTHER SEIZURES:

**CAMEROON:** On 12 September 2012, authorities arrested one woman in Yaounde who was trying to sell the skull and other body parts of a Gorilla *Gorilla gorilla* (CITES I). Another woman was earlier arrested by officials acting on information as she alighted from a bus on the Lomie—Yaounde highway with sacks containing illegal wildlife species, including Gorilla parts.

[www.causes.com/causes/388319-laga/actions/1682998](http://www.causes.com/causes/388319-laga/actions/1682998), 12 September 2012; [www.4apes.com/news/Two-Women-Arrested-With-Gorilla-Parts-20120919.htm](http://www.4apes.com/news/Two-Women-Arrested-With-Gorilla-Parts-20120919.htm), 19 September 2012

**CHINA:** In April 2012, the State Forestry Administration announced that police had uncovered more than 700 cases involving illegal wildlife trade on websites and at antique markets. Police officers inspected 5962 markets and 13 gangs were infiltrated, 1031 illegal traders were prosecuted, and over 130 000 wild animals and 2000 animal products were seized. Some 7155 high-street shops and 628 websites selling banned animals were shut down.

In May 2012, Zhanjiang Customs acting on information intercepted a car on the Maozhan Highway and found 49 monitor lizards *Varanus* (CITES I/II) contained in bags and cages.

On 25 June 2012, Nanning forest police, Guangxi province, seized 343 frozen pangolins (2.2 t), 141 bear paws, 37 frozen Big-headed Turtles *Platysternon megacephalum* (CITES II) and 20 kg of meat suspected to be of Asiatic Black Bears *Ursus thibetanus* (CITES I). Three people were arrested. At least 43 bears and 343 pangolins were killed to supply these items, which had been transported from Dongxing city (bordering Viet Nam), Guangxi province.

On 4 July 2012, it was reported that police in Jilin province had arrested six men on suspicion of poaching five wild Asiatic Black Bears *Ursus thibetanus* (CITES I) on Changbai Mountain. The animals had been killed by explosives; a shotgun, bullets and two homemade explosive devices were seized. The suspects are reported to have sold the bear products, including the gallbladders and paws.

On 13 September 2012, Shenzhen Forest Police seized 122 pangolins *Manis*, six giant salamanders, one bear paw and 27 frozen owls from a rental house in Dongmen, Luohu District. Four suspects were detained.

[http://usa.chinadaily.com.cn/china/2012-04/28/content\\_15172382.htm](http://usa.chinadaily.com.cn/china/2012-04/28/content_15172382.htm); <http://zjphoto.yinsha.com/file/201205/12053015322738.htm> (in Chinese), 20 June 2012; [www.gx.xinhuanet.com/newscenter/2012-06/26/content\\_25434371.htm](http://www.gx.xinhuanet.com/newscenter/2012-06/26/content_25434371.htm); <http://news.asiaone.com/News/AsiaOne%2BNews/Crime/Story/A1Story20120705-357298.html>, 5 July 2012; [http://city.sz.net.cn/city/2012-09/16/content\\_3014151.htm](http://city.sz.net.cn/city/2012-09/16/content_3014151.htm)

**MALAYSIA:** On 11 May 2012, at Penang International Airport, the State Fisheries Department detained a Taiwanese man who was carrying 241 arowana *Scleropages* fish in two bags; he was bound for Guangzhou, China.

[www.nst.com.my/nation/general/bid-to-smuggle-pangolins-among-live-crabs-foiled-1.82991](http://www.nst.com.my/nation/general/bid-to-smuggle-pangolins-among-live-crabs-foiled-1.82991)

**PERU:** On 23 August 2012, police in Lima seized more than 16 000 (160 kg) dried sea-horses *Hippocampus* (CITES II) destined for illegal export to Asia. Seahorse fishing has been banned in Peru since 2004. Last year, two tonnes of seahorses destined for export were seized by the authorities.

