

VOL. 26 NO. 1

1

TRAFFIC

B U L L E T I N

APRIL 2014

BALI'S TRADE IN WILDLIFE
TIGER TRADE ONLINE
SUN BEARS IN MALAYSIA

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.



ANTON VORAUER / 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 strategic alliance 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 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), 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.



CAT HOLLOWAY / 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).



NATUREP.L.COM / GEORGETTE DOUWMA / WWF-CANON



R. ISOTTI, A. CAMBONE-HOMO AMBIENS / WWF-CANON

The *TRAFFIC Bulletin* is a publication of TRAFFIC, the wildlife trade monitoring network, which is the leading non-governmental organization working globally on trade in wild animals and plants in the context of both biodiversity conservation and sustainable development. TRAFFIC is a strategic alliance 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.

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

MANAGING EDITOR Steven Broad

EDITOR AND COMPILER Kim Lochen

SUBSCRIPTIONS and MAILING
Susan Vivian (E-mail: bulletin@traffic.org)

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

Any opinions expressed are those of the writers and do not necessarily reflect those of TRAFFIC, WWF or IUCN.

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

Copyright of material published in the *TRAFFIC Bulletin* is vested in TRAFFIC International © TRAFFIC International 2014. ISSN 0267-4297. UK Registered Charity No. 1076722

Cover photograph:
Chambered Nautilus, with a Paper Nautilus (left)
(© Bill Gracey, Flickr Creative Commons)

Photographs this page, from top:
Schisandra fruits (© TRAFFIC);
Ivory seizure, Malaysia
(© Elizabeth John / TRAFFIC);
Sumatran Tiger (© David Lawson / WWF-UK)

Funding for the printing and distribution of this issue of the *TRAFFIC Bulletin* is generously provided by The Rufford Foundation. Funding to print and distribute future issues is being sought. Please visit <https://mydonate.bt.com/events/bulletin> if you can help.

Printed by Portland Print,
Kettering, Northants NN16 8UN, UK.

TRAFFIC

BULLETIN

VOL. 26 NO. 1 APRIL 2014

CONTENTS

news

1

- editorial • elephants and rhinos • sustainable use of wild plants • wild meat alternatives in Ecuador • Asian Species Action Partnership • dogs detecting illegal timber • EAZA conference • branding Ploughshare Tortoises •



seizures and prosecutions

22

- A selection of seizures and prosecutions that have recently taken place around the world



short communications

26

- Tigers: exploring the threat from illegal online trade
Sarah Stoner
- Trade in wildlife in Bali, Indonesia, for medicinal and decorative purposes
Vincent Nijman and K.A.I. Nekaris
- A review of the Sun Bear trade in Sarawak, Malaysia
Kanitha Krishnasamy and Chris R. Shepherd



Index Vol. 25: i-iv

There is little doubt that the past few years have seen unprecedented levels of poaching and illegal trade in many species. Over 1000 rhinoceroses were illegally killed during 2013 in South Africa alone, the equivalent of nearly three animals a day, making it the worst year on record for rhinoceros poaching in the country. In 23 years of compiling ivory seizures data

EDITORIAL

for the Elephant Trade Information System (ETIS), 2011 was the worst year ever for large-scale (>500 kg) ivory seizures, with some 21 incidents involving a total of more than 34 t of ivory. Preliminary figures for 2013 already represent a 20% increase over the previous peak in 2011, with some 18 large-scale seizures totalling more than 41 t.

One of the factors leading to these unprecedented figures is the increased involvement of organized criminal networks in illegal wildlife trade. Wildlife criminals are now better organized, better equipped and exploiting extensive trading links and networks that span Africa and Asia.

In view of these fast-changing trends and the impact they are having, it is no surprise that illegal wildlife trade has received previously unseen international attention at the highest political levels over the past year. In 2013, the issue was discussed at the United Nations General Assembly and at regional political fora such as the Africa Security Summit, APEC Leaders Meeting and the European Parliament. World leaders—from President Ali Bongo of Gabon and President Jakaya Kikwete of Tanzania, to US President Barack Obama and United Nations Secretary-General Ban Ki-moon—were for the first time publicly speaking out about the implications of wildlife trafficking. More importantly, they linked wildlife crime to wider issues of concern such as national security, rule of law and socio-economic development, and all echoed the urgent need for a global response to this threat.

The London Conference on the Illegal Wildlife Trade 2014, that was held on 12–13 February was perhaps exactly the global response that was needed and the culmination of over a year of high-level political attention and commitments on the issue. Initiated by His Royal Highness, the Prince of Wales, and the Duke of Cambridge, the Conference was organized by the UK Government, its aim to inject a new level of political momentum into efforts to combat the growing global threat posed by illegal wildlife trade, with a focus on rhinoceroses, elephants and Tigers. There is little doubt that this was achieved, with participants including the heads of government from Botswana, Chad, Gabon and Tanzania, foreign ministers from seven countries, environment and other ministers from 19 countries, and other senior officials.

The meeting concluded with the London Declaration that was adopted by acclamation by 41 countries, plus the European Union. This 12-page document sets out a clear, detailed and ambitious international plan to fight wildlife crime, with specific objectives and tangible actions to eradicate the market for illegal wildlife products; strengthen law enforcement efforts and ensure effective legal frameworks and deterrents are in place; and promote sustainable livelihoods through positive engagement with local communities. New resources to tackle illegal wildlife trade were also discussed during the Conference and donors urged to provide resources, support and technical assistance for implementing the Declaration commitments. Global Environment Facility (GEF) CEO and Chairperson Naoko Ishii announced that the GEF has redesigned its funding strategy for the next four years to step up its support to stamp out illegal wildlife trafficking. Individual countries also announced crucial new funding and resources to support effective implementation of the Conference commitments.

The Conference also reaffirmed high-level political support for the effective implementation of prior commitments made in the past year, such as the Urgent Measures agreed to at the IUCN African Elephant Summit and the elephant and rhinoceros Decisions adopted at the 16th meeting of the Conference of the Parties to CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora).

While all these represent huge steps forward in the international fight against wildlife crime, the Conference was not without its disappointments. Missing from the list of countries pledging their support for the London Declaration were key nations implicated in the surge in rhinoceros poaching and the illegal ivory trade—South Africa and Thailand. The engagement and support of these countries is absolutely essential for the successful implementation of the Conference commitments.

Ultimately, the real success of the London Conference can only be demonstrated with positive conservation action on the ground in the key source, transit and consumer countries concerned. While the high level of political attention to illegal wildlife trade and unanimous international call for action is unprecedented, the challenge now is to keep up the pressure and help translate this attention into tangible action at the national level.

Hopefully, by the time of the follow-up conference in Botswana in 2015, the London Conference will perhaps be viewed as a key turning point in the war against wildlife crime and the point at which the tide of unrelenting poaching of elephants, rhinoceroses and Tigers finally turned.

Sabri Zain, Director of Policy, TRAFFIC

PAULINUS NGEH was appointed Regional Director of TRAFFIC's Central Africa office on 1 April 2014, and will be based in Yaoundé, Cameroon. He joins TRAFFIC after 14 years as Regional Director for West Africa with BirdLife International. STÉPHANE RINGUET, current Regional Director—Central Africa, managing the position from France, will hand over the role to Paulinus after a transition phase.



bulletin board

JOSÉ NUÑEZ-MIÑO, who has been leading on TRAFFIC's development and implementation of the Europe component of the South America Forest Law Enforcement, Governance and Trade (FLEGT) project and in promoting the use of a timber legality framework, left TRAFFIC in January 2013.

KHALID PASHA, with some six years' experience working with the TRAFFIC office in India—including a period as Acting Head of that office—left in October 2013. Khalid's energy and innovation was instrumental to TRAFFIC's work in India on combating Tiger trade as well as projects on medicinal plant trade. He has joined WWF's Tigers Alive Initiative core team, as manager of the Conservation Assured Tiger Standards (CATS) stream of work.

CYNTHIA RATSIMBAZAFY has been appointed as a Senior Project Officer—East/Southern Africa and will be based in Madagascar, where she will focus on timber and reptile trade.

NISHA DEVI SABANAYAGAM has been appointed South-east Asia's Malaysia Programme Management, Development and Evaluation Manager, having previously worked with WWF-Malaysia and the WWF Tigers Alive Initiative.

PANJIT TANSOM, Programme Officer, has left after five years with TRAFFIC in South-east Asia, based in Bangkok, Thailand. In addition to playing a key role in TRAFFIC's work in Thailand, Panjit made significant contributions to supporting the Program Coordination Unit of the ASEAN Wildlife Enforcement Network (ASEAN-WEN).

XU LING, Senior Programme Officer, left TRAFFIC in February 2014 after a period of eight years working in the China office. Ling's tireless research efforts were an essential pillar of TRAFFIC's work on trade in products derived from Tiger, elephant, marine turtles and other endangered fauna species, and her efforts to build partnerships with relevant government and private sector partners have created the foundation for future conservation success in China.

MONICA ZAVAGLI has been appointed to help implement *Wildlife Trafficking, Response, Assessment, Priority Setting (Wildlife-TRAPS)*, an initiative monitoring trade in selected species traded between Africa and Asia. Monica is based in Bangkok, Thailand.

traffic websites

www.traffic.org (English); www.wwf.ru/traffic (Russian)
www.trafficchina.org (Chinese); www.wow.org.tw (Chinese)
www.trafficj.org (Japanese).

The *TRAFFIC Bulletin* is available on www.traffic.org



www.facebook.com/trafficnetwork



www.youtube.com/trafficnetwork



@TRAFFIC_WLTrade

DONATIONS TO TRAFFIC

A brief note of thanks to all the organizations and individuals who have contributed so generously towards production of this issue of the *TRAFFIC Bulletin*. Your support makes it possible for us to provide copies of the *Bulletin* free of charge to subscribers around the world who might otherwise be unable to pay for a subscription.

In the forthcoming issue of the *TRAFFIC Bulletin*, we will be publishing a full list of donors who are happy to be recognized and in the meantime wish to acknowledge the following for their generous contributions:

The Rufford Foundation; Council of Agriculture, Taiwan; Cleveland Metroparks Zoo, USA; Esmond Martin; Red Dog Films; The North of England Zoological Society/Chester Zoo

We also want to thank our partners, WWF and IUCN, and the many other individuals, foundations, government agencies and companies whose support makes TRAFFIC's work possible. Together we can make sure that wildlife trade is not a threat to the conservation of nature.

IRAQ JOINS CITES

Iraq acceded to CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) on 5 February 2014.

The Convention will enter into force for Iraq on 6 May 2014, when it becomes the 180th Party to the Convention.

CITES Secretariat: www.cites.org/eng/news/party/20140221_iraq.php

On 9 April 2014, Belgium became the latest country

to destroy its ivory stockpiles; similar action was taken by Chad on 21 February 2014, and a week earlier France destroyed some three tonnes of its stockpile of ivory; other recent public ivory destruction events have taken place in Gabon, the Philippines, the USA, and China.

Hong Kong and Tanzania have also expressed their intention to destroy their ivory stockpiles.

According to Tom Milliken, TRAFFIC's Elephant and Rhino Programme Leader, "beyond influencing local consumers, however, the jury is still out on what effect destruction events like this have on the dynamics of illegal ivory trade".

At the recent Conference on Illegal Wildlife Trade in London (see page 1), Viet Nam's Prime Minister, Nguyen Tan Dung, made a commitment to halt illegal wildlife trade in Viet Nam; he has subsequently issued a top-level Directive to his line ministries prioritizing enforcement at all levels to combat poaching and trafficking of African Elephant ivory and rhinoceros horn.

POACHING COULD WIPE OUT A FIFTH OF AFRICA'S ELEPHANTS OVER NEXT DECADE

The latest analysis of poaching data estimates that in 2012 some 15 000 elephants were illegally killed at 42 sites across 27 African countries participating in MIKE (Monitoring the Illegal Killing of Elephants), a programme co-ordinated by CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora). According to the MIKE analysis, this amounts to an estimated 22 000 elephants illegally killed continent-wide in 2012, a slight reduction on the estimated 25 000 elephants poached in 2011.

These figures are likely to be conservative: results of an extensive wildlife census commissioned by the Tanzanian Government carried out in October 2013 in the country's Selous Game Reserve and its surrounding ecosystem, show an estimated 67% of elephants have been lost there in just four years, according to a report compiled by the Frankfurt Zoological Society. Where some 100 000 elephants roamed in the 1970s, numbers have fallen from an estimated 39 000 in 2009 to 13 084 elephants in 2013.

TRAFFIC; <http://www.zgf.de/?id=72&reportId=117&language=en>

2013 WORST YEAR ON RECORD FOR RHINO POACHING IN SOUTH AFRICA

For 16 years, between 1990 and 2005, rhinoceros poaching losses in South Africa averaged 14 animals each year. In 2013 alone, some 1004 were killed and already this year some 277 have been poached to date (9 April). Kruger National Park remains the hardest hit, with 166 animals poached so far during 2014. South Africa has the best conservation record for rhinoceroses, but a unique set of circumstances—unscrupulous wildlife criminals, some corrupt wildlife officials, and hardened Asian criminal syndicates—lies behind the devastating number poached in the country over recent years. Key to addressing this challenge is the need to work closely with local communities to ensure their long-term income and benefits, in addition to changing the consumption behaviour of targeted consumer groups. According to Roland Melisch, TRAFFIC's Senior Programme Director for Africa and Europe, "the three essential elements needed to fight this crisis are: ramping up anti-poaching measures, shutting down illegal trade routes using state-of-the-art technology along the whole trade chain, and supporting efforts to reduce the demand for illegal African wildlife in Asia." Criminals are deploying advanced technologies to carry out their activities, from use of night vision scopes, silenced weapons, to darting equipment and helicopters. Such organized smuggling syndicates can only be fought by deploying cutting-edge forensic technologies, and by building the capacity of African and Asian law enforcement officers in the use of such modern technology—adapted to the needs on a country-by-country basis. Furthermore, it is imperative that governmental efforts to bring about behavioural change to reduce consumption for illegal wildlife products in Asia are strongly supported, and greater effort made to understand the underlying factors influencing consumer behaviour.

Milliken, T. and Shaw, J. (2013). *The South Africa—Viet Nam Rhino Horn Trade Nexus: A deadly combination of institutional lapses, corrupt wildlife industry professionals and Asian crime syndicates*. TRAFFIC report: [traffic_species_mammals66.pdf](http://species.mammals66.pdf); www.environment.gov.za/mediarelease/rhinopoachingupdate_14march2014; https://www.environment.gov.za/mediarelease/molewa_mou_biodiversityconservationandmanagement; TRAFFIC





UMESH HIREMATH / AERF

MEDICINAL AND AROMATIC PLANTS: CONSERVING BIODIVERSITY AND SUSTAINING LIVELIHOODS IN THE NORTH-WESTERN GHATS, INDIA, AND IN NORTH VIET NAM

TRAFFIC-led projects on the sustainable harvesting of wild medicinal and aromatic plants (MAPs) and implementation of the FairWild Standard are currently under way in a number of countries. One of these is being implemented by the Applied Environmental Research Foundation (AERF), and concerns two kinds of fruit growing in the North-Western Ghats region of India. Another project, in co-operation with the Bac Kan, Provincial Forest Protection Department (BK FPD), focuses on the sustainable wild collection of a range of plant species in northern Viet Nam's Nam Xuan Lac Species and Habitat Conservation Area, Cho Don District, Bac Kan Province. The following three pages report on the progress of the work being carried out in these areas.

Funding for TRAFFIC's work on these projects was provided by Keidanren Nature Conservation Fund (KNCF).

◀ AERF team carrying out field work in Ratnagiri, Maharashtra, Western Ghats, India.



JAYANT SARNAIK / AERF

INDIA: two sites were identified in the heavily deforested region of the North-Western Ghats for possible implementation of the FairWild Standard in respect of *Terminalia bellirica* and *T. chebula* (pictured).



NGUYEN THI MAI / TRAFFIC

VIET NAM: activities focused on the sustainable wild collection of *Alpinia latilabris* (pictured), *A. malaccensis* and *A. menghainensis*, and *Amomum villosum* and *A. xanthioides* in the first phase of a project in Bac Kan province.

► MEDICINAL AND AROMATIC PLANTS: NORTH-WESTERN GHATS, INDIA, PROJECT

Conservation of biodiversity in a human-dominated landscape has always depended on the extent to which particular values—cultural, spiritual and/or economic—are respected. In India, rapid economic development and the forces of globalization have led to a severe deterioration in cultural values associated with natural resources, their being substituted with monetary ones. This has led to unsustainable exploitation, posing serious threats to the stability of ecologically important habitats such as the forest ecosystems of the Western Ghats. There is, however, an opportunity to enhance biodiversity conservation through the careful use of economic instruments. The medicinal plants sector, though highly promising in terms of combining economic development and biodiversity conservation, has seldom delivered on these expectations. Unfair market practices and a disregard for resource sustainability are some key reasons behind this failure, as evidenced by local extinctions and declines in healthy populations of many economically important medicinal plants. Good management practices that are ethical, inclusive and economically viable may provide a truly sustainable alternative for biodiversity conservation and livelihoods. The principles and criteria of the FairWild Standard and its associated certification system have the potential to make forest conservation economically viable.

This report describes a project being implemented in the North-Western Ghats of India where FairWild certification is being tested as a vehicle for promoting biodiversity conservation and economic growth, through the sustainable collection of target species. In the North-Western Ghats, a global biodiversity hotspot, the majority of the forest landscape is privately owned and therefore unprotected: according to figures available from the Government of Maharashtra, in three districts alone—Raigad, Ratnagiri and Sindhudurg—about 6000 km² of forests are owned and managed privately. The average forest cover in these districts is 48% of the geographical area. In the absence of sound biodiversity management practices on these lands, subsidy-driven monoculture plantations, together with a lack of knowledge about economically viable sustainable alternatives, is resulting in large-scale deforestation.

The Applied Environmental Research Foundation (AERF), a conservation non-governmental organization (NGO) based in Pune and the implementing partner for the FairWild project, started an initiative—Myforest (Myforest.co.in)—in 2007 to address the problem of deforestation in this region. Under this programme, AERF offered a financial incentive to the marginal and economically weak farmers to encourage them not to log the forests, signing conservation agreements with them, which last for between five and 10 years. The progress of this approach was initially slow as this was a completely new way of looking at forests. However more farmers joined this initiative once they started to

think about resources in a holistic way. Through this initiative, AERF has secured protection for 2000 acres of forests up until 2022. Though this is a significant step forward in arresting deforestation, it is now necessary to create a revenue model based on sustainable use of this vast resource in order to create financial self-sufficiency necessary to sustain this conservation initiative. About three years ago, AERF became aware of the potential of FairWild certification in addressing some important sustainability issues of biodiversity conservation. In 2010, AERF, together with the University of Kent, supported by a Darwin Initiative Scoping Grant, carried out a feasibility study for this project in the North-Western Ghats region. The motivation for the study was provided by the active involvement in the initial phase of Pukka Herbs—a European manufacturer of herbal teas and medicinal health products, whose interest in purchasing organic and FairWild-certified primary processed fruits of *Terminalia bellirica* and *T. chebula* helped AERF to shortlist two sites for possible implementation of the FairWild certification. The first of these—the Bhimashankar Wildlife Sanctuary in the North-Western Ghats—is traditionally known for the collection and sale of *T. chebula* by the tribal community *Mahadev Koli*. The second site—the forested areas located in Sangameshwar, in Ratnagiri district—is rich in populations of *T. bellirica* trees. The fruits of these trees have proven anti-inflammatory and anti-viral properties and are used in “triphalā”, said to be one of the most central products consumed as part of Ayurvedic practice.

After assessing the potential benefits to conservation and rural livelihoods in these areas, AERF carried out some initial work towards FairWild certification using existing funds. However in June 2013 AERF, in partnership with the Durrell Institute of Conservation and Ecology at the University of Kent, and Pukka Herbs Ltd., secured financial support from the UK Government’s Darwin Initiative, followed by a grant from the Keidanren Nature Conservation Fund (KNCF), jointly with TRAFFIC, to promote the FairWild approach. These funds have enabled the implementation of this programme to gather pace. In the last six months, AERF has conducted capacity-building sessions for the local communities, carried out a situation analysis, as well as a trial collection and primary processing of the collected fruits. A few of these activities had to be repeated in order to meet the requirements for organic certification. The final selection of beneficiaries has been completed and the project is set to receive its first audit in the coming year.

The project has achieved two significant outcomes benefiting both conservation and the communities. The study carried out by the AERF research team in 2011 identified that, out of 33 nesting sites of the Malabar Pied Hornbill *Anthracoceros coronatus* and the Great Hornbill *Buceros bicornis* in the Sangameshwar block, 23 were found in *Terminalia bellirica* trees. There is therefore strong incentive not to cut down the trees if the fruit can earn communities a decent income which, in turn, sustains the conservation of hornbills. As for the impact on communities, the *Mahadev Koli* tribal people of Bhimashankar Wildlife Sanctuary, who for centuries



JAYANT SARNAIK / AERF

Clockwise, from top: *Terminalia bellirica* (with Great Hornbill *Buceros bicornis*, centre), Sangameshwar; ripened fruits of *T. chebula*; first author, front row, third from left, with community members from Dhagewadi village, Bhimashankar Wildlife Sanctuary in the North-Western Ghats.

have engaged in the collection and local sale of *Terminalia chebula* fruits, have now understood the potential and scale of the mainstream economy based on the processing of these fruits, and will soon have the capacity to do so. Hitherto, a lack of sufficient incentive and the requirement for documentary evidence of ownership of the resource has meant that they also have been deprived of the economic opportunities available in the domestic market. However, the intensive capacity-building sessions, coupled with documentary requirements of FairWild and organic certification, is helping these communities put their land records straight and officially claim ownership of the trees on their land. This is an extraordinary

outcome, which provides a fine example of stakeholder groups—communities, NGOs, the private sector and academic institutions—coming together for a single cause, and using a combination of good practices and economic incentives to precipitate biodiversity conservation and sustainable livelihoods. Such consensus augurs well for such initiatives achieving successful outcomes over the longer term, both for the local communities in these selected sites in the North-Western Ghats and the rich biodiversity they harbour.

Jayant Sarnaik and Umesh Hiremath, Applied Environmental Research Foundation

E-mail: jayantsarnaik@aerfindia.org



BHARAT DALVI / AERF



K. KANARI

► MEDICINAL AND AROMATIC PLANTS: VIET NAM PROJECT

Since mid-2011, TRAFFIC has been co-operating with the Bac Kan, Provincial Forest Protection Department (BK FPD) to implement activities focused on the sustainable wild collection of medicinal and aromatic plants (MAPs) in northern Viet Nam by applying FairWild Standard principles. The FairWild Standard incorporates principles of ecological and social responsibility and provides a fair and value-added management and trading system for wild-collected natural ingredients.

The current project activities, made possible through funding provided by the Keidanren Nature Conservation Fund (KNCF), focus on MAP species recognized as being threatened by overexploitation driven by commercial demand and limited knowledge of sustainable harvesting practices. Activities implemented in Bac Kan in the first two years were made possible through funding to TRAFFIC from the Critical Ecosystem Partnership Fund (CEPF) and aimed at strengthening the capacity of the local collectors and authority's capacity to protect threatened MAPs in Nam Xuan Lac Species and Habitat Conservation Areas (NXL SHCA). This protected area was officially established in 2011 according to a provincial decision although, since 2003, with the support of the PARC (Creating Protected Areas for Resource Conservation using Landscape Ecology) project, this site has been operating with a trial management structure, which aims to introduce in NXL SHCA a co-management approach to conserve biodiversity, particularly flagship species. A series of trainings, meetings and consultations were conducted for local collectors and stakeholders to increase their understanding of the role MAPs play in the ecosystem and collectors' livelihoods, current threats to MAP populations, wild plant resource management, harvest monitoring, sustainable collection and value adding processing techniques, and to assist them with connections to stable

markets for their MAP products. The additional funding provided by KNCF has provided an opportunity for TRAFFIC to strengthen market linkages for communities (from collectors to the end-users) with the objective of increasing the income of local collectors and achieving fairer trade along the trade chain.

The approach used for plant selection and project implementation has been to engage project partners from the local communities—specifically ethnic minority groups and partners—to solve issues of economic and health security in their own communities. The consultative approach is key to implementing the principles of the FairWild Standard. Two species groups were selected for the first phase of the project (*Alpinia latilabris*, *A. malaccensis* and *A. menghainensis*, and *Amomum villosum* and *A. xanthioides*) and an additional five target species are being considered for the second phase under KNCF funding (*Stemona tuberosa*, *Cibotium barometz*, *Homalomena oculata*, *Ampelopsis cantoniensis* and *Gynostemma pentaphyllum*).

The main aim of the activities funded by KNCF is to build on the dialogue between the different trade chain actors. The intermediaries and several domestic pharmaceutical companies have already expressed their interest in the sustainably

collected wild MAP products supported by the project. They have indicated that they believe the benefits from the trade chain would be shared more fairly for all if stakeholders can reach a commitment to a benefit-sharing mechanism and local collectors apply the FairWild Standard principles. Additionally, this second phase of the work has “pushed” local authorities towards a leading role as implementers and managers of the activities, shifting TRAFFIC’s role towards providing financial and technical support until links can be facilitated between local communities and other stakeholders to ensure appropriate regulation and MAP species management.

Numerous challenges have been encountered during project implementation. The first of these challenges has been to overcome the initial limited commitment from the local collectors regarding sustainable harvesting practices. The collectors are understandably often concerned more about increased income and stability than conservation and the benefits of sustainable harvesting. It is also often difficult to reconcile the benefits and interests of different stakeholders. The project is trying to distribute the profit fairly along the trade chain but different components of this chain have different objectives. Traders and pharmaceutical companies want to

promote the wild-collected products to increase their profits, while local collectors are focused on collecting as much of the required product as possible to provide for their families. It has also been a challenge to find appropriate methods to promote the wild-collected products in domestic and regional markets. Once harvested, it is often impossible to distinguish wild-collected from cultivated products so it can be difficult to persuade customers to pay more for products derived from wild-collected plants and there is little domestic demand for certified products, such as FairWild.

While it will take more time to help local communities and authorities to be able to manage MAP species independently and sustainably, and to improve their livelihoods and protect the ecosystem vital to these species, pharmaceutical companies and stakeholders have expressed an interest in this work and an initial commitment to working towards fairer trade. By demonstrating the economic value of sustainable natural resource use, TRAFFIC hopes to reduce the current ecological degradation of the NXL SHCA and ensure the future conservation of the species it supports.

Nguyen Thi Mai,
Forest Trade Officer, TRAFFIC
E-mail: mai.nguyen@traffic.org

▼ Training was provided to collectors in Xuan Lac Commune to help them identify which species they are allowed to harvest and which are under threat and need to be protected.



NGUYEN THI MAI / TRAFFIC



NGUYEN THI MAI / TRAFFIC

▲ A Tay woman from Ban Tun village, Xuan Lac Commune, after harvesting fruits of *Amomum villosum* and *A. xanthioides*.



WALKER VIZCARRA / TRAFFIC / BIOCAN



WALKER VIZCARRA / TRAFFIC / BIOCAN



WALKER VIZCARRA / TRAFFIC / BIOCAN

CHOCOLATE, CHAMBIRA AND CHUNCHO—ECONOMIC ALTERNATIVES TO WILD MEAT

Cocoa harvesting and other sustainable initiatives provide conservation incentives for the Waorani communities in the Ecuadorian Amazon

Heavy hunting pressure to supply up to 10 tonnes of wild meat every year to Ecuador's largest wild meat market in Pompeya has led to the rapid depletion of all the large animal populations found in the nearby Yasuní Biosphere Reserve, a region consisting of more than two million hectares of rainforest in the Ecuadorian Amazon, with one of the highest levels of biodiversity in the world. Such exploitation places at risk the food security and livelihoods of the local 3000-strong Waorani people, an indigenous group living within the Reserve, who are committed to making efforts to conserve their resources, culture and way of life. Conservation of the region's dwindling resources is therefore of the utmost urgency.

To this end, the project "*Strengthening Biodiversity Conservation and Management in Waorani Territory: creating sustainable economic alternatives for diminishing wildlife trade*" was initiated by TRAFFIC and the Association of Waorani Women of Ecuador (AMWAE) in 2010 that aimed to identify economic alternatives that would replace incomes generated from

the sale of increasingly overexploited wild meat resources and maintain the variety of wild animals and plants that live in this region. TRAFFIC worked with some nine Waorani communities to devise strategies that would have multiple positive environmental and social impacts, not only to improve livelihoods and enhance food security, but also to promote sustainable use, empower women, offer job/income opportunities and increase territorial stewardship and economic integration.

Following lengthy consultations, a range of economic alternatives was identified; one of these was the planting of cocoa trees to produce ingredients for top quality chocolate, which would not only provide a sustainable source of income but also raise the social profile of the Waorani; furthermore, it could also serve as a model for the production of other non-timber forest products (NTFPs)—for example, Ungurahua *Oenocarpus batua* oil (used as a hair tonic and treatment for scalp conditions) and wild honey.

Wao (short for Waorani) chocolate is the resulting product of a unique partnership between the Waorani, TRAFFIC, and BIOS, a well-known and prestigious

¹financed by the Spanish Agency for International Cooperation (2010–2012), the Andean Community through its BIOCAN Programme (2012–2013), and the Flemish Funds and BOS + (2012–2014) through their "Flemish Funds for Tropical Forests".

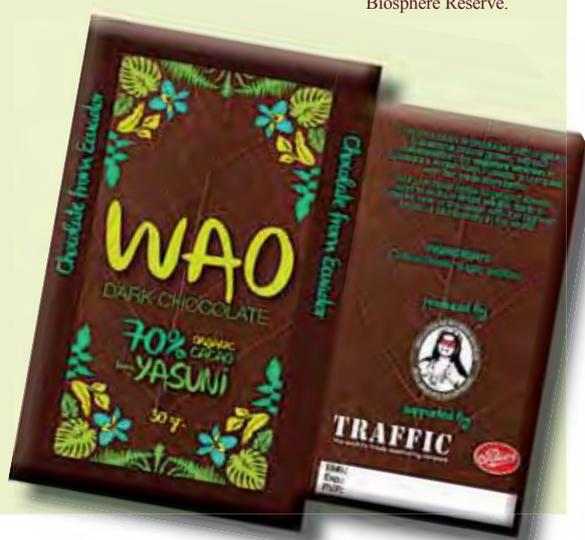
CHOCOLATE GROWING GUIDELINES

The Waorani communities taking part in the scheme use the following guidelines:

- Trees are only planted in areas that were previously cleared—thus production of the chocolate does not contribute to any deforestation.
- Planting trees does not replace or eliminate essential food crops for householders.
- Only the highest quality “cacao fino de aroma” varieties are used.
- All plantations are 100% organically cultivated (Certification with ECOCERT is in progress).
- It complies with the principles of fair trading, with the Waorani women receiving a fair price for their product. (FairTrade recognition is being sought).
- Families monitor their own household hunting pressure, so that wild resources in the area do not become depleted.
- The processing of the cacao beans into chocolate takes place in Ecuador, so that the Waorani can easily access the final product for direct sales locally.

◀ Clockwise, from left: a Waorani woman at work in the “chuncho” (*Cedrelinga catenaeformis*) nursery; cocoa expert, Manuel Zavala, sharing scientific and traditional knowledge among the Waorani community of Tepapade; a Waorani woman preparing “chambira” palm leaves of *Astrocaryum chambira* to make baskets, hammocks and handicrafts to sell to tourists.

▼ Wao chocolate produced by Waorani women in Yasuni Biosphere Reserve.



Ecuadorian chocolate company. As a direct result of this initiative, now in its fifth year, the Waorani have ceased the commercial hunting of wild animals and the wild meat market in Pompeya no longer exists. In Francisco de Orellana (El Coca), the main city in the region, “Yasuni friendly” menus without wild meat options are commonly seen in local restaurants thanks to the concerted efforts of provincial and municipal authorities.

With the assistance of expertise provided by cocoa expert Manuel Zavala, the Waorani have learned how to cultivate, nurture, and process the cocoa beans. As the initial purpose of planting cocoa trees was to sell cocoa beans above the market price to replace and supersede income from the sale of wild meat, the decision to produce the Wao chocolate in Ecuador has been a radical and challenging step but one that has created a unique precedent: an indigenous community that is evolving from being a supplier of raw materials, to being engaged in the manufacture and retail of high-value end products, boosting the prestige, self-esteem and income of community members. With local acceptance high, the ambition is to export the chocolate products. The project thus provides an innovative model of linking chocolate production to conservation, supporting the development of a niche international market for biodiversity-friendly chocolate. This product’s credentials go much further than those for most organic and fair-trade chocolate that is already available on the market, in that they are linked to the tangible conservation of threatened wildlife resources in a part of the world where biodiversity conservation and zero-deforestation is of top priority. In addition to this example of cacao cultivation from the Yasuni Biosphere Reserve, there are also possibilities in the region for sustainable production from wild crops. In Bolivia, a co-operative experimented with FairWild certification of wild cacao for production following the principles of sustainable and fair trade in wild plant ingredients. Opportunities to make connections with other relevant projects such as these are being sought.

In Yasuni Biosphere Reserve, TRAFFIC has also helped support interventions to improve the sustainable harvesting of “chambira” *Astrocaryum chambira* palm leaves, a plant traditionally used by Waorani women to make baskets, hammocks and handicrafts to sell to tourists. Guidance follows the FairWild principles of fair and sustainable wild resource management, resulting in joint work between members of the community, scientists and non-governmental organizations to develop a management plan, carry out a resource assessment and prepare training materials. The lessons are still being learned as the process matures and the results become apparent.

Nurseries growing “chuncho” or “tornillo” *Cedrelinga catenaeformis*, a valuable native timber species, are also being created to sell saplings to local government agencies, oil companies and farmers for reforestation projects. “Chuncho” has a higher than average capacity to absorb and store carbon from the atmosphere, making it a powerful ally in the battle against global warming.

The Waorani have further diversified their income and reduced hunting pressure on wild mammals by introducing fish farming into some communities as a complementary source of protein (especially the native Pacu *Piaractus brachypomus*), and to strengthen food security.

- ▶ A view of the Waorani territory in the Yasuní Biosphere Reserve.

The Waorani people own approximately 800 000 hectares of tropical forests in the Amazonian region of Ecuador.

- ▼ Waorani children (bottom left); woman preparing “guanta”, or Lowland Paca *Cuniculus paca*, a much prized local delicacy, but an animal under pressure from illegal hunting (bottom right).