<http://phys.org/news/2012-08-peru-seizes-dried-seahorses-asia.html>, 24 August 2012

**PHILIPPINES:** On 8 July 2012, at Ninoy Aquino International Airport, officials of the Bureau of Fisheries and Aquatic Resources (BFAR) intercepted 949 kg of eel fingerlings contained in 332 plastic bags during a routine check of a warehouse. The shipment, from Cagayan province and bound for Hong Kong, had been abandoned. The fingerlings were thought to be destined for the restaurant trade once they had reached maturity. It is unlawful to export eel fry/fingerlings without a permit issued for purposes of education and scientific research. The specimens were taken to a BFAR hatchery in Tanay.

On 16 September 2012, Customs officials at the airport intercepted at least 13 boxes of live eel fry bound for Kaoshiung, Taiwan.

[www.philstar.com/Article.aspx?articleId=825594&publicationSubCategoryId=63](http://www.philstar.com/Article.aspx?articleId=825594&publicationSubCategoryId=63), 9 July 2012; [www.gmanetwork.com/news/story/274321/news/metromanila/13-boxes-of-taiwan-bound-live-eels-intercepted-at-naia](http://www.gmanetwork.com/news/story/274321/news/metromanila/13-boxes-of-taiwan-bound-live-eels-intercepted-at-naia), 17 September 2012



## Summary of the Bird Species Seized in the Illegal Trade in Rio de Janeiro, Brazil

C.A.R. Matias, V.M. Oliveira, D.P. Rodrigues and S. Siciliano

Brazil is one of the richest countries in the world in terms of its biodiversity (Mittermeier *et al.*, 2005), harbouring an estimated 10 to 12% of all known species (Machado *et al.*, 2008), including more than 1800 bird species, some endemic species (Efe *et al.*, 2006; Sigrist, 2006; Alves *et al.*, 2010; CBRO, 2011; Fernandes-Ferreira *et al.*, 2012) and a number that are considered threatened (Marini and Garcia, 2005). After habitat loss, poaching and hunting of wildlife are considered the most important causes of population declines, and could significantly affect the ecosystem's dynamics (Redford, 1992).

In the Neotropics, wild animals are captured both for national and international trade. Much of this trade is illegal but little information is known about the conservation implications of these practices. Statistics indicate that Brazil contributes to at least 10% of the total value of illegal global trade in wildlife (Ferreira and Glock, 2004; Lima, 2007; Ribeiro and Silva, 2007; Alves *et al.*, 2010).

This paper briefly highlights the local illegal trade of wild birds in Rio de Janeiro based on recent confiscations by authorities, and identifies which species are most commonly poached.

### LEGISLATION

Brazil has been a signatory to CITES since 1975, and the Convention is implemented through *Federal Decree N° (3.607) of the year 2000 concerning CITES implementation*. The National Institute of Environment and Renewable Natural Resources (IBAMA) is the Administrative and Scientific Authority responsible for controlling the trade in wildlife. In short, the hunting of wildlife is banned in the country under *Federal Law N° (5.197) of the year 1967 concerning protection of wild animals*. Penalties for violation of this law, including the capture, trade, keeping in captivity and the purchase of wild animals without permission are set out in *Federal Law N° (9.605) of the year 1998 concerning environmental crimes, including crimes against fauna*. Species classified as

endangered receive full protection under the *Normative Instruction N° (3) of the Ministry of Environment of the year 2003 concerning species of endangered Brazilian fauna*, according to the country's commitments to the Convention on Biological Diversity. While trade in wild-caught birds is illegal, permits may be issued by IBAMA under the *Normative Instruction N° (169) of the year 2008 concerning the categories of use and management of wild animals in captivity* for the capture of some species for captive-breeding purposes and for the sale of second-generation offspring of these species. Such birds should be banded and their sale must take place in pet shops.

Besides IBAMA, other authorities in federal, State and municipal jurisdiction monitor and control the illegal trade of wildlife species, especially in open air markets. As a consequence, thousands of specimens are confiscated each year and taken to the Rehabilitation Center of Wild Animals (CETAS) in Rio de Janeiro, which is administered by IBAMA.