ANA PUYOL / TRAFFIC

This package of economic practices has served to reduce the unsustainable use of resources while preserving and reinforcing the identity of an indigenous group and its cultural values, which too often in the region have been eroded or lost. In South America, traditional approaches for regulating the wild meat trade have been dominated by interventions which prioritize enforcement and control systems. The innovative initiatives described here, which are directly benefiting some 660 Waorani people, demonstrate that, in the context of such high biodiversity, poverty and lack of institutional capacity to deal with illegality, implementing innovative sustainable economic alternatives, while simultaneously developing enforcement strategies, is the most viable way to reduce illegal wildlife trade and address resource depletion. Further, one of the key achievements of the project has been the empowerment and participation of the Waorani women in important decision-making processes such that they now command strong and prestigious roles which has been critical in revitalizing these communities.

Enforcement solutions in the region have been failing for decades and yet, in just over two years, a strategy has been devised that has resulted in the closure of Ecuador's principal meat market and the establishment of alternative economic solutions that will help drive the Waorani's future in a sustainable direction. Many challenges remain and significant support is needed to establish the optimal conditions necessary to consolidate and sustain this positive momentum. However, it is a strategy with potential for myriad benefits, both in the Amazon and elsewhere.

Bernardo Ortiz von Halle, Regional Director—South America, TRAFFIC

E-mail: bernardo.ortiz@traffic.org

Ana Puyol, Programme Officer, TRAFFIC; E-mail: ana.puyol@traffic.org



NICOLAS KINGMAN / TRAFFIC



NICOLAS KINGMAN / TRAFFIC

Greening traditional Chinese medicine industry supply chains in China

China, the origin of and biggest centre of production for many medicinal and aromatic plant materials used in traditional Chinese medicine (TCM), produces a wide variety of plant-based herbal medicines and ingredients that are consumed both within China and worldwide. However, wild TCM plant resources in China, as in other parts of the world, are under threat, with populations declining across the country, in large part owing to over-harvesting to meet high demand from the TCM and herbal products industry.

In response to this global problem, TRAFFIC, WWF, IUCN, the German Federal Agency for Nature Conservation (BfN) and others developed the FairWild Standard, which provides guidance on sustainable and equitable sourcing of wild plant products. The Standard and guidance tools are now being used by industry to improve product sourcing guidelines, by governments to design harvest and trade controls, by communities in their management systems, and by intergovernmental agreements (e.g. the Convention on Biological Diversity). This article introduces a project in which the TCM industry is being encouraged to take responsibility for the sustainable use of wild plant resources by following the principles of the FairWild Standard, and aims to further the availability of market-based mechanisms such as FairWild certification, which is not currently available in China.

The project *Engaging the private sector in sustainable management of medicinal plants—the multiplier effect* is being implemented over two years (2013–2015) in China's Zhejiang and Hunan provinces. It brings together four partners: TRAFFIC, the World Federation of Chinese Medicine Societies (WFCMS), Wecome Pharmaceutical Ltd and the WWF China Programme Office, to create a mix of conservation expertise and TCM

industry practices linked to Chinese medicine societies. Supported through the European Union (EU)—China Environmental Governance Programme (EGP), the overall goal of the project (abbreviated to EGP MAPs), is to establish green supply chains among TCM stakeholders, including private sector manufacturers and traders in the two provinces to producers, in order to achieve sustainable management of medicinal plants, livelihood benefits and to contribute to improved environmental governance.

In China, sustainability principles embodied in the FairWild Standard were applied in the Upper Yangtze area through an EU-China Biodiversity Programme project, implemented from 2007–2011 by WWF, IUCN and TRAFFIC, in collaboration with government and research institutions. This project succeeded in improving the management and harvest of the berries of Southern Schisandra *Schisandra sphenanthera*. The berries are widely used in traditional medicine, and also locally in non-medicinal food and beverage products. Additional project benefits included improved protection of Giant Panda *Ailuropoda melanoleuca* habitat and the establishment of lasting trade relations between local harvesting communities and Chinese and US herbal product manufacturers to support sustainable harvesting and fair trade. The project achieved both an “Outstanding Contribution Award” from the Chinese State Ministry of Environmental Protection; EU-China Biodiversity Programme (UNDP) and, in recognition of that project and other TCM work, the Equator Prize 2012. The International Trade Union of Genuine Regional Materia Medica (TUGRMM)—a trade alliance supporting the sustainable production of wild medicinal plant species was established as another project development, providing a basis for dialogue between producer associations, the private sector, and non-governmental organizations (NGOs).

EGP MAPs was publicly launched in November 2013, and already five TCM companies have signed a sustainability commitment declaration, demonstrating their interest in moving towards greening their supply chains.



Clockwise, from top: identifying different species of Honeysuckle *Lonicera*; EGP MAPs partners and TRAFFIC staff (including authors, second and third from left) during FairWild training; Magnolia *Magnolia officinalis* bark samples.

These companies, which include both traders and manufacturers from Zhejiang and Hunan provinces, are Zhejiang Wecome Pharmaceutical Ltd, Zhejiang Shenghua Medicine Co., Hunan Songlintang TCM Co., Yunhe Zizhutang TCM Development Co., and Zhejiang Wangjing She Ethnic Medicine Co.

EGPMAPs is focusing on activities including the analysis of relevant Corporate Social Responsibility (CSR) approaches, applicable standards and certification schemes to the TCM industry, supporting manufacturers and traders in developing roadmaps for implementing sustainability measures and turning those into practice, and trainings on best practices. The project further supports the overall transparency and sustainability of TCM supply chains and activities towards the implementation of specific best practice standards in wild harvesting (principles of the FairWild Standard) and cultivation. The project partners will engage with relevant industry associations and government agencies to explore the possibility for the FairWild Standard and certification scheme's recognition in China.

The project partners and target TCM companies prioritized several medicinal plant species sourced for TCM products by target companies. These include Magnolia *Magnolia officinalis* bark, Honeysuckle *Lonicera japonica* flower buds, and Wormwood *Artemisia argyi*. The best practices for sustainable harvesting, farming and trade in TCM ingredients will be applied to the selected supply chains in Zhejiang and Hunan provinces to demonstrate their applicability and the benefits of switching towards green supply chains. One of the project areas, a sourcing location for several important TCM species, is the She Ethnic Community Township, where wild collection is carried out by local inhabitants of the She Ethnic Community.

Greening traditional Chinese medicine industry supply chains in China, continued

The experiences of separate TCM companies will be extended to the TCM industry sector in the target provinces, and more widely in China and beyond, in particular through the constituency of WFCMS. In September 2013, the EGP MAPs project was presented at the workshop of the World Congress of Chinese Medicine (WCCM) in the USA, with plans to carry out a dedicated event during the WCCM 2014 (in October 2014). A number of TCM companies from China will attend the Congress, as well as dedicated experience-exchange events within China and abroad. Project partners are facilitating the TCM sustainability CSR Forum, first carried out in February 2014 to initiate an exchange of knowledge and experience within the TCM sector and beyond on sustainability. Innovative by its topic and character, the CSR Forum brought together over 30 TCM companies, as well as government agencies, research institutes, NGOs and CSR consultancies. The wide-ranging CSR topics relevant to the TCM industry sector were narrowed down to the following: ensuring sustainable harvesting practices of wild medicinal plants; well-managed and transparent supply chains; and good manufacturing practices that focus on quality control and traceability. The second meeting of the CSR Forum is planned for the end of 2014, while the “green award” to TCM companies that demonstrate strong progress in terms of supply chain sustainability is due to be announced in early 2015.

Finally, the project supports the creation of an enabling environment for sustainable TCM industry through the dialogue between industry and government. Existing national, provincial and local policies will be analysed to identify the gaps for strengthening sustainable resources management provisions.

These efforts, together with establishment of pilot models, are aimed to support broader shifts to sustainability in the sector.

This communication has been produced with the financial assistance of the European Union. The contents of this communication are the sole responsibility of TRAFFIC and can under no circumstances be regarded as reflecting the position of the European Union.

Chenyang Li, EGP Project Manager, TRAFFIC

E-mail: chenyang.li@traffic.org

Anastasiya Timoshyna, Medicinal Plants Programme Leader, TRAFFIC. E-mail: anastasiya.timoshyna@traffic.org



Traditional and wild online suite of tools.

K. RODINA / TRAFFIC

GOING WILD IN CENTRAL EUROPE

The *Traditional and wild* project, running between 2011 and 2014 in Hungary, the Czech Republic, Slovenia and Poland, facilitates the establishment of pilot initiatives for the sustainable management of wild-collected plants and capacity-building of local inhabitants in Central Europe. TRAFFIC and WWF Hungary are engaged in the project to promote the sustainability of wild harvesting and trade through implementation of the FairWild Standard, which TRAFFIC helped develop and promotes through its partnership with the FairWild Foundation.

Over three years of implementation of the project (finalized on 30 April 2014), TRAFFIC and WWF Hungary successfully completed the major part of the project outputs, among them development of a training course on aspects of sustainable wild plant collection and FairWild, compilation of materials for further training delivered in the project pilot areas, completion of an online toolbox about wild plants, and organization of a workshop on sustainable sourcing practices in Central Europe. Moreover, the project was introduced and promoted at many European and international events.

Training and resource assessment

In 2013, the principal project activity was to implement the previously developed “*training materials on plant collection and utilization, building entrepreneurial skills, and providing employment opportunities*” by the partnership, including a training course on aspects of sustainable wild plant collection based on the principles of the FairWild Standard, prepared by TRAFFIC and WWF Hungary, to conduct training by the partners in the targeted project areas.

Training was delivered to 935 people in six areas between April and August 2013. Of these, 82 people were trained in Hungary (*Felső-Kiskunság* and *Ormánság* regions), 90 in Poland (*Podkarpackie* province), 575 in the Czech Republic (*South Moravia*) and 188 in Slovenia (*Kozjansko* and *Dravinjsko* area, and *Northern Primorska* area). The training demonstrated the importance of plants collected from the wild in Central Europe, helped trainees to improve sustainable wild plant harvesting and

processing techniques, built up the entrepreneurial and marketing skills required for improving employment opportunities and increasing income.

After participating in the training, one of the entrepreneurs from the Czech Republic decided to establish a sustainable wild plants trade business based on the knowledge received. Moreover, training and resource assessment conducted in the *Felső-Kiskunság* region contributed to the studies of the Corvinus University of Budapest. In particular, the impact of the harvesting method for Common Juniper *Juniperus communis* on the quality and quantity of the extracted essential oil was assessed during the field sessions and results were presented at the workshop described below.

Another project activity, “a workshop on sustainable sourcing practices in Central Europe”, was organized by TRAFFIC and WWF Hungary in October 2013. The workshop brought together 19 participants, including project partners, government representatives (Hungarian Ministry of Rural Development), and international organizations (Food and Agriculture Organization of the United Nations (FAO) and Association for Medicinal and Aromatic Plants of Southeast European Countries (AMAPSEEC)) to discuss the links between traditional wild plant-collection activities and resource security in Central Europe.

The workshop summarized project work on the establishment of pilot initiatives for the sustainable management of wild-collected plants and capacity-building of local inhabitants in Central Europe. One of the project partners highlighted the current development of sustainable wild plant harvesting in the buffer zone of the *Kiskunság* National Park in Hungary. Also he pointed out the commitment of local government in the village of Kunadacs to support collectors beyond completion of the project to bring them to harvesting sites in the buffer zone, and to appoint one person who will be co-ordinating collectors and harvesting activities.

The workshop contributed to better understanding of the current situation in the wild medicinal plant sector in Central Europe, follow-up ideas on future projects relating to medicinal and aromatic plants (MAPs) and highlighted the need for better uptake of the principles of the FairWild Standard in the region. Participants concluded that while the ecological sustainability of wild plant collection in the region is an important consideration, currently the main concern is over the social and economic sustainability of wild collection practices and how it impacts on the livelihoods of collectors. Addressing this issue is challenging, requiring collaboration between various government departments and including training of collectors, provision of employment opportunities and simultaneous monitoring of the ecological sustainability of wild-harvesting. In this regard, updates on wild collection activities from pilot areas of the *Traditional and wild* project in Central Europe were considered useful for sharing in the region and beyond.

Online toolbox

Another output developed by TRAFFIC and WWF Hungary is the *Traditional and wild* online toolbox, containing a wide range of resources about wild plants. The toolbox is an online suite of tools and learning resources designed to be accessible to the general public, but also to provide a learning resource for



K. RODINA / TRAFFIC

^ Workshop on sustainable sourcing practices in Central Europe, held in Budapest, Hungary, October 2013.

v Sample products are being developed, where sustainable harvesting practices following FairWild principles could be applied and traditional knowledge of local harvesters preserved. The first of these sample products includes oil extracted from the Common Walnut *Juglans regia*, which is used locally to lower blood pressure and cholesterol levels, and for wider application in cosmetic and culinary use. Another product includes a scented pillow containing Common Thyme *Thymus vulgaris*, Balm Mint *Melissa officinalis* and Chamomile *Matricaria chamomilla*, which grow in the surroundings of Trnovo Plateau in the Lokve region of Slovenia.



K. RODINA / TRAFFIC



K. RODINA / TRAFFIC

Zora Dajic Stefanovic, Chair of AMAPSEEC, speaking on the trade in medicinal plants in South-East Europe.

scientific and educational institutions, and the wide range of stakeholders working with or interested in wild plant resources.

The toolbox contains eight comprehensive sections, among them:

- a database for 30 commonly used wild-collected plants (e.g. Leopard's Bane *Arnica montana*, Common Nettle *Urtica dioica*, Ginseng *Panax ginseng*); the database contains a description of the plants, and their uses, products, and a photo gallery;
- an animation video about the FairWild Standard;
- an overview of FairWild Standard implementation and certification projects around the world (e.g. the FairWild-certified resins (*Commiphora* and *Boswellia* species) from Kenya used in the production of Frankincense oils; FairWild-certified Liquorice *Glycyrrhiza uralensis* root from Kazakhstan, used in herbal teas);
- a video-based page about the *Traditional and wild* project and partners;
- infographics with wild plants facts; and
- a *Resources* section.

The Resources section is intended for use by practitioners of sustainable plant use, companies seeking information about sustainable harvesting and trade, government, and the general public looking for a more in-depth understanding. The section is divided into five parts, namely: 1) information on wild plants; 2) policies, regulations and strategies; 3) training materials and guidance; 4) voluntary standards and certification schemes; and 5) organizations and databases.

Selected sections of the toolbox have been translated into the four national languages of the project, which are Polish, Hungarian, Slovenian and Czech (see www.traffic.org/traditionalwild/). Replication of the toolbox could easily be possible in other regions. The information is appropriate for use in a range of contexts, training and in workshops to enrich knowledge about wild plants.

Other project outputs using locally-sourced products

Throughout the course of the project, TRAFFIC and WWF Hungary also contributed to core outputs jointly developed by the partnership. These include: 1) finalization of the 12 priority species' situation analysis reports; 2) the regional ethnobotanical study, which covers the use of both raw and processed plants in Central Europe; 3) a transnational model designed for the up-to date use of wild plant resources by local communities; and 4) market and income generation strategy.

To highlight traditional values of locally-sourced products, the partnership prepared model products made of target wild plant species identified in the project.

The first of these model products, a "dream catcher" scented pillow, containing a mixture of fragrant herbs growing in the surroundings of Trnovo Plateau (the Lokve region of Slovenia) was introduced by the

Slovenian Development Agency Kozjansko in October 2013. The wild herbs include Common Thyme *Thymus vulgaris*, Balm Mint *Melissa officinalis*, and Chamomile *Matricaria chamomilla*.

Other products include: a traditional wooden box with Black Elderberry *Sambucus nigra* product samples (a pack of dried flowers, herbal tea, elderberry honey, syrup, and tincture), jams made of Black Elderberry and European Blueberry *Vaccinium myrtillus*, oil extracted from the Common Walnut *Juglans regia*, and several types of soap containing wild plant ingredients such as St John's Wort *Hypericum perforatum*, Chamomile, and Leopard's Bane.

All products developed within the framework of the project will be used to inform consumers about the importance of wild plants, sustainable harvesting practices and the cultural traditional relevance of wild harvesting to their everyday lives.

The project outputs, including a final technical publication about project findings and lessons learnt in five languages prepared by TRAFFIC and WWF Hungary, will be shared with a wide audience at a final project workshop in Budapest at the end of April 2014. The workshop will bring together project partners, external experts and associated institutions, social media and local communities to discuss the overall findings of the project.

During the three years of the project's implementation, TRAFFIC has actively promoted and facilitated connections to support the achievement of the project's goals at numerous external events. These included participation in the BioFach organic trade fair in 2013 and 2014 (Nuremberg, Germany) and at the Organic Market Forum in 2013 (Warsaw, Poland), where TRAFFIC shared the project outcomes with manufacturers of food and herbal products and networked with the private sector, NGOs, and certification bodies. The project and the FairWild Standard were also promoted at the International Business Environmental Forum: *Eco-components of corporate social responsibility in business*, organized at the International Eco-week in May 2013 (Moscow, Russia), and at the *UNESCO Man & Biosphere* workshop, in October 2013, demonstrating the relevance of the project's approach to other regions in Europe.



For more information about the project, which is implemented through the Central Europe Programme of the European Union and co-financed by the European Regional Development Fund (ERDF), please visit:

www.traditionalandwild.eu

Kristina Rodina, Medicinal Plants Officer, TRAFFIC
E-mail: kristina.rodina@traffic.org

AVERTING THE IMMINENT EXTINCTION OF SOUTH-EAST ASIAN VERTEBRATE SPECIES: ASIAN SPECIES ACTION PARTNERSHIP (ASAP)

South-east Asia, including the countries of the Association of Southeast Asian Nations (ASEAN): Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore and Viet Nam, as well as Timor Leste, is an important region for wildlife (Schipper *et al.*, 2008; Hilton-Taylor *et al.*, 2009; Sodhi *et al.*, 2010). However, barring marine species, most taxonomic groups studied so far are more threatened in South-east Asia than anywhere else in the world. Compared with Mesoamerica, South America or sub-Saharan Africa, a higher proportion of the vascular plants, reptiles, birds and mammals of South-east Asia are classified as globally threatened species on the IUCN *Red List of Threatened Species* (Sodhi *et al.*, 2010).

The primary threat to vertebrate species in South-east Asia derives from overharvesting to meet the escalating demand caused by an explosion in urban markets for wild meat and medicinal products over the last 30 years. Increased affluence and access to global markets has placed further pressure on the region's wildlife. Illegal and unsustainable trade poses an urgent threat to many of the region's Critically Endangered species and in many cases trade is the primary threat, though this is often not recognized or addressed. Corruption, complacency and lack of general awareness pose some of the greatest obstacles to be overcome in the effort to reduce levels of illegal trade. Inefficient enforcement efforts and low levels of political will further hamper these efforts. Furthermore, dense human populations in the region and neighbouring countries, coupled with one of the highest rates of deforestation globally and poorly managed protected area systems, are exacerbating factors driving the declines and imminent extinctions of vertebrate species.

Acknowledging that many South-east Asian species will become extinct in the near future if current trends continue, a number of concerned individuals and organizations have clearly outlined why the region should

be a priority for averting extinction, with a call to action through the development of a cross-institutional programme to tackle this extremely urgent issue (Duckworth *et al.*, 2012).

The 'Asian Species Action Partnership' (ASAP) is an interagency coalition created to reduce the extinction risk of Critically Endangered non-marine vertebrates of South-east Asia. ASAP is a species-focused response, with recognition that mitigating this crisis situation will require complementary action to influence human behaviour change and the man-made drivers of threat to these species. The partnership seeks to prompt an increase in the resources available for conserving the most threatened species in South-east Asia, and to enhance the effectiveness and efficiency of interventions devised to help protect these species and their habitats.

Form and function of ASAP

ASAP has a mandate to "as a matter of urgency, reverse the declines in the wild of Critically Endangered freshwater and terrestrial vertebrates in South-east Asia".



DAVID HULSE / WWF-CANON

◀ **Saola or Vu Quang Ox**
Pseudoryx nghetinhensis,
Ha Noi, Viet Nam.

¹The name 'Asian Species Action Partnership' is currently under review.



DENSE HUMAN POPULATIONS IN SOUTH-EAST ASIA AND NEIGHBOURING REGIONS, COUPLED WITH ONE OF THE HIGHEST RATES OF DEFORESTATION GLOBALLY AND POORLY MANAGED PROTECTED AREAS, ARE EXACERBATING FACTORS DRIVING THE DECLINES AND IMMINENT EXTINCTIONS OF VERTEBRATE SPECIES IN THE REGION, SUCH AS THE SUMATRAN ORANG-UTAN.

The objectives of the partnership are:

- to identify and activate urgent actions to reduce immediate threats causing the decline of ASAP species;
- to facilitate the effective conservation of ASAP-eligible species by raising their profile;
- to catalyse a range of recovery activities for ASAP-eligible species by strengthening ongoing conservation action and promoting new initiatives;
- to encourage collection and distribution of information essential for the conservation action for ASAP-eligible species.

ASAP will have a key role in stimulating action to meet species-specific conservation needs to help secure their future. The emphasis will be on increasing support to the conservation community to ensure effective implementation of action, and addressing the shortfalls which may impede such action, like improving access to funding and better species-specific information, and gaining higher-level political leverage to influence policy and shape interventions.

ASAP will also help to identify and prioritize what the conservation needs of species are on the ground, for example, by conducting surveys to find out the specific

threats that need to be mitigated and how—often through one or more of site-specific habitat protection, securing critical sites, capacity building for enforcement and species identification. ASAP also needs to facilitate safeguarding of populations where threat reduction may not now be enough, e.g. through captive-breeding programmes.

In addition to matching conservation needs with suitable opportunities and support, ASAP is well positioned to add a global oversight to conservation action in South-east Asia by encouraging interagency collaboration, to pool resources, efforts and expertise to maximize efficiency.

The eligible species: patterns of threat

Presently, there are 154 species on the IUCN *Red List of Threatened Species* that meet all of the four ASAP criteria for eligibility: (1) Critically Endangered (2) vertebrates (3) occurring regularly in South-east Asia (4) in land or freshwater habitats. It should be noted, however, that some species included in this list, such as the Pink-headed Duck *Rhodonessa caryophyllacea*, which has not been observed in the wild with any certainty since 1949 (BirdLife, 2012), may already be extinct.

The majority of the species listed as being Critically Endangered are freshwater fish, followed by mammals, birds, reptiles and amphibians, respectively (Fig. 1).

Alarming, the majority of the 154 species are not presently the subject of any directed conservation action, and few have multiple organizations paying serious attention to them. Such species include: Sumatran Rhinoceros *Dicerorhinus sumatrensis*, Javan Rhinoceros *Rhinoceros sondaicus*, Tamaraw *Bubalus mindorensis*, Philippine Crocodile *Crocodylus mindorensis*, Siamese Crocodile *Crocodylus siamensis*, Mekong Giant Catfish *Pangasianodon gigas*, the three gibbon species *Nomascus concolor*, *N. leucogenys* and *N. nasutus*, Sumatran Orangutan *Pongo abelii*, Delacour's Langur *Trachypithecus delacouri*, Cat Ba Langur *T. poliocephalus*, Saola *Pseudoryx nghetinhensis* (reflecting a recent major surge in activity), and many bird species. The birds represent a special case, because of the existence of BirdLife International. No comparable network and partner-based organization exists for any of the other vertebrate classes. Some species of tortoises and freshwater turtles are also increasingly receiving attention—82% of the world's Critically Endangered tortoise and freshwater turtle species occur in South-east and South Asia, with wild populations of some of these species totalling fewer than one hundred individuals.

As an initial starting point, IUCN/SSC partnered the European Association of Zoos and Aquaria (EAZA) during 2011–2012 on a “Southeast Asia Campaign”, which engaged the zoo community and proved to be very successful in raising the profile of several of the ASAP-eligible species. EAZA has since provided some financial contribution to ASAP and with additional support from WCS, the work of the partnership can now be driven forward. A Steering Committee to provide the direction and oversight of ASAP is now being established, and a Scientific Advisory Committee will provide technical guidance on species status and conservation needs.

References

- BirdLife International (2012). *Rhodonessacaryophyllacea*. In: IUCN 2013. *IUCN Red List of Threatened Species*. Version 2013.2. www.iucnredlist.org. Viewed on 3 December 2013.
- Duckworth, J.W. *et al.* (2012). Why South-east Asia should be the world's priority for averting imminent species extinctions, and a call to join a developing cross-institutional programme to tackle this urgent issue. *S.A.P.I.E.N.S.* 5(2).
- Hilton-Taylor, C., Pollock, C.M., Chanson, J.S., Butchart, S.H.M., Oldfield, T.E.E. and Katariya, V. (2009). State of the world's species. Pp.15–41. In: Vié, J.-C., Hilton-Taylor, C., and Stuart, S.N. (Eds). *Wildlife in a changing world—an analysis of the 2008 IUCN Red List of Threatened Species*. Gland, Switzerland: IUCN.
- Schipper, J. *et al.* (2008). The status of the world's land and marine mammals: diversity, threat and knowledge. *Science* 322:225–230.
- Sodhi, N.S., Posa, M.R.C., Lee, T.M., Bickford, D., Koh, L.P., and Brook, B.W. (2010). The state and conservation of Southeast Asian biodiversity. *Biodiversity Conservation* 19:317–328.

Madhu Rao, Co-ordinator, Asian Species Action Partnership, IUCN

J.W. Duckworth, Species Advisor, Asian Species Action Partnership, IUCN

Rachel Roberts, Network Co-ordination Officer, Asian Species Action Partnership, IUCN

Chris R. Shepherd, Regional Director—South-east Asia, TRAFFIC. E-mail: chris.shepherd@traffic.org

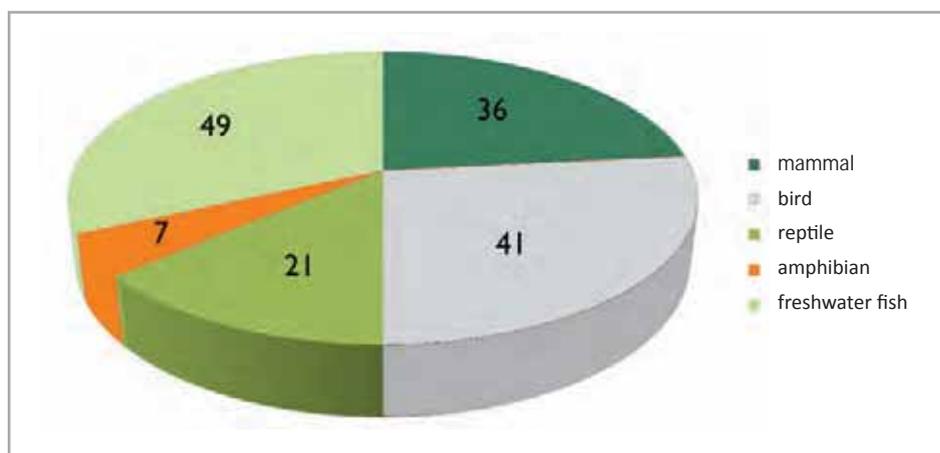


Fig. 1. Terrestrial and freshwater species groups listed as Critically Endangered in South-east Asia. (n=154 at the time of writing)

One of the drivers of global forest loss is illegal logging for international trade, which causes the loss of timber species and contributes to global climate change. A key question in the enforcement of conservation regulations is how to find operational methodologies that facilitate the detection of illegal

The study was designed to develop an appropriate training programme and to train two dogs to detect specific timber species by scent. The initial training demonstrated that a trained dog is able to distinguish selected timber species from one another. The training was conducted by professional dog trainer Steve Austin, of Sydney, Australia.

DETECTOR DOGS SNIFFING OUT ILLEGAL TIMBER

timber hidden in legal timber shipments. Detector dogs can perceive the smallest concentrations of odours and have a highly evolved ability to discriminate between scents. They are used to detect hidden contraband like drugs, weapons, cigarettes and cash, but are also suitable for the detection of wildlife and their derivatives and thus are an appropriate tool in the fight against wildlife smuggling.

In 2004, WWF Germany started a project on the analysis of stable isotopes in timber samples and, later, a combined project with stable isotopes and DNA fingerprinting to verify the timber species and origin of these samples in order to uncover illegal timber in trade. Owing to the huge amount of timber traded internationally, however, it will not be possible to investigate high numbers of samples with these methodologies. Detector dogs trained to identify specific timber species could provide initial findings that can subsequently be scientifically analysed using, for example, the above-mentioned methods.

In 2010, WWF Germany, as lead partner of a consortium made up of enforcement agencies from the EU Member States of Austria, the Czech Republic, Germany, Italy, Lithuania, the Slovak Republic and the UK, as well as a number of WWF offices and TRAFFIC, initiated the project *Combating illegal wildlife trade by improving existing wildlife detector dog programmes and fostering the establishment of similar programmes throughout the EU*. The project, which concluded in 2013, was funded by the European Commission Directorate-General Home Affairs.

The project aimed to improve the enforcement of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the EU Wildlife Trade Regulations (e.g. *Council Regulation (EC) No. 338/97*) within the EU by increasing the use of wildlife detector dogs. Existing wildlife detector dog programmes within the EU were investigated to explore the full range of use of detector dogs and to facilitate the exchange of knowledge between these programmes and interested EU Member States. Furthermore, a feasibility study was designed to show the opportunities—and limitations—of using dogs to detect specific timber species, for example at sea ports.

DOG SELECTION

The selection of the dogs was undertaken over an eight-month period, during which time many dogs were tested, including breeds like Labrador, German Short Hair Pointer, Golden Retriever, Border Collie, and Australian Kelpie. The Working English Springer Spaniel was chosen as it is a proven detector dog in many countries, with a strong work and hunt instinct, and an excellent temperament. In addition, this breed has a strong human bond development and this was an important factor in the selection criteria.

The dogs chosen were a two-year old bitch called Jarra, and a 16-week old bitch called Willow. Both dogs have been characterized by a very strong drive to play and were extremely outgoing and co-operative.

TRAINING METHODOLOGY

Timber species

The Johann Heinrich von Thünen Institute¹ provided a range of timber species for the training of the dogs, both of non-protected species and those that are protected/ listed in the CITES Appendices.

One protected tree species used was Big-leaf Mahogany *Swietenia macrophylla* (CITES Appendix II covering Neotropical populations). The following species look similar to Big-leaf Mahogany but, with the exception of one species, are not protected: Spanish Cedar *Cedrela odorata* (listed in CITES Appendix III by Peru), African Mahogany *Khaya* spp., Sapele *Etandrophragma cylindricum*, and Sipo *E. utile*. The aim of the feasibility study was to train the dogs to detect *Swietenia macrophylla* even if it was mixed or hidden amongst the aforementioned species.

The second target timber was Brazilian Rosewood *Dalbergia nigra*, which is listed in CITES Appendix I. The following species are not protected but look similar to Brazilian Rosewood: Indian Rosewood *Dalbergia latifolia* and Jacaranda *D. spruceana*. Again, the aim was

¹Germany's Federal Research Institute for Rural Areas, Forestry and Fisheries, a research institute under the auspices of the German Federal Ministry of Food and Agriculture (BMEL).

to train the dogs to detect *D. nigra* even if it was mixed or hidden amongst samples of the other two *Dalbergia* species above.

In both training units, plantation pine and other common timber species were used to provide additional non-target odours. Both processed and raw timber were used.

Training on a selected odour

The dogs were rewarded each time they came into contact with the target odour. At this stage in the training, no other timber or non-targets were presented, so that the dog could concentrate solely on one odour. The training of the dogs to identify the selected target odour took about six weeks.

The dogs were trained to provide an active response, i.e. when they found the target odour, they would paw and dig at the odour source. When used in the field, such behaviour would help the handler of the detector dog to pinpoint the target timber species.

Scent discrimination training

After the six weeks training on a selected odour and once the dogs had become completely familiar with scent association, they were moved on to scent discrimination training. The target timber was mixed in with a non-target timber species and the dogs had to discriminate between the different odours. Overall it took about 14 weeks for the dogs to be able to discriminate between the two odours.

During training, many controls of non-target timber were placed in the training runs. If the dog responded to the non-target, no correction was used and the dog was told to continue to search for the target timber. By using a no-correction method on false responses, the dogs were always willing to keep trying.

After three months of training, the dogs had a success rate of over 90% of all trials, when targets and non-targets were mixed together in the same containers. The dogs showed no difficulty in finding the correct scent and there was no measurable difference between the two trained dogs.

Storage of the timber species

All targets and non-targets were handled with surgical gloves at all times and stored separately in a sealed room. This gave the dogs a very real scent picture and brought them close to actual field conditions.

Costs for timber detector dog programmes

The costs for selection, training and use of timber detector dogs vary significantly between countries and depending on the circumstances for which the dogs are used. It is therefore practically impossible to provide a specific amount for the costs of a wildlife detector dog programme.

The following factors have to be considered for the cost calculation:



Steve Austin with Jarra.

- Purchase of the dogs;
- Building/maintaining a training centre and/or kennels at the place where the dogs are used;
- Food for the dogs;
- Veterinary costs;
- Training;
- Equipment;
- Costs of the dog handler.

The costs of setting up a timber detector dog programme may be reduced by exposing an existing detection dog on this programme to additional target timber scents. If such a dog is additionally trained to detect other wildlife specimens, the combination of items has to be chosen carefully. Control areas, trade routes, and other factors have to be taken into consideration.

CONCLUSIONS

Detector dogs can be trained to find target timber species among non-target timber species under controlled conditions. By using a combination of target and non-target timber species, this project was designed to imitate real conditions. Nevertheless WWF recommends that tests be undertaken in real situations e.g. at international ports.

This methodology may close existing gaps in testing large shipments of commercially used timber species in trade. The initial tests with the timber detector dogs can identify particular timber samples whose legality may need further investigation, e.g. by using methods such as stable isotopes and DNA fingerprinting.

For further information on this programme, please contact Volker Homes, TRAFFIC/WWF Germany (volker.homes@wwf.de).

Birgit Braun, Project Co-ordinator, WWF Germany
E-mail: bfelgen@web.de

TRAFFIC and EAZA: *great potential for collaboration*

From 24–28 September 2013, more than 750 participants from 57 countries met in Edinburgh, Scotland, UK, at the annual conference of the European Association of Zoos and Aquaria (EAZA). The conference was hosted by the Royal Zoological Society of Scotland. Established in 1992, EAZA's mission is to facilitate co-operation within the European zoo and aquarium community towards the goals of education, research and conservation. EAZA comprises 345 member institutions in 41 countries. More than 140 million people visit EAZA members each year—a number equivalent to approximately one in five European citizens.

TRAFFIC was invited to participate and to speak on illegal and unsustainable wildlife trade in the South-east Asian region in four of the Taxon Advisory Group (TAG) meetings, as one of the key roles of the TAGs is to stimulate, co-ordinate and support *in situ* conservation projects.