### BACKGROUND

The majority of wild birds and other wildlife in Brazil that enters illegal trade originates from the north, north-east and central regions of the country. While a proportion is exported by air and sea to the USA, Europe and Asia (Lima, 2007; Ribeiro and Silva, 2007), specimens are sold in the larger cities in the south and south-east regions, especially in the open air markets in the States of São Paulo and Rio de Janeiro, the latter considered one of the most important consumer markets for this illicit activity (Carvalho, 1985; Lopes, 1991; Lima, 2007).

The social chain that sustains wildlife trafficking often starts in remote areas where the rural poor hunt and poach wildlife to supplement their low incomes. Specimens are passed to an intermediary for relatively low prices and transported to urban areas where they are sold to small traders. These middlemen, in turn, connect with long-distance traders, the most successful of whom are involved in specialized chains that include animal breeders and businessmen. Other consumers include citizens who want to keep a wild animal as a pet, collectors, the pharmaceutical industry and the fashion trade (Hernandez and Carvalho, 2006; Lima, 2007; Alves *et al.*, 2010).

With the often poor sanitary conditions and close contact involved in dealing with wild animals, there is a risk of transmission of disease to humans as well as to native wildlife populations and livestock that could affect rural livelihoods and the health of ecosystems (Karesh *et al.*, 2005).

### METHODS

The authors examined data compiled by CETAS of seizures of wild birds carried out by staff of local authorities in Rio de Janeiro State, south-east Brazil, between January and December 2011. The number of specimens seen, the species most often captured and their conservation status were documented. The scientific nomenclature of the species described in the study follows the taxonomic checklist of BirdLife International.