TRAFFIC spoke about the poorly understood trade in serows *Capricornis* spp. across South-east Asia, with a focus on Myanmar, and the need for greatly increased enforcement efforts and the need to reduce demand for these threatened species, whose meat is traded for consumption, and other body parts—including horns, oil and heads—for use in traditional medicines. Trade in serow species, though illegal, is rife in Myanmar. Over the past decade, serows have been available for sale in every market surveyed by TRAFFIC in that country, with the bulk of body parts observed being horns and heads. Many of these markets are situated on the Myanmar–Thai border, with dealers claiming that buyers come from Thailand, indicating a blatant disregard for both national legislation and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). All serow species native to Myanmar are listed in Appendix I of CITES.

TRAFFIC also provided in-depth knowledge on the trade in bear bile across East and South-east Asia and the impact this trade is having on wild bear populations. The presentation provided a brief overview of the regional trade, with a focus on the latest developments in Malaysia, following on from the recommendations outlined in the TRAFFIC investigation in 2011 into the Asian bear bile trade (Foley *et al.*, 2011). The Sun Bear *Helarctos malayanus* is the only bear species native to Malaysia and is under serious threat due to demand for paws and meat (Shepherd and Shepherd, 2010) and the gall bladder (Foley *et al.*, 2011). Once again, the need for long-term efforts to reduce demand for bear bile and increase enforcement action was highlighted, as well as a call to support an IUCN Recommendation calling for the closure of all illegal bear farms (IUCN, 2012). In addition to the illegal sourcing of bears locally, much of the bear bile available in Malaysia is manufactured in China and smuggled into the country, in violation of CITES and national legislation.

A case study on the trade in Short-beaked Echidnas *Tachyglossus aculeatus* was used by TRAFFIC to illustrate the issue of wild-caught animals being fraudulently declared as captive-bred to allow their illegal export from Indonesia. TRAFFIC underscored the need for due diligence on the part of zoos in acquiring specimens declared as being captive bred and commended the precautions taken by zoo associations in Australia, North America and Europe as well as by the World Association of Zoos and Aquariums (WAZA) to address this issue after the echidna trade was first highlighted in the *TRAFFIC Bulletin* in 2013 (Beastall and Shepherd, 2013). This case study also highlights the need to improve systems overall with regard to export of captive-bred specimens to eliminate the high levels of wild-caught species exported under the guise of being captive-bred.

The need for long-term strategic market monitoring of the bird trade in Indonesia was also highlighted by TRAFFIC during the meeting. Over-harvesting is pushing several species, including the Sumatran Laughingthrush *Garrulax bicolor* towards the brink of extirpation or extinction (Collar *et al.*, 2012; Shepherd, 2007, 2013). Such monitoring would help guide further research and conservation efforts, including longer-term demand-reduction strategies.

The combination of large visitor numbers, immense commitment from EAZA to address wildlife conservation issues, and TRAFFIC's expertise in researching, investigating and understanding wildlife trade and the related conservation threats, creates many exciting opportunities for future collaboration.

References

- Beastall, C. and Shepherd, C.R. (2013). Trade in “captive-bred” echidnas. *TRAFFIC Bulletin* 25(1):16–17.
- Collar, N.J., Gardner, L., Jeggo, D.F., Marcordes, B., Owen, A., Pagel, T., Pes, T., Vaidl, A., Wilkinson, R. and Wirth, R. (2012). Conservation breeding and the most threatened birds in Asia. *BirdingASIA* 18:50–57.
- Foley, K.E., Stengel, C.J. and Shepherd, C.R. (2011). *Pills, Powders, Vials and Flakes: the Bear Bile Trade in Asia*. TRAFFIC Southeast Asia, Petaling Jaya, Selangor, Malaysia.
- IUCN (2012). Resolutions and Recommendations. WCC-2012-Rec-139-EN. *Bear farming in Asia, with particular reference to the conservation of wild populations*. 191–192. IUCN, Gland, Switzerland, pp: vi+251.
- Shepherd, C.R. (2007). Trade in the Black-and-white Laughingthrush *Garrulax bicolor* and White-crested Laughingthrush *G. leucolophus* in Indonesia. *BirdingASIA* 8:49–52.
- Shepherd, C.R. (2013). Protection urgently needed for the endemic Sumatran Laughingthrush. *TRAFFIC Bulletin* 25(2):53–54.
- Shepherd, C.R. and Shepherd, L.A. (2010). The poaching and trade of Malayan Sun Bears in Peninsular Malaysia. *TRAFFIC Bulletin* 23(1):49–52.

Chris R. Shepherd, Regional Director—South-east Asia, TRAFFIC. E-mail: chris.shepherd@traffic.org

Critically Endangered Ploughshare Tortoises: shells branded to reduce demand

The Ploughshare Tortoise *Astrochelys yniphora* is highly threatened by persistent demand in the black market pet trade. As a result, its numbers in the wild have been drastically reduced to approximately 400 adult specimens. Assessed as being Critically Endangered in the IUCN *Red List of Threatened Species*, these tortoises are stolen by poachers who sell them to unscrupulous traders, mainly in South-east Asia.

The Ploughshare Tortoise is endemic to the Baly Bay area in north-western Madagascar (Leuteritz and Pedrono, 2008) where it is totally protected by law. The species is also listed in Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), making any international commercial trade illegal. Yet demand from some countries, in particular Indonesia, Malaysia and Thailand, combined with low levels of effective enforcement, continue to push this striking species towards extinction (Shepherd and Nijman, 2008; Stengel *et al.*, 2011).

In an effort to raise awareness of the plight of the Ploughshare Tortoise in South-east Asia and to build support to fight illegal trade in the species, four organizations—Durrell Wildlife Conservation Trust, TRAFFIC, the Turtle Conservancy and Wildlife Reserves Singapore—held an event called “Tattoo the Tortoise” on 16 December 2013 at Singapore Zoo. Identification codes were engraved onto the shells of two Ploughshare Tortoises, and while the procedure is painless it is hoped that the unsightly permanent markings will reduce their black market value and allow researchers to monitor individual animals. An additional purpose of the coded engraving is to make the tortoises easily traceable should they ever be found in trade; thus far, of the Ploughshare Tortoises that have been seized in South-east Asia, none has been an engraved specimen. Singapore Zoo currently houses these two Ploughshare Tortoises, which were confiscated by the Agri-Food and Veterinary Authority (AVA) of Singapore in 2009, and will use the pair to establish an “assurance colony”.

The event included presentations by experts working on the conservation of this species and an exhibition aimed at raising public awareness of the illegal trade and conservation needs of Ploughshare Tortoises and other highly threatened tortoises and freshwater turtles.

Based on seizures reported in the media and government statements, at least 86 Ploughshare Tortoises have been seized since 2010. Over 60% of these seizures occurred in Thailand while the rest took place in Madagascar and Malaysia, with at least one of the shipments destined for Indonesia, where the species is frequently exhibited at reptile expositions and for sale in markets. Smugglers are audacious in their efforts to engage in illegal trade in this species: in March 2013, two people were arrested while attempting to enter Thailand via Suvarnabhumi International Airport, Bangkok, in possession of 52 Ploughshare Tortoises and 21 Radiated Tortoises *Astrochelys radiata* (CITES Appendix I) contained in suitcases. One of

the smugglers, a Malagasy woman, was imprisoned, while the other, a Thai man, was released on bail (Shepherd, 2013).

These cases exemplify the urgent need for enforcement agencies to take the illegal trade in this species seriously. Reduced demand for the species in the international pet trade and increased effective enforcement measures are essential to end the decline of this species.

The Turtle Conservancy, whose mission includes maintaining colonies of threatened and endangered tortoises and freshwater turtles, aims to engrave identification marks on all Ploughshare Tortoises in captive-breeding programmes and those remaining in the wild. On 14 January 2014, the Turtle Conservancy’s Behler Chelonian Center in Ventura County, USA, branded the shells of two Ploughshare Tortoises that had been flown in from Taiwan, where they were seized in 2008 (Anon., 2014). Some 150 Burmese Starred Tortoises *Geochelone platynota* (CITES Appendix I) were similarly marked with the help of the Conservancy in October 2013 (Anon., 2014).

References

- Anon. (2014). *Los Angeles Times*, 14 January. www.latimes.com/science/la-me-tortoise-deface-20140115,0,7403238.story#axzz2qVgjEzXM.
- Leuteritz, T. and Pedrono, M. (2008). Madagascar Tortoise and Freshwater Turtle Red List Workshop. *Astrochelys yniphora*. In: IUCN 2013. *IUCN Red List of Threatened Species*. Version 2013.2. www.iucnredlist.org. Viewed on 26 December 2013.
- Shepherd, C.R. (2013). Calls for international co-operation to save the Ploughshare Tortoise. *TRAFFIC Bulletin* 25(1):23.
- Shepherd, C.R. and Nijman, V. (2008). *Pet freshwater turtle and tortoise trade in Chatuchak Market, Bangkok, Thailand*. TRAFFIC Southeast Asia, Petaling Jaya, Malaysia.
- Stengel, C.J., Shepherd, C.R. and Caillabet, O.S. (2011). *The Trade in tortoises and freshwater turtles in Jakarta, Indonesia revisited*. TRAFFIC Southeast Asia, Petaling Jaya, Selangor, Malaysia.

Elizabeth John, Senior Communications Officer, TRAFFIC
E-mail: elizabeth.john@traffic.org

Chris R. Shepherd, Regional Director—South-east Asia, TRAFFIC, and a member of the IUCN/SSC Tortoise & Freshwater Turtle Specialist Group. E-mail: chris.shepherd@traffic.org



Engraving the shells of Ploughshare Tortoises in an attempt to devalue their appeal to collectors.



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 reports. Readers are referred to the seizures section of the TRAFFIC website (www.traffic.org/media-reports/) for regular updates on cases reported from around the world.

BIG CATS

CHINA: On 10 January 2014, in reportedly the biggest wildlife seizure in Yunnan province in the past decade, forest police seized the skins of three Bengal Tigers *Panthera tigris tigris* (CITES I), one dead Bengal Tiger cub, over 100 items of Tiger bone, Lion *Panthera leo* (CITES I/II) bone, and products from other endangered species.

www.chinanews.com/tp/hd2014/01-22/294873.shtml

INDIA: Sansar Chand, a wildlife poacher well-known to enforcement authorities for his involvement in the killing of Tigers (CITES I) and other animals over many years, died on 18 March 2014. He was facing trial in a case related to the killing of a Tiger in Sariska Tiger Reserve in Rajasthan in 2005, and had been brought to Alwar, Rajasthan, from hospital gaol for a court hearing on 14 March (see also *TRAFFIC Bulletin* 14(2):42; 15(3):102; 20(2):85; 20(3):116; 23(1):36).

http://zeenews.india.com/news/rajasthan/notorious-poacher-sansar-chand-dead_918630.html, 18 March 2014

MALAYSIA: On 17 February 2014, it was reported that authorities had arrested two men and seized the carcass of a Leopard *Panthera pardus* (CITES I)—the fifth to be found in raids in Peninsular Malaysia in less than six months. Five months earlier, the Department arrested a man for smuggling four Leopards and a Tiger *Panthera tigris* (CITES I) from Rantau Panjang, near the border with Thailand. In both cases, markings on the animals indicated that they had been snared.

www.traffic.org/home/2014/2/17/wildlife-department-vigilance-leads-to-five-leopards-seized.html, 17 February 2014

THAILAND: On 19 February 2014, police seized from a vehicle five Tiger *Panthera tigris* (CITES I) cubs and other animals (turtles and monitor lizards) being smuggled to Lao PDR, for apparent onward sale in Viet Nam or China as delicacies. According to a police spokesperson, the cubs would normally be kept in Lao PDR for one year to be raised, before being sold on. Two arrests.

www.timeslive.co.za/scitech/2014/02/20/tiger-cubs-other-endangered-species-seized-in-wildlife-trafficking-haul, 20 February 2014

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.

ELEPHANTS

Elephant species are listed in CITES Appendix I/II

CAMBODIA: On 16 February 2014, Customs officers at Siem Reap International Airport arrested two Vietnamese nationals after almost 80 kg of elephant tusks were found in their luggage. The duo reportedly had brought the tusks from Angola via South Korea and Cambodia, before attempting to take them to Ha Noi, Viet Nam.

www.globaltimes.cn/content/843016.shtml#UwXyH4X-WBu1, 17 February 2014

CAMEROON: On 8 February 2014, Customs officials in Sengbot, near the border with the Republic of the Congo, seized 143 kg of ivory from sacks concealed in empty beer crates during the routine inspection of a lorry. The items included 69 tusks and 12 ivory pieces.

www.cameroun24.net/index.php?pg=actu&ppg=1&pp=1&id=14635, 27 February 2014

CHINA: In early November 2013, almost 12 t (3188 pieces) of ivory were seized by Customs officers in Xiamen city and arrests were made.

On 4 November 2013 it was reported that Guangdong Supreme People's Court had imposed gaol sentences in respect of defendants Yao and Wu, to 14 and 12 years, respectively. In 2010, Gongbei Customs received intelligence that a legal ivory factory was involved in ivory smuggling. Police later uncovered an ivory trafficking chain between Africa and mainland China via Malaysia, Hong Kong, and Taiwan and, in 2011, a task force detained nine people and confiscated 2762 kg of tusks and other ivory products.

Nandu.com;Sina.com.cn (both in Chinese)

GABON: On 10 January 2014, Farouk Alim, said to be a major player in the country's ivory trade, was arrested in Libreville, in possession of 16 ivory pieces corresponding to 10 tusks (34 kg). He was sentenced to six months in gaol and fined XFA 200 000 (USD2700).

<http://en.gabonews.com/environment/items/a-major-ivory-dealer-arrested-in-libreville.html>, 13 January 2014; *Conservation Justice*, 31 January 2014

HONG KONG SPECIAL ADMINISTRATIVE REGION: On 3 October 2013, Customs agents at Hong Kong port seized 769 kg (189 tusks) of ivory that had been hidden in bags of soya beans. The consignment came by boat from Côte d'Ivoire, transiting Malaysia, and was thought to be bound for mainland China.

Between 13 and 15 December 2013, at Hong Kong International Airport, Customs officers seized some 160 kg of ivory tusks and worked ivory from the baggage of 14 persons from three in-bound flights from Dubai and Johannesburg. Seven passengers were subsequently convicted: one was sentenced to four months' imprisonment while the others were fined HKD30 000–80 000 (USD4000–10 000).

www.foxnews.com/world/2013/10/03/hong-kong-seizes-15-million-in-illegal-ivory-in-third-major-bust-since-july/, 3 October 2013; http://thspace.com/headlines/448575/seven-travellers-sentenced_for-smuggling-ivory-tusks.html, 16 December 2013

KENYA: On 28 January 2014, Chinese national Tang Yong Jian was fined a record 20 m shillings (USD230 000) after being arrested while in transit from Mozambique to China via Nairobi in possession of one elephant tusk (3.4 kg). He was the first person to be sentenced under new anti-poaching laws which came into force in December. If Tang is unable to pay the fine, he will spend seven years in gaol.

www.bbc.co.uk/news/world-africa-25925176#, 28 January 2014

SOUTH AFRICA: On 18 December 2013, at Kempton Park Regional Court, Jialing Yang, of Guangdong province, China, was sentenced to a fine of R50 000 (USD4600), or three years' imprisonment, for attempting to smuggle 12.7 kg of ivory through O.R. Tambo International Airport from Dubai, en route to Hong Kong. Two Lion *Panthera leo* (CITES I/II) claws and 10 pangolin *Manis* (CITES II) scales were also in her luggage. She stated that she had purchased the tusks and worked ivory (combs, ornaments and jewellery) at a flea market in Mozambique.

www.news24.com/Green/News/Woman-sentenced-for-smuggling-ivory-2013121

TANZANIA: In late October/early November 2013, police arrested three Chinese nationals and seized 797 elephant tusks in three raids during a week of anti-poaching raids. Some 706 tusks were found in sacks of garlic at the house of Chinese nationals in Dar es Salaam on 2 November, and a further two in the city on 4 November. Police in Mtwara seized 89 tusks a week earlier.

On 19 March 2014, it was reported that a court had sentenced Chinese national Yu Bo to 20 years in gaol after he was found in the illegal possession of 81 elephant tusks. The sentence was in default of his being unable to pay the TZS9 781 204 900 (USD6 million) fine imposed. He was apprehended as he attempted to transport the items out of the country at Dar es Salaam port, in December 2013.

www.reuters.com/article/2013/11/05/us-tanzania-poaching-idUSBRE9A40PC20131105, 5 November 2013; <http://allafrica.com/stories/201403200094.html>, 19 March 2014

TOGO: On 22 and 28 January 2014, authorities at the port of Lome seized nearly four tonnes of ivory tusks. The items were hidden in containers destined for Viet Nam, disguised as cashew nuts and timber. This represents one of the largest-ever ivory seizures in West Africa. Two locals and a Vietnamese national were arrested; the provenance of the ivory has not been established.