FAMILY	TAXA/SPECIES		CITES Appendix	Quantity apprehended
Psittacines:				
Psittacidae	Blue-winged Macaw	<i>Primolius maracana</i>	II	1
	Turquoise-fronted Amazon	<i>Amazona aestiva</i>	II	1
	Orange-winged Amazon	<i>Amazona amazonica</i>	II	5
	Parrot	<i>Amazona sp.</i>	II	1
	Peach-fronted Parakeet	<i>Aratinga aurea</i>	II	1
	White-eyed Parakeet	<i>Aratinga leucophthalma</i>	II	2
	Maroon-bellied Parakeet	<i>Pyrrhura frontalis</i>	II	1
Toucans and aracarís:				
Ramphastidae	Spot-billed Toucanet	<i>Selenidera maculirostris</i>	non-CITES	2
Passerines:				
Turdidae	Rufous-bellied Thrush	<i>Turdus rufiventris</i>	non-CITES	9
	White-necked Thrush	<i>Turdus albicollis</i>	non-CITES	2
	Creamy-bellied Thrush	<i>Turdus amaurochalinus</i>	non-CITES	6
	Pale-breasted Thrush	<i>Turdus leucomelas</i>	non-CITES	3
	Thrush	<i>Turdus sp.</i>	non-CITES	4
Mimidae	Chalk-browed Mockingbird	<i>Mimus saturninus</i>	non-CITES	2
Thraupidae	Buff-throated Saltator	<i>Saltator maximus</i>	non-CITES	5
	Green-winged Saltator	<i>Saltator similis</i>	non-CITES	32
	Ruby-crowned Tanager	<i>Tachyphonus coronatus</i>	non-CITES	4
	Brazilian Tanager	<i>Ramphocelus bresilius</i>	non-CITES	20
	Green-headed Tanager	<i>Tangara seledon</i>	non-CITES	1
	Azure-shouldered Tanager	<i>Thraupis cyanopectera</i>	non-CITES	4
	Golden-chevrons Tanager	<i>Thraupis ornata</i>	non-CITES	8
	Palm Tanager	<i>Thraupis palmarum</i>	non-CITES	10
	Sayaca Tanager	<i>Thraupis sayaca</i>	non-CITES	38
	Tanager	<i>Thraupis sp.</i>	non-CITES	2
	Red-cowled Cardinal	<i>Paroaria dominicana</i>	non-CITES	4
	Swallow Tanager	<i>Tersina viridis</i>	non-CITES	2
	Blue Dacnis	<i>Dacnis cayana</i>	non-CITES	7
	Red-legged Honeycreeper	<i>Cyanerpes cyaneus</i>	non-CITES	1
	Purple-throated Euphonia	<i>Euphonia chlorotica</i>	non-CITES	9
Emberizidae	Rufous-collared Sparrow	<i>Zonotrichia capensis</i>	non-CITES	12
	Blue-black Grassquit	<i>Volatinia jacarina</i>	non-CITES	94
	Pileated Finch	<i>Coryphospingus pileatus</i>	non-CITES	9
	Uniform Finch	<i>Haplospiza unicolor</i>	non-CITES	2
	Saffron Finch	<i>Sicalis flaveola</i>	non-CITES	153
	Lesser Seed-Finch	<i>Oryzoborus angolensis</i>	non-CITES	70
	Double-collared Seedeater	<i>Sporophila caerulea</i>	non-CITES	221
	Rusty-collared Seedeater	<i>Sporophila collaris</i>	non-CITES	5
	Temminck's Seedeater	<i>Sporophila falcirostris</i>	non-CITES	25
	Buffy-fronted Seedeater	<i>Sporophila frontalis</i>	non-CITES	133
	White-bellied Seedeater	<i>Sporophila leucopectera</i>	non-CITES	2
	Lined Seedeater	<i>Sporophila lineola</i>	non-CITES	3
	Black-and-white Seedeater	<i>Sporophila luctuosa</i>	non-CITES	1
	Yellow-bellied Seedeater	<i>Sporophila nigricollis</i>	non-CITES	6
	Seedeater	<i>Sporophila sp.</i>	non-CITES	236
Cardinalidae	Ultramarine Grosbeak	<i>Cyanocompsa brissonii</i>	non-CITES	6
Tyrannidae	Great Kiskadee	<i>Pitangus sulphuratus</i>	non-CITES	1
Icteridae	Chopi Blackbird	<i>Gnorimopsar chopi</i>	non-CITES	7
	Chestnut-capped Blackbird	<i>Chrysomus ruficapillus</i>	non-CITES	20
	Shiny Cowbird	<i>Molothrus bonariensis</i>	non-CITES	5
Fringillidae	Hooded Siskin	<i>Carduelis magellanica</i>	non-CITES	4
Estrildidae	Common Waxbill	<i>Estrilda astrild</i>	non-CITES	49

**Table 1. List of species seized in illegal trade in street markets in Rio de Janeiro State, Brazil, during 2011.**

## RESULTS

During the survey period, a total of 1251 wild birds were confiscated in 16 local street markets in Rio de Janeiro State, representing 51 taxa, distributed in 11 families and 29 genera (Table 1). In the course of the year, a total of 57 inspections were conducted in several locations, with a minimum of one and a maximum of 229 birds per confiscation (mean of 22).

*Sporophila* was the genus most represented, with a total of 685 birds and accounting for 56% of the trade; specimens included 221 Double-collared Seedeaters *S. caerulea*, 133 Buffy-fronted Seedeaters *S. frontalis*, 70 Lesser Seed-Finches *Sporophila (Oryzoborus) angolensis*, and 25 Temminck's Seedeaters *S. falcirostris*. Another taxa frequently represented in the apprehensions included the Saffron Finch *Sicalis flaveola*, with 153 birds (12% of the total); the Blue-black Grassquit *Volatinia jacarina*, with 94 birds (8% of the total); the Common

Waxbill *Estrilda astrild*, with 49 birds (4% of the total); the Sayaca Tanager *Thraupis sayaca*, with 38 birds (3% of the total); and the Green-winged Saltator *Saltator similis*, with 32 birds (3% of the total) (Fig. 1; Table 1). The Common Waxbill is an introduced species with established feral populations in Brazil which are covered by law.