<http://in.reuters.com/article/2014/02/03/togo-poaching-ivory-idINL5N0L83F920140203>, 3 February 2014

UGANDA: A high court judge has ordered that 2.9 t (832 pieces) of ivory, seized by the Ugandan Revenue Authority (URA) in October 2013 on its arrival from D.R. Congo, should be returned to a Congolese national for onward export, despite the cargo having entered the country fraudulently declared as coffee and the fact that any onward export would be in violation of CITES. At the time of the seizure, warrants were issued for the arrest of the Congolese national and a Kenyan national, both of whom remain at large. According to Minister Mutagamba's statement, lawyers of Uganda Wildlife Authority and Uganda Revenue Authority had filed a notice of appeal to challenge the judgement application for an interim order for a stay of execution of the judgement; filing of the appeal was to be carried out immediately.

www.traffic.org/home/2014/2/27/uganda-to-return-29-tonnes-of-impounded-ivory-to-ivory-traffic.html, 27 February 2014

VIET NAM: In early October 2013, Customs officials in the northern province of Hai Phong seized ivory tusks weighing 2.4 t concealed inside a container imported from Malaysia and said to be carrying sea shells. On 4 October, another container arriving from Malaysia and also said to be carrying sea shells, was found to be carrying 2.1 t of tusks, bound for China.

www.timeslive.co.za/scitech/2013/10/22/vietnam-customs-officials-seize-ivory-hidden-in-sea-shell-crates, 22 October 2013

ZIMBABWE: On 16 October 2013, a court in Hwange sentenced Akim Masuku to 15.5 years in gaol for poisoning and killing African Elephants *Loxodonta africana* with cyanide in Hwange National Park; this was the fourth such conviction in the country during October. Masuku was also found guilty of illegal possession of ivory. The accused still faced charges for cyanide possession and for contravening environmental laws. Eight others await sentencing for the killing of up to 100 elephants in the park.

www.google.com/hostednews/afp/article/ALeqM5hN0dtfAAjzjSe3y18vFkUACuklg?doclid=c62ca733-2566-4ba3-ab17-9c10a6072eb4, 17 October 2013

FLORA

INDIA: A small selection of the many seizures of Red Sanders (Red Sandalwood) *Pterocarpus santalinus* (CITES II) that have taken place over the past six months are summarized below:

In October 2013, an international gang smuggling Red Sanders was infiltrated and 14.5 t seized as it was being imported through Mundra Port in Gujarat. Three arrests.

On 3 November 2013, Customs officials at Cochin International Airport seized 110 kg of Red Sanders logs detected following X-ray scan of luggage of three Chinese nationals, bound for Malaysia. The suspects said they were operating as carriers for a Delhi-based kingpin.

On 13 December 2013, Panvel forest department officials in Navi Mumbai seized a lorry carrying 12 t of Red Sanders concealed under bananas. Two arrests.

On 29 December 2013, 7 t of Red Sanders were seized and at least six Indian crew members of a boat were detained off Haldia coast in West Bengal during an anti-smuggling operation by the Coast Guard and the Directorate of Revenue Intelligence. The consignment was reportedly destined for Bangladesh. Customs officials earlier seized Red Sanders from Jalpaiguri district as well as from Kolkata airport and arrested over a dozen Chinese nationals.

On 25 February 2014, at Trivandrum International Airport, Kerala, Customs and Central Excise officials asked the pilot of an aircraft bound for Colombo, Sri Lanka, to land 20 minutes after it had become airborne; three passengers on board were subsequently arrested on a charge of attempting to smuggle 100 kg of Red Sanders out of the country in their check-in baggage. The wood had been covered in a black synthetic material which had not been picked up by X-ray scanner. Enforcers described the method of operation as "relatively new" and said it could be a trial

run to smuggle more valuable contraband items, including firearms.

On 3 March 2014, police seized over 2000 Red Sanders logs (40 t) in Kurnool district, Andhra Pradesh. Four arrests.

<http://timesofindia.indiatimes.com/city/jaipur/Red-sanders-worth-crores-seized/articleshow/23329674.cms>, 1 October 2013; www.newindianexpress.com/cities/kochi/3-Chinese-held-for-smuggling-red-sanders/2013/11/04/article1871229.ece1, 4 November 2013; http://articles.timesofindia.indiatimes.com/2013-12-15/navi-mumbai/45216846_1_red-sanders-12-tonnes-panvel, 15 December 2013; www.ndtv.com/article/india/six-held-red-sanders-worth-crores-seized-in-bengal-464979, 30 December 2013; www.thehindu.com/news/cities/Thiruvananthapuram/red-sanders-seized-from-colombobound-flight/article5728584.ece, 26 February 2014; www.business-standard.com/article/pti-stories/more-than-2-000-logs-of-red-sanders-wood-seized-in-raid-114030301163_1.html, 3 March 2014

SRI LANKA: On 11 November 2013, Customs officials seized 4.5 t of Red Sanders en route from Chennai (India) to Jabel Ali (Dubai). Declared as sanitary-ware, the timber was detected following information received while the consignment was in transit at the Jaya Container Terminal, Colombo port.

On 2 April 2014, Customs officials seized 420 t of Madagascan rosewood *Dalbergia* (CITES II) that had been transported in 28 containers from Zanzibar bound for Hong Kong, via Sri Lanka, where it was detected on 24 March. This is reportedly the largest seizure ever made of this nature in the country.

[TRAFFIC Post \(20\) March 2014](http://www.traffic.org/newsletters/), www.traffic.org/newsletters/; Biodiversity Cultural & National Heritage Protection Division, Sri Lanka Customs, 2 April 2014

UK: On 9 January 2014, a rare water lily *Nymphaea thermarum*, now extinct in the wild, was apparently stolen from the Royal Botanic Gardens at Kew. Discovered in 1987 in one location in Mashyuza, Rwanda, the plant grew around freshwater hot springs and needs warm, damp mud. It disappeared from the site about two years ago owing to overexploitation of the hot spring that fed the habitat.

www.bbc.co.uk/news/uk-england-london-25717643, 13 January 2014

MARINE

AUSTRALIA: On 13 January 2014, at Sale Magistrates' Court, a Sydney man was gaoled for six months after being caught by fisheries officers in Gippsland with a commercial quantity (120) of abalones. He was also banned from any type of abalone fishing for 10 years. All the abalones, equipment and a vehicle were seized.

It was reported on 28 February 2014 that a person had been fined more than AUD3500 (USD3200) after pleading guilty to being in possession of 43 abalones at Kiama Heights, New South Wales. The defendant and another person were arrested in August 2012 after being observed packing dive gear into bags at Love's Bay. Twenty-seven specimens were of a prohibited size. The possession limit for abalones in NSW is two per person in waters open to the taking of abalones and the minimum prescribed legal length is 11.7 cm.

www.gippslandtimes.com.au/story/2033951/abalone-thief-sent-to-prison/?cs=1450, 20 January 2014; www.kiamaindependent.com.au/story/2120221/thousands-of-dollars-in-fines-for-illegal-abalone-fisher/, 28 February 2014; www.begadistrictnews.com.au/story/2104307/south-coast-abalone-poachers-face-serious-penalties/?cs=507, 21 February 2014

DOMINICAN REPUBLIC: On 30 October 2013, officials seized 9000 kg of Queen Conch *Strombus gigas* (CITES II) from 223 boxes at Caucedo Multimodal Port, Santo Domingo; the gastropods were allegedly being exported to China by a seafood company.

www.dominicantoday.com/dr/local/2013/10/30/49467/Agents-seize-10-tons-of-smuggled-conch-headed-to-China, 30 October 2013

SOUTH AFRICA: On 6 January 2014, police carrying out a routine check arrested a man near Beaufort West in possession of 1703 abalones (300 kg). Abalone fishing in South Africa was banned in 2008.

www.4-traders.com/NISSAN-MOTOR-CO-LTD-64924771/news/Nissan-Motor-Co-Ltd--Man-held-over-abalone-177740871, 9 January 2014

PANGOLINS

All pangolin species (*Manis*, *Phataginus* and *Smutsia* spp.) are listed in CITES Appendix II

CHINA: In early October 2013, Jiangmen Customs seized 2041 frozen pangolins and over one tonne of pangolin scales (and 1113 python skins) from a fishing vessel in waters south of Taishan Kawashima.

www.chinadaily.com.cn/hqgj/jryw/2013-12-03/content_10724877.html [in Chinese]

THAILAND: On 22 November 2013, Customs officials arrested two men and seized plastic crates containing 122 pangolins after intercepting a car in Thap Sakae district of Prachuap Khiri Khan province.

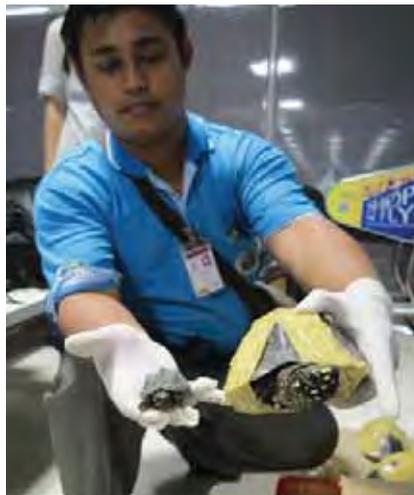
www.bangkokpost.com/breakingnews/381209/men-caught-smuggling-122-pangolins-worth-more-than-one-million-baht, 22 November 2013

VIET NAM: On 18 November 2013, in the province of Phu Yen, Le Van Tung was fined VND450 million (USD21150) after being caught in Dong Hoa district a month earlier illegally transporting from Ho Chi Minh City to Ha Tinh Province 49 (256 kg) live pangolins in an ambulance bearing fake number plates.

www.thanhniennews.com/index/pages/2013/11/19-viet-nam-man-transporting-49-pangolins-with-ambulance-gets-fine.aspx, 19 November 2013

ZIMBABWE: On 14 October 2013, Danisa Mloyi was sentenced to nine years in gaol for poaching pangolins. The suspect was prosecuted under the *Parks and Wildlife Act*, reportedly the first time that national legislation has been correctly applied to the poaching of this species.

Tikki Hywood Trust, 17 October 2013



Almost 600 Black Pond Turtles (CITES Appendix I) were seized from three incoming shipments of turtles in Thailand in November 2013.

REPTILES

CANADA: On 5 November 2013, Dennis Day of Cobden was sentenced to 90 days in gaol, to be served at weekends, and fined CAD50 000 (USD46 000) to be paid to the Environmental Damages Fund after pleading guilty to smuggling reptiles into the country near Cornwall by a vessel originating from the USA. In August 2010, Day was found in possession of containers holding 205 animals including one Hermann's Tortoise *Testudo hermanni* (CITES II), one Serrated Hinged-backed Tortoise *Kinixys erosa* (II), eight African Spurred Tortoises *Geochelone sulcata* (II), 25 Timor Tree Monitors *Varanus timorensis* (II), 20 Green Iguanas *Iguana iguana* (II), 51 Jackson's Three-horned Chameleons *Trioceos jacksonii* (II) and 39 Helmeted Chameleons *T. hoehnelii* (II). He was also sentenced to three years' probation and is prohibited from possessing any listed species of wildlife, except in accordance with the provisions of the *Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act* (WAPPRITA). The reptiles were forfeited to the Crown.

Due to evidence obtained during the investigation, Mark Ostroff also pleaded guilty to one count of unlawfully importing animals. He was fined CAD40 000 and sentenced to three years' probation.

www.standard-freeholder.com/2013/11/15/jail-for-smuggling-reptiles, 17 November 2013

HONG KONG SPECIAL

ADMINISTRATIVE REGION: On 4 February 2014, 2265 Pig-nosed Turtles *Carettochelys insculpta* (CITES II) were repatriated to Indonesia, part of a consignment of over 2754 turtles seized on 12 January by the Agriculture, Fisheries and Conservation Department. This case represents almost a quarter of the 11 122 Pig-nosed Turtles reported to have been seized in Indonesia and Hong Kong in January alone.

www.traffic.org/home/2014/2/6/over-2000-pig-nosed-turtles-fly-home-to-a-troubled-future.html, 6 February 2014

INDIA: On 3 February 2014, 4980 live Indian Softshell Turtles *Nilssonina gangetica* (CITES I) were seized as an attempt was made to take them into Bangladesh at Kalupur, near the border town of Bongaon. Three arrests. It is believed the animals, which had been procured in Vizag (Visakhapatnam), were meant for the meat trade. The turtles were to be released in the wild.

<http://timesofindia.indiatimes.com/city/kolkata/5000-turtles-seized-on-Bangladesh-border/articleshow/129831856.cms>

THAILAND: During early November 2013, at Suvarnabhumi International Airport, Bangkok, Thai Royal Customs thwarted three attempts to smuggle tortoises and turtles into the country: these included, on 3 November 2013, 72 Black Pond Turtles *Geoclemys hamiltonii* (CITES I; protected in Bangladesh, India, Pakistan and Nepal), and the following CITES II-listed species: six Crowned River Turtles *Hardella thurjii*, one Three-keeled Land Tortoise *Melanochelys tricarinata* and one Indian Eyed Turtle *Morenia petersi*, from two bags that had arrived on a flight from Bangladesh. Two days later, two uncollected suitcases, also from Bangladesh, were found to contain 423 Indian Star Tortoises *Geochelone elegans* (CITES II; protected in range countries India, Pakistan and Sri Lanka) and 52 Black Pond Turtles. On 8 November, a Pakistani national arriving from Lahore, India, was arrested with four suitcases containing 470 Black Pond Turtles.

On 10 December 2013, 62 Radiated Tortoises *Astrochelys radiata* (CITES I and protected in its native Madagascar) were seized from a Malagasy national arriving from Antananarivo. The reptiles were concealed in a foam-lined suitcase that had been left on the luggage carousel. The seizure was the result of ongoing co-operation between TRAFFIC and the Royal Thai Customs to identify and watch known wildlife smuggling routes.

www.traffic.org/home/2013/11/12/royal-thai-customs-intercept-three-attempts-to-smuggle-torto.html, 8 November 2013; www.traffic.org/home/2013/12/10/rare-malagasy-tortoises-turn-up-in-luggage-seized-in-bangkok.html, 10 December 2013

On 31 January 2014, Customs and wildlife checkpoint officers at Don Mueang International Airport seized 521 tortoises from five unclaimed bags on board a flight from Chennai, India. Among the reptiles were 65 Black Pond Turtles *Geoclemys hamiltonii* (CITES I) and 440 Indian Star Tortoises *Geochelone elegans* (CITES II).

On 12 March 2014, Royal Thai Customs officers discovered 218 Black Pond Turtles and 54 Indian Narrow-headed Softshell Turtles *Chitra indica* (CITES II) in check-in luggage of two Indian nationals, who had taken a flight from Gaya and Varanasi in India, to Bangkok; they were due to board a flight to Macau. Initial investigations show that the turtles were headed for Hong Kong. The duo were handed over to Royal Thai Police.

www.traffic.org/home/2014/2/28/bangkok-a-hub-in-recent-tortoise-trafficking-incidents.html, 28 February 2014; www.traffic.org/home/2014/3/27/recent-seizures-highlight-trouble-for-asias-tortoises-and-fr.html, 27 March 2014

UK: On 3 April 2014, at Isleworth Crown Court, Romanian nationals Angla-Alina Bita and Vitoria-Olivia Bucsa were each sentenced to 12 months' in gaol after their arrest at Heathrow Airport on 3 February. Border Force officers found in their possession 13 lizards, later identified as San Salvador Rock Iguanas *Cyclura rileyi* (CITES I)—native to the Bahamas. Each specimen was wrapped in a sock, and one had perished. The women had arrived on a flight from the Bahamas and were bound for Germany. The animals are being given specialist care, with the long-term aim of returning them to their native habitat.

Grant Miller, head of the Border Force CITES team, said: "This particular species of iguana is incredibly rare—only a few hundred are believed to be left in existence—so this was a remarkable and very important seizure."

www.gov.uk/government/news/angered-iguanas-seized-by-border-force-at-heathrow, 4 February 2014; www.gov.uk/government/news/smuggling-women-jailed-for-smuggling-endangered-iguanas, 4 April 2014

VIET NAM: On 23 December 2013, police in Thanh Hoa province seized 200 kg of Water Monitors *Varanus salvator*, 60 kg of Elongated Tortoises *Indotestudo elongata* (both CITES II), and 50 kg of Radiated Ratsnakes *Coelognathus radiata* from a bus as it travelled through Thanh Hoa City, apparently from the Mekong Delta province of Dong Thap to the northern province of Quang Ninh.

www.thanhniennews.com/index/pages/20131223-wild-animals-seized-from-bus-traveling-from-south-to-north-vietnam.aspx, 23 December 2013

RHINOCEROSES

All rhinoceros species are listed in CITES Appendix I/II

HONG KONG SPECIAL

ADMINISTRATIVE REGION: The return of 33 rhinoceros horns (and carved ivory items) to South Africa in November 2013 was the result of a two-year process that began in November 2011 after Hong Kong Customs officers X-rayed a shipment of "scrap plastic" and uncovered a record haul of almost 80 kg of rhinoceros horns (plus 758 ivory chopsticks and 127 ivory bracelets). The horns and ivory were to undergo DNA analysis to provide insight into where the elephants and rhinoceroses had been poached.