A large number of the birds that were seized—1237—were representatives of the Passeriformes group; 972 (77.7%) belonged to the Emberizidae, and 138 birds to the Thraupidae family, which represented 11% of the total. Only 12 birds, of seven taxa—all psittacines—were of species included in CITES Appendix II (Table 1); two other species—Temminck's Seedeater and Buffy-fronted Seedeater—are considered vulnerable (Machado *et al.*, 2008; IUCN, 2008) and are included in the *Normative Instruction N° (3) of the Ministry of the Environment of the year 2003, concerning species of endangered Brazilian fauna*.

## DISCUSSION AND CONCLUSIONS

Rio de Janeiro is considered one of the major centres for illegal wildlife trade in Brazil (Carvalho, 1985; Lima, 2007). All confiscations recorded during 2011 took place in 16 markets in the metropolitan area of Rio de Janeiro and surrounding areas; 17 out of a total of 57 inspections were concentrated in Caxias street market which is the largest and most well-known location in the State for the illegal trade in wild birds and other wildlife. All birds in trade at open markets are on sale illegally; they have not been ringed, which would prove they had been born in captivity, nor has permission for their sale been granted by the authorities. Furthermore, such sales must take place in pet shops.

The results are similar to those reported in Ferreira and Glock (2004), Efe *et al.* (2006) and Fernandes-Ferreira *et al.* (2012), with the Passeriformes, especially those of the Emberizidae family, being the majority, followed by Psittaciformes. The latter group, besides being included in CITES Appendix II, comprised specimens that fetch higher prices in illegal trade when compared with songbirds. For this reason, there are fewer apprehensions of these species as trade is usually carried out covertly.

Seedeaters *Sporophila* spp. were the most commonly seized specimens and included mainly females and juveniles. This genus was previously listed as the most predominant among the species captured for trade in illegal street markets or to raise as pets (Fernandes-Ferreira *et al.*, 2012). Among the species most often seized, special attention has to be given to the Buffy-fronted Seedeater and Temminck's Seedeater, both of which are listed as vulnerable. Finding out where these birds are captured and kept is essential if extinction in their natural habitat is to be prevented.

Some taxa like Saffron Finch and seedeaters were common in similar surveys carried out by Ferreira and Glock (2004) in Rio Grande do Sul, Pereira and Brito (2005) in Pernambuco, Costa (2005) and Fernandes-Ferreira *et al.* (2012) in Ceará, and Alves *et al.* (2010) in Paraíba. Most of the species recorded at Caxias street market during the study under discussion were described during a survey at the market in 1985 (Carvalho, 1985), although a greater range of species was available at this location at that time. The fact that fewer species are available now could be attributed to hunting and illegal trade of species that has led to local or regional extinctions (Olmos *et al.*, 2005; Alves *et al.*, 2010) or to the development and enforcement of environmental laws in the country, leading to the greater risk of detection.

Although most of the confiscated species have a widespread distribution in Brazil, some, such as Red-cowled Cardinal, Lined Seedeater *Sporophila lineola* and Black-and-white Seedeater *Sporophila luctuosa*, are exotic to the Rio de Janeiro ecosystem. The presence in the city of Red-cowled Cardinal, which is endemic to some areas of north-east Brazil, could provide some insight into where specimens are being captured and their subsequent route into Rio de Janeiro.