South China Morning Post: www.scmp.com/news/hong-kong/article/1375717/hong-kongs-return-seized-ivory-rhino-horn-south-africa-jailed, 8 December 2013

SINGAPORE: On 16 January 2014, a Vietnamese national was sentenced to 15 months' imprisonment following his arrest at Changi Airport on 10 January after Customs officials found eight pieces of Black Rhinoceros *Diceros bicornis* horn (22 kg) in his checked baggage as he travelled in transit to Viet Nam.

www.traffic.org/home/2014/1/20/singapore-and-thailand-customs-each-seize-22-kg-rhino-horn.html, 18 January 2014

SOUTH AFRICA: On 2 December 2013, at Makhado Regional Court, Limpopo, Musa Simango of Mozambique was gaoled for six years for attempted rhinoceros poaching, unlawful possession of ammunition, and trespassing. Simango and two of his accomplices were apprehended in the Punda Maria area of Kruger National Park in October. A shooting ensued and one man was killed; a third escaped.

www.iol.co.za/news/crime-courts/rhino-poacher-jailed-in-limpopo-1.1616088#UqIA8eLY9u2, 3 December 2013

THAILAND: On 19 January 2014, Royal Thai Customs at Suvarnabhumi International Airport, Bangkok, seized nine rhinoceros horns (21.8 kg) from a transit passenger arriving from Nairobi, Kenya, en route to Ha Noi, Viet Nam.

www.traffic.org/home/2014/1/20/singapore-and-thailand-customs-each-seize-22-kg-rhino-horn.html, 20 January 2014

UK: On 29 November 2013, at Harrow Crown Court, Darren Bennett of Leicester was gaoled for 10 months after breaking into the Natural History Museum in Tring, Hertfordshire, in 2011, and attempting to steal rhinoceros horn. Bennett damaged display cases and broke off two replica, plaster horns from rhinoceros specimens that had been collected around 1900. He was caught after a member of staff discovered a glove he had used during the raid, which contained his DNA.

In February 2014, at Nottingham Crown Court, Daniel O'Brien of Cambridge was gaoled for 16 months after pleading guilty to stealing a rhinoceros horn from an antiques dealer. O'Brien was arrested and charged in December 2011 but fled the country; police traced his whereabouts and he was rearrested in October 2013.

<http://wildlifeneews.co.uk/2013/burglar-who-steals-2-fake-rhino-horn-gets-jail-time/>, 6 December 2013; www.nottinghampost.com/Man-jailed-stealing-rhino-horn-Newark-antiques/story-20667327-detail/story.html, 20 February 2014

USA: On 5 December 2013, at Manhattan federal court, Jeffrey Wang, a New York City antiques dealer, was gaoled for three years after pleading guilty in August to smuggling artefacts made from rhinoceros horn from the USA to China and Hong Kong; he was also sentenced to three years' supervised release. He had reportedly faked US Customs documents on packages containing the items; ivory carvings were also seized from his apartment.

www.westport-news.com/news/us/article/NYC-man-who-smuggled-rhino-horns-gets-3-years-5039627.php, 10 December 2013

VIET NAM: On 10 March 2014, authorities at Tan Son Nhat International Airport, Ho Chi Minh City, arrested a Vietnamese national in possession of 13 kg of rhinoceros horn (five whole horns and pieces of horn) in his luggage.

<http://talkvietnam.com/2014/03/over-13kg-smuggled-rhino-horns-seized-at-hcmc-airport/#.UyLU4Xsu1>, 12 March 2014

OTHER SEIZURES

CANADA: On 1 October 2013, at St Stephen provincial court, New Brunswick, Gregory Logan of New Brunswick was convicted on seven counts for offences related to the illegal export of 250 Narwhal *Monodon monoceros* (CITES II) tusks to the USA over a period of seven years. He was fined CAD385 000 (USD348 000), the largest fine ever imposed in Canada for offences under the *Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act* (WAPPRITA). Further, he must serve an eight-month conditional sentence in the community, including four months of house arrest and is prohibited from possessing or purchasing marine mammal products for a period of 10 years; he was also required to forfeit vehicles that were used to smuggle the tusks across the Canada-US border.

Environment Canada: www.ec.gc.ca/default.asp?lang=En&n=714D9AAE-1&news=822339BB-4B8B-487C-9548-22CED73036EB, 2 October 2013

CHINA: According to information from Chengdu Customs, 41 kg of dried seahorses *Hippocampus* (CITES II) arriving from Kathmandu, Nepal (provenance not reported), were recently intercepted. This was the first seahorse smuggling case undertaken by Chengdu Customs.

On 13 December 2013, Fangchenggang police seized 76 frozen bear paws from a vehicle in Guangxi province. The driver evaded capture.

Chinacourt.org, 18 November 2013; <http://bit.ly/1cOkzpl>, 16 December 2013 [both in Chinese]

INDONESIA: On 15 November 2013, 238 Slow Lorises *Nycticebus coucang* (CITES I) were seized at the port of Merak, Java, en route from Sumatra to markets in Jakarta and surrounding cities, for sale as pets. Six specimens died on the way to a rescue centre. Vets were hopeful that the animals could be released back into the wild. One arrest.

www.rawstory.com/rs/2013/11/15/hundreds-of-rare-primates-seized-from-animal-smugglers-indonesia/, 15 November 2013

RUSSIA: On 6 November 2013, border control officials in the Far East discovered over 450 kg of bear paws in the border city of Blagoveshchensk, estimated to derive from some 100 animals; the items were being prepared for shipment to China.

On 11 December 2013, two men were detained by police in the Jewish Autonomous Region for smuggling 19 Gyrfalcons *Falco rusticolus* (CITES I), intended for sale overseas. One bird died and the remainder were placed in a shelter.

<http://en.ria.ru/russia/2013/11/06/184543689/Russian-Border-Agents-Seize-Half-Ton-of-Bear-Paws.html>, 6 November 2013; <http://en.ria.ru/russia/2013/12/11/185452358/Police-Swoop-on-Russian-Falcon-Smugglers.html>



TIGERS: EXPLORING THE THREAT FROM ILLEGAL ONLINE TRADE

Online auction sites continue to post advertisements offering jewellery purportedly made from Tiger parts and Tiger-based medicines, but the trade shows signs of decline as awareness of illegality increases and internet companies pledge a zero-tolerance policy

Sarah Stoner

The Tiger *Panthera tigris* is under immense pressure from poaching for its body parts, which are in high demand, the bones largely for use in traditional medicine and as a tonic and the skins for decorative purposes. Efforts to address this threat are numerous and aim to tackle the issue from a variety of angles, but primarily centre upon: enhancing site-based enforcement, reducing illegal trade (locally and transnationally) and demand reduction. TRAFFIC has been actively involved in the exposé of a number of markets and outlets overtly displaying and selling illegal wildlife products; particularly those relating to Tigers (Nowell and Xu, 2007; Oswell, 2010; Shepherd and Magnus, 2004). While a zero-tolerance policy must be adopted and is likely to have reduced some elements of trade occurring, some will persist due to 1) the demand; 2) the monetary reward such trade continues to offer; and 3) weak enforcement and/or penalties failing to act as a deterrent. Improved law enforcement and the emergence of intelligence-led policing may have meant that some aspects of the illicit wildlife trade are being displaced to online markets. The draw for those wishing to sell are numerous and the internet offers people the opportunity to trade from their own homes, which is likely to attract those not usually moving in criminal circles. In contrast to this, organized crime has been quick to take advantage of these opportunities, particularly given the growth in electronic commerce, or e-commerce. Anticipating the potential threat from online trade, in 2007 the Secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) requested Parties to collect information on illegal wildlife trade on the internet in CITES-listed species for their respective jurisdictions (Notification No. 2007/026)¹. Only one range country (China) responded in Asia (as well as Singapore and the United Arab Emirates).

In August 2011, a workshop was held in Ha Noi, Viet Nam² to monitor progress in Tiger range countries towards implementation of the Global Tiger Recovery Programme (GTRP). The GTRP lays out a comprehensive set of actions to help Tigers recover from their main threats: poaching, illegal trade, human encroachment and destruction of Tiger habitats. Each Tiger range country committed to a set of National Tiger Recovery Priorities (NTRP) and invested efforts into implementing them. During the workshop, each country presented a set of One-Year Objectives and Self-Assessment Outcomes. One of China's Priority Activities was to: "*Launch national movement against cyber-crime on tiger parts*".

Proactive and progressive steps towards that particular objective have been observed and should be highlighted as examples of good practice. Consideration may be given by other range and consumer countries for implementing similar initiatives to address the likely occurrence of online trade in their respective areas.

¹<http://www.cites.org/common/docs/misc/E-Internet%20trade.pdf>. ²Workshop of Experts to Develop Criteria and Indicators for Monitoring Implementation of the GTRP; Ha Noi, Viet Nam, 2–4 August 2011

In a pledge of the first of its kind, in June 2012, 15 of the leading e-commerce sellers operating in China, including Alibaba, Taobao, and Tencent, issued a signed declaration adopting a zero-tolerance policy towards their services being used to conduct illegal wildlife trade.

TRAFFIC's continued support with online monitoring of the volume of products of flagship species (for example, Tiger bone, elephant ivory, rhinoceros horn and Hawksbill Turtle *Eretmochelys imbricata* shell) that were identified as being traded on targeted e-commerce websites in China, showed that the trade had declined by 79.6% during June to December 2013.

A total of 25 496 illegal advertisements for products of flagship species have been deleted by the websites after they received TRAFFIC's monthly monitoring reports.

On 16 August 2013, facilitated by TRAFFIC in collaboration with Beijing's Provincial Inter-agency CITES Enforcement Coordination Group (PICE-CG), 13 e-commerce and logistics companies met to learn about the high priority being given to addressing illegal trade in wildlife by law enforcement agencies and what expectations this places on the companies for carrying out their commitment to protect endangered species. This training not only helped relevant departments regulate the online wildlife trade more strictly, but also supported individual e-commerce companies' self-management of their advertisements of wildlife products.

A joint exhibition stall of TRAFFIC and a website selling antiques (<http://www.htchi.com/>) were displayed at the 2nd and 3rd Chinese International Antique Culture Exhibitions which were held in China's National Convention Centre in September and December 2013, respectively. More than 3000 flyers bearing messages rejecting the consumption of illegal Tiger bone, ivory, rhinoceros horn and Hawksbill Turtle products were distributed and will have greatly increased conservation awareness among the more than 90 000 antique traders and buyers attending these events.

While this report discusses trade observed on Chinese-language sites, illegal wildlife trading online permeates other Tiger range countries and beyond. In May 2013, the *Harimau Kita* forum based in Sumatra announced that buyers from all over the world now had access to Sumatran Tiger parts as a result of the flourishing online trade. Many popular Indonesian e-commerce websites have been known to tolerate or overlook users buying and selling protected wildlife. It was reported that in 2011 and 2012, wildlife authorities in Indonesia seized from online traders Tiger pelts, claws, teeth, whiskers and whole stuffed animals believed to have come from at least 22 Tigers. Furthermore, as part of this research, advertisements found online in China offered Sumatran Tiger claws and teeth for sale as recently as April and May 2013, respectively. Additionally, research examining online trade in CITES-listed plant species concludes that the potentially large-scale nature of the global illegal wildlife trade raises concerns regarding the vulnerability of CITES species (Sajeva *et al.*, 2012). Ultimately the threat from online trading is real and relevant for the following reasons that exist globally:

AUTONOMY: sales online are largely unregulated and are rarely subject to review; there is therefore a minimal amount of monitoring and detection.

GLOBAL REACH: online auctions break down and remove the physical limitations of traditional auctions such as geography, attendance, time, space and a small target audience.

POPULARITY: the widespread level of trading on auction sites and their popularity is likely to be an attractive option for those wishing to trade.

OBSCURITY: locating where the seller is based may be problematic and time-consuming prior to establishing whose jurisdiction the investigation applies to.

NETWORKED: much online illegal trade (wildlife or otherwise) occurs within trust-based, enclosed networks. Trading is known to take place on social networking sites and forums, many of which are password-protected, limiting access and knowledge of the true level of trade.

CLANDESTINE: wording can be used to circumvent detection. For example, "ox bone" has become a recognized term to describe ivory on eBay (Anon., 2012; 2014). Guises are an effective way to evade detection and the internet provides more opportunities for this than traditional marketplaces.

SPEED: given the instant accessibility of the internet, changes can happen instantaneously; the internet provides a network that can adapt and facilitate these changes in a unique and fluid manner.

Analysis of the market in China

Since July 2012, TRAFFIC has been monitoring Chinese-language online auction sites in mainland China to identify Tiger parts or derivatives for sale. Between July 2012 to May 2013, the period of analysis for this report, a total of 25 e-commerce Chinese-language websites were surveyed on a monthly basis. The survey was enabled through a Keyword Research Engine on each website; the key words used for searching included Tiger bone and its 11 synonyms (Chinese characters: H骨、王骨、大猫骨、Hugu、虎爪、掌骨、血料、天然材料、高档材料、珍贵材料、重器), which claims that said products are made of Tiger bone. The results were collected, compiled and shared with focal points of both the government authorities and the websites themselves.

In total, 438 advertisements were found offering items *purporting* to contain Tiger bones or other Tiger body parts. It is impossible to determine whether these products are genuine. However, such advertisements allow some understanding of what might be in demand, what items are popular, and their attraction. More dedicated monitoring will likely provide a more accurate indication of the possible scale of this illegal trade. The following translation of a quote, taken from one of the advertisements, provides some insight into

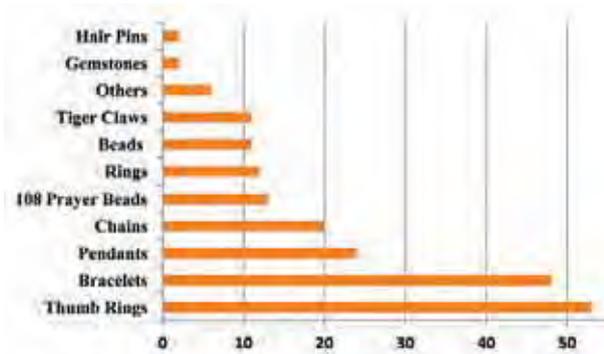


Fig. 1. Types of jewellery and other items for sale.



SARAH STONER / TRAFFIC

Thumb rings, including Archers' rings (above) purportedly made from Tiger bone, were the most common type of Tiger product advertised.

the perceptions surrounding the Tiger as a commercial product: *"Human being know the power and function of Tiger bone since ancient times, it stimulates blood circulation, eliminate moist-heat and wind inside human body, treat and ease the pain, wearing it will bring benefits to human body"* [sic].

Top products offered for sale

Products for sale were overwhelmingly either purporting to be made of Tiger bone (74% / 325) or were purportedly derived from Tiger bone (such as wine, pills, plasters and glue) (11% / 46). No Tiger skins (whole or part), rugs, hides or chubas³ made from Tiger skin were found to be advertised online. The diversity of Tiger parts as a desirable product can be observed and is broadly defined into the following categories: jewellery, Tiger bone, traditional medicine, curios and other Tiger products (Table 1).

Jewellery	Tiger bone	Traditional medicine	Curios	Other Tiger parts	Total
202	76	58	52	50	438
46%	17%	13%	12%	11%	100%

Table 1. Tiger parts for sale by product type.

Within the "other Tiger parts" category, Tiger claws represent 39/78% of the products for sale, followed by teeth (8/16%), tails (2/1%) and kidney stone (1/2%). Furthermore, advertisements offered "Sumatran Tiger" claws and teeth for sale as recently as April and May 2013, respectively.

³Chubas are traditional Tibetan costumes. The skin chubas are only worn twice a year, at local festivals and other special occasions such as Tibetan New Year.

Jewellery and other items

Almost half of all purported Tiger products found for sale were pieces of jewellery (202 / 46%), including bracelets, necklaces and pendants (Fig. 1). However, the most common items advertised were thumbs rings, representing 12% (53) of items for sale. Fifteen (28%) of these were specifically for "Archer" thumb rings. The Archer's thumb ring (pictured above), traditionally for use with a bow and arrow, is now made for ornamental purposes and for possession as a status symbol. Archers' thumb rings are made from a variety of materials such as precious and semi-precious stones, bone, horn, wood, metal, ceramics, and glass. Sale of Tibetan "108" prayer beads (Buddhist prayer beads, typically made up of 18, 27, 54 or 108 beads, are traditionally used to count the number of times a mantra is recited whilst meditating) were another unique item advertised for sale and indicate that these highly decorated pieces of cultural significance are desirable niche products. All these items claim to be made from Tiger bone, however, consideration needs to be given to these advertisements being false and therefore fraudulent.

Medicines and tonics

Thirteen per cent (58) of the advertisements were for products of traditional medicine purporting to contain or to be made from Tiger bone. Fig. 2 provides a breakdown of this category type and shows the frequency of Tiger bone wine on offer.

The notion that Tigers are synonymous with strength, energy and warding off evil spirits persists, as does the perception that the animal's body parts hold medicinal properties, with many of the descriptions given in the advertisements referring to these claims. Plasters, glue and pills allegedly deriving from Tiger bone were found for sale but were not as common as advertisements for Tiger bone wine. Eighty five per cent of the advertisements for Tiger bone wine referred to the age of the product, all of which were dated on or before 1993. This may represent

a common misunderstanding surrounding the law, introduced by the State Council of China in 1993. The circular banned all trade of Tiger bone and rhinoceros horn, the manufacture of medicinal products that include Tiger bone or rhinoceros horn, and the transport of these products⁴. All products produced before the ban were required to be sealed and were banned from trade (DLA Piper, 2014). Some sellers possibly believe that products purchased or produced before the ban, may therefore be legally sold in 2013.

Although some advertisements highlighted the medicinal value of the wine, more emphasis was placed on the age and the brand of the wine. At least one bottle of wine originated from a named Tiger farm in China. Overall, Tiger bone wine was the most expensive Tiger product for sale. Clearer messaging on popular e-commerce sites about the illegality of any commercial trade of Tiger bone products, regardless of their age, may aid clarification for sellers and buyers alike.

Descriptions

The age of a product is a valuable selling point and many advertisements refer to the product as having “good patina”. Visible signs of blood are marketed as a positive factor, which may also allude to the product’s authenticity.