The risk of the spread of infectious diseases as a result of the increased contact amongst different species involved in the wildlife trade industry (Karesh *et al.*, 2005) and the irresponsible or accidental release of alien species, which can have serious ecological consequences, including the introduction of diseases (Efe *et al.*, 2006; Alves *et al.*, 2010; Fernandes-Ferreira *et al.*, 2012), must be guarded against. Established populations of Red-cowled Cardinals have

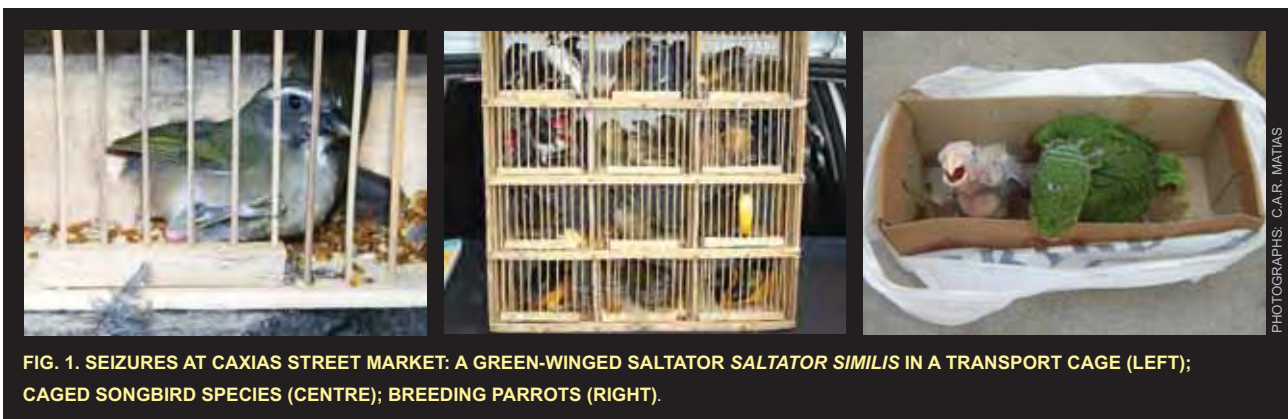


FIG. 1. SEIZURES AT CAXIAS STREET MARKET: A GREEN-WINGED SALTATOR *SALTATOR SIMILIS* IN A TRANSPORT CAGE (LEFT); CAGED SONGBIRD SPECIES (CENTRE); BREEDING PARROTS (RIGHT).

been described in south-eastern Brazil, but are probably specimens that have escaped from captivity (Sick, 1997).

Although there are some estimates of how much Brazil has contributed to the trafficking of wildlife in economic values—around one to two billion dollars annually (Lima, 2007)—it is difficult to quantify the price of transactions involving animals. Those destined for foreign markets fetch higher prices. For example, a Toco Toucan *Ramphastos toco*, Chopi Blackbird *Gnorimopsar chopi* and Green-headed Tanager *Tangara seledon* in the international market are priced, respectively, at USD2000, USD2500 and USD1000 (RENTAS, 2001). Factors including the quality of singing, the sex (males are more valued), how long the bird has been domesticated, and if a species is rare or difficult to capture, can raise the price of the specimen (Fernandes-Ferreira *et al.*, 2012). In the street markets, however, specimens are sold at cheap prices. Considering the value of the fines established by *Federal Decree N° (6.514) of the year 2008*—USD250 for each animal and USD2500 for each endangered specimen apprehended would need to be paid. However, society has to question whether it is possible to quantify the value of a wild animal; the resulting loss of biodiversity when it is removed from its habitat is difficult to measure (Heemann and Heemann, 2003).

Long-term actions involving tactical intelligence and research associated with monitoring market places are becoming increasingly urgent in order to break the chain of wild animal trafficking, the organization of which should not be underestimated. As a result, more valuable species in illegal trade could be apprehended, such as parrots and toucans, which are seldom openly on sale in the street markets.

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**Background.** This may be included, particularly on a subject with which readers may not be familiar, and will briefly cover geography and social environment of the area covered.

**Methods.** The means by which data for the study were gathered, number of researchers, the duration of research, and study areas, must be clearly stated.

**Distribution and Status.** Information relating to a description of the species under discussion.

**Legislation.** A concise account of legislation/trade controls which may affect trade involving the subject under discussion should be included.

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