The term “*H-bone*” is commonly used and refers to *Hu* [Mandarin for Tiger] and was used in 14% (61) of advertisements. Similarly the terms “*big cat bone*” or “*king bone*” were frequently used, and while it can be surmised that these are tactics employed to evade detection, many advertisements also stated “*genuine Tiger*” in the wording. Numerous references to the product being “old” or “ancient” or “selling on behalf of a friend” are believed to be a deliberate ploy to persuade the buyer that such sales do not contravene the law and is an attempt to evade detection.

Efforts are being made to address this lack of clarity and to reinforce a zero-tolerance approach. At the end

of 2013, a website selling antiques and a significant contributor to the advertisements monitored online in the previous 12 months (34% / 147) subsequently deleted all such advertisements after becoming aware of their existence. This was followed up with advocacy on its own website, as well as working with TRAFFIC to conduct advocacy work in the International Antique Culture Exhibitions held in 2013.

Prices, from landscape to market

Given that much of the activity observed online occurs on auction sites, the final sale price was often not available. In order to give some indication of the mark-up of Tiger parts, prices were obtained from an anonymous source in Sumatra in 2013 for the value of a claw at the point of the animal’s capture, along each of the exchange points and the final market price, and the percentage increase between each point has been calculated overall (Fig. 3).

Geography

Although some references were made to Tiger products originating from Thailand and Viet Nam, and some products were advertised as “Sumatran Tiger”, it appears that most of the trading occurs within China. This is consistent with findings from INTERPOL’s investigation “Project Web”, which found that ivory is predominantly sold by individuals residing in the country where the sales take place (INTERPOL, 2013). Almost one third of advertisements examined gave their location (31% / 134), which enabled analysis to examine where sellers are based. The top six commonly recurring locations were determined and analysis of products for sale there indicated items of traditional medicine and tonics (predominantly Tiger bone wine) were more commonly offered for sale on the east coast, particularly in the provinces of Liaoning and Guangdong. Almost all Tiger products found for sale in Beijing were pieces of jewellery (Fig. 4).

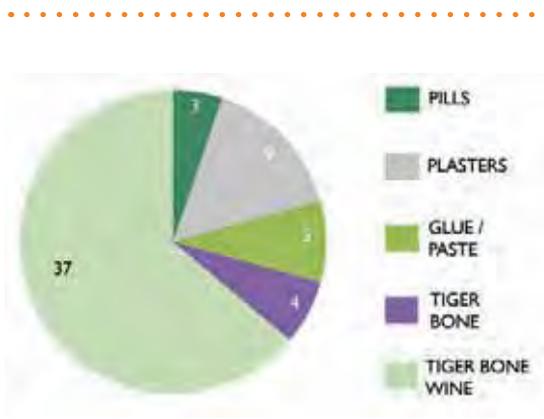


Fig. 2. Breakdown of products for sale categorized as traditional medicine and tonics.

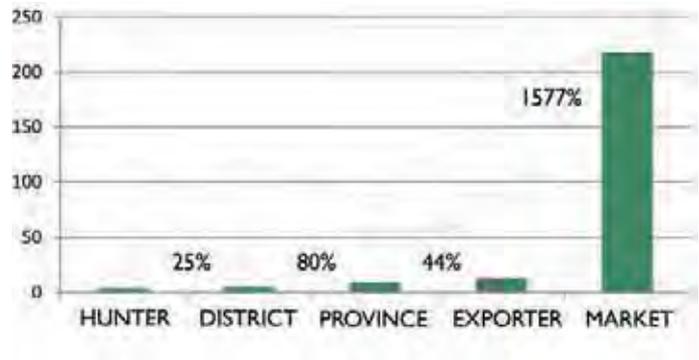


Fig. 3. Inflation in the value of Tiger claws along the trade chain. (2013 USD prices). Data from an anonymous source in Sumatra.

⁴Circular of the State Council on Banning the Trade of Rhinoceros Horn and Tiger Bone (29 May 1993)

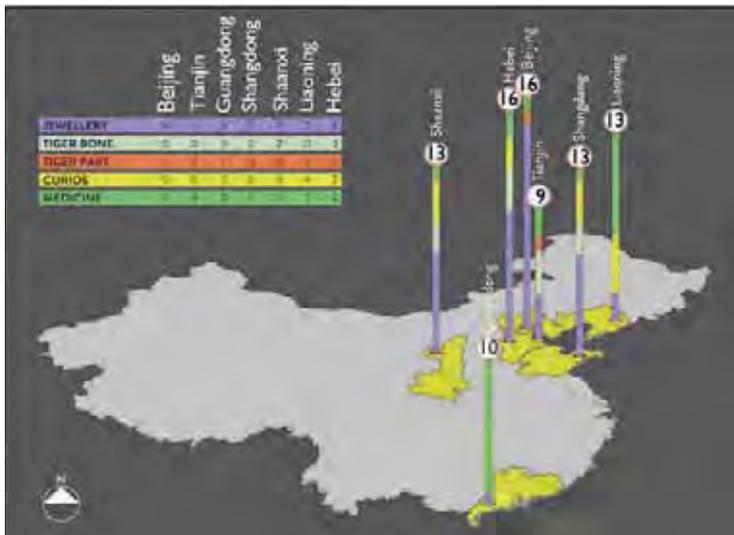


Fig. 4. Location of sellers of Tiger products in mainland China.

CONCLUSIONS

Overwhelmingly, the Tiger products offered for sale were either purported to be made of Tiger bone (74% / 325) or purported to have derived from Tiger bone (11% / 46) (such as wine, pills, plasters or glue). Many of the products offered for sale are in direct contravention of the law introduced by China in 1993 which banned the use, manufacture, sale, importation and export of medicines derived from Tiger bone and rhinoceros horn, and related products. Education and advocacy work with those sites hosting a greater number of advertisements has shown positive outcomes and a clear reduction in the prevalence of this type of trade.

It is impossible to measure the impact of this trade on wild Tigers. The method employed for this study does not provide the means to verify the authenticity of the products being offered for sale online and therefore consideration needs to be given to these advertisements being fake and/or fraudulent.

Based upon the findings presented here, all indications point to the existence of a market for “Tiger” products online, although it is not suspected to be widespread. However, if the desire for the Tiger as a commodity (fake or otherwise) is to be lessened, investment in demand reduction is necessary to effect behavioural change and to reduce such trade in the long term. Where trade continues, punitive measures should be taken against both individual sellers and the sites hosting the advertisements, and publication of these cases to illustrate a zero-tolerance approach may contribute to a deterrent effect in the short-term.

REFERENCES

- Anon. (2012). <http://www.wildlifeextra.com/go/news/ebay-ivory.html#cr>
- Anon. (2014). <http://www.telegraph.co.uk/technology/internet/10629910/Ivory-traders-using-eBay-to-sell-goods.html>
- DLA Piper (2014). *Empty Threat: Does the law combat illegal wildlife trade?* Available at <http://www.dlapiperprobono.com/export/sites/pro-bono/downloads/pdfs/Empty-Threat---Does-the-law-combat-illegal-wildlife-trade---Full-Report-2014.pdf>. [sic]
- INTERPOL (2013). Project Web: An Investigation into the Ivory Trade over the Internet within the European Union. <http://www.interpol.int/en>
- Nowell, K. and Xu, Ling (2007). *Taming the Tiger Trade: China's Markets for Wild and Captive Tiger Products since the 1993 Domestic Trade Ban*. TRAFFIC East Asia. 64 pp.
- Oswell, A.H. (2010). *The Big Cat Trade in Myanmar and Thailand*. TRAFFIC Southeast Asia. 32 pp.
- Sajeva, M., Augugliaro, C., Smith, M.J., Oddo, E. (2013). *Regulating Internet Trade in CITES Species*. Society for Conservation Biology.
- Shepherd, Chris R. and Magnus, Nolan (2004). *Nowhere to Hide: The Trade in Sumatran Tiger*. TRAFFIC Southeast Asia. 98 pp.

Sarah Stoner, Senior Wildlife Crime Data Analyst, TRAFFIC. E-mail: sarah.stoner@traffic.org

Trade in Wildlife in Bali, Indonesia, for Medicinal and Decorative Purposes

Vincent Nijman and K.A.I. Nekaris

INTRODUCTION

Bali, Indonesia's smallest province, is a popular tourist destination, renowned for its pristine beaches and coral reefs, as well as its Hindu temples and cultural art forms. In 2012, some three million international tourists visited the island, in addition to over six million domestic visitors (Admojo, 2013). In the area of wildlife trade, Bali is a significant location for the exploitation of marine turtles, mostly for meat (Sudiana *et al.*, 2009), as a transit point for the export of coral and marine fish for the aquarium trade (Bentley, 1998; Lunn and Moreau, 2004), and, to a lesser extent, the live bird and primate trade for pets (Nijman, 2005; Jepson, 2010). Efforts to tackle the trade in the Bali Starling *Leucopsar rothschildi* that led to its near extinction in the wild, date back to the early 1980s (e.g. De Iongh *et al.*, 1982; Van Balen *et al.*, 2000) and have been operating more or less continuously, but many other wildlife trade-related initiatives appear to be less consistent. Bali's trade in wildlife for medicinal purposes or sale as decorations or curios (items of interest or curiosity) has not been explored in any depth, and to date has not been widely reported.

LEGISLATION

Indonesia has strong environmental laws, and many vulnerable native species are protected from exploitation under *Law No 5* of 1990. Harvest and trade in non-protected species for designated purposes (such as "live pet trade"), is subject to a quota system (Shepherd, 2010; Nijman *et al.*, 2012). All trade in protected species is prohibited, and the law clearly states that offenders are liable for fines of up to IDR100 000 000 (USD10 000) as well as imprisonment for up to five years. Indonesia has been a Party to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) since 1978 and has ratified the Convention on Biological Diversity. It is not a member of the Convention on the Conservation of Migratory Species of Wild Animals (CMS), however, Indonesia has signed CMS's Memorandum of Understanding for conserving marine turtles of the Indian Ocean and South-east Asia; it has not agreed to similar MoUs for the Dugong *Dugong dugon* or sharks.

METHODS

Between 19 and 23 June 2013, the authors surveyed three markets on Bali that provided for the animal curio and medicinal trade, i.e. Satria and Kreneng markets in the capital city Denpasar, and Beringkit market in the town of Mengwi, some 18 km west of Denpasar. Each outlet potentially selling wildlife was surveyed and all wildlife products on display were counted. Wildlife products were sold in shops or stalls specializing in wildlife items, but many also typically sold other items such as gemstones, fossils and antiques (Fig. 1). Five traders visited during this survey could be described as "healers" or "mystics", selling their products for medicinal purposes and dispensing medicinal advice. All traders catered to the general public, although at least four traders in Satria also supplied wildlife items to the wholesale

markets (primarily stingray tails and decorative items to Balinese antique traders). Wildlife items were openly on display and there was no recourse for the authors to employ undercover techniques during this survey. The first author is fluent in Bahasa Indonesia, the official language of Indonesia, and discussions with traders were conducted in that language. Only items that were on display in outlets were recorded and photographed. No purchases were made. Ubud and Tampaksiring, two towns in central Bali, were also visited by the authors in June 2013, where a brief spotcheck was made of a selection of locations.

All animal parts and products on display in market stalls were identified and counted. This survey focused on trade of wild (i.e. not domesticated) animal species and excluded all trade in live animals, which was mainly confined to a separate section in Satria market. Large suid canines were included as they could have derived from Wild Boar *Sus scrofa* (found on Bali) or even Javan Warty Pig *S. verrucosus* (found on nearby Java). Ivory items were examined to confirm that they were made from genuine elephant ivory, and not bone or resin, noting that elsewhere on Bali (in the village of Tampaksiring) the authors had observed the presence of mammoth and Walrus *Odobenus rosmarus* ivory (Nijman, pers. obs., June 2013). Also seen were a number of canine-shaped items that resembled large cat canines but which were found to be carved from Dugong bones. Whenever possible, specimens were classified to the lowest taxonomic level. For a few specimens, much of the available characterization was to genus level only; however, where there was a high likelihood of species identification but uncertainty due to a lack of distinct physical characteristics and/or unknown origin, such cases were recorded as genus cf. species (e.g. *Nycticebus* cf. *javanicus*). Prices collected for Dugong items quoted in Indonesian Rupiah have been converted into US dollars at an exchange rate of IDR10 000 to the dollar.

RESULTS AND DISCUSSION

General observations

At least 28 species were observed during the course of the survey; specimens of 26 species were seen in Satria market (28 outlets selling wildlife curios), 16 species in Beringkit (16 outlets selling wildlife curios) and 11 species in Kreneng (five outlets selling wildlife curios) (Table 1). The authors recorded large numbers of fakes, especially large cat and bear claws (some even had small pieces of “fur” attached that was obviously not genuine), teeth (made from resin or carved from bone) and skin (painted goat skins, some of which had been made into dagger handle covers). All observed rhinoceros products (horn, teeth, skull, some allegedly fossilized) were deemed to be fake. Trade was largely directed at local Balinese or visitors from other parts of Indonesia and there was no indication that foreign tourists were specifically targeted. Visitors to the markets were overwhelmingly Indonesian and all signage was in Bahasa Indonesia.

Purported uses of items on sale

Most species were traded either as curios, as talismans or for decorative purposes; these included marine shells, antlers and skulls, and feathers of Green Peafowl *Pavo muticus* (classified by IUCN as Vulnerable). Teeth of various species (sharks, carnivores, Dugongs) and bones of Javan Slow Loris *Nycticebus cf. javanicus* are used as amulets for protection. A smaller number of species were traded specifically for medicinal purposes, although it was sometimes difficult to differentiate between medicine and mysticism. These included cobras and skinks (rendered down “cobra oil” being offered to cure a wide range of skin ailments such as eczema and burns; “skink oil” to cure skin ailments as well as allergies, open wounds and ulcers); deer and muntjak antlers (with small slices being sold to be boiled down into a tonic). Slow loris bones that had been rendered into a tonic or a paste,

were said to relieve the symptoms of asthma. One trader claimed that stingray tails cured osteoarthritis, but more frequently were said to be used to protect a house from the influences of black magic and to maintain domestic harmony. Sawfish *Pristis* spp. heads and/or rostrums, as well as the rostrums of Swordfish *Xiphias gladius*, were also said to be used to protect home, kitchen and garden. Finally, Dugong bones, carved into peg-like shapes and placed around wet rice fields, were stated to be used by farmers to ward off pests. Dugong “tears” (*Mata Air Duyong*, a mixture of the eye’s gelatinous vitreous body and alcohol, when genuine) and Dugong oil (rendered down fat mixed with alcohol) were on sale for use as a love potion, to reconcile couples or to bring fortune.

Status of species for sale

A large number of species observed in trade were CITES listed (n=14) and/or were considered globally threatened (i.e. Critically Endangered, Endangered or Vulnerable according to IUCN Red List threat criteria) (n=10), and almost 60% of species (n=17) observed were protected under Indonesian law. For each species, the number of curio or medicinal items on display ranged from just one or a few pieces being sold by a single trader, to up to a hundred or more pieces sold in a dozen outlets. There was no appreciable difference in the number of items for sale at each outlet or the number of stalls that displayed specimens of species, and the species’ IUCN Red List status, nor was there a difference between the number of items for sale at each outlet that were of protected species and those that were not protected, or ones that were included in the CITES Appendices or ones that were not. The trade was open and the authors did not get the impression that other species or items were being kept hidden or that protected species were treated differently from non-protected species.

Apart from six species, all those recorded in trade are found on Bali or its surrounding waters but none of them exclusively so. The six species not found on Bali are all present in other parts of Indonesia: the trade in teeth and claws of Sun Bear *Helarctos malayanus* and Tiger *Panthera tigris*, and elephant ivory, suggest trade links with Sumatra and possibly Indonesian Borneo; the observation of Green Peafowl and Javan Slow Lorises *Nycticebus cf. javanicus* suggests trade links with eastern Java. Babirusa *Babirusa cf. celebensis* skulls originated from the island of Sulawesi or its off-lying islands, to the north of Bali.

Significant trade

Marine molluscs: while only small numbers of Horned Helmet *Cassis cornuta*, Triton’s Trumpet *Charonia tritonis* and Chambered Nautilus *Nautilus pompilius* were observed in the markets in Denpasar and Mengwi, some 89 Chambered Nautiluses were seen in one shop alone in Ubud (a town in central Bali visited briefly by the authors in June 2013), indicating that the trade in this mollusc species may be thriving in Bali. The specimens



Fig. 1. Wildlife products for sale, including Dugong bone, Slow Loris bones, shark teeth and cat claws, Beringkit market, Bali, June 2013.

Species common name	Scientific name	Market	Stalls	Status	whole	teeth	tail	claw	bones	skull	antler	other
Chambered Nautilus	<i>Nautilus pompilius</i>	S	2	P	5							
Horned Helmet	<i>Cassis cornuta</i>	S	2	P	11							
Triton's Trumpet	<i>Charonia tritonis</i>	S	2	P	3							
Kuhl's Stingray	<i>Neotrygon kuhlii</i>	SKB	12	DD		284						
Cowtail Stingray	<i>Pastinachus sephen</i>	SKB	11	DD		98						
Hammerhead shark	<i>Sphyrna</i> spp.	S	2							4		
Shark	SKB	SKB	8			>200				7		
Sawfish	<i>Pristis</i> spp.	SB	4	P,CR,I		7				5		
Swordfish	<i>Xiphias gladius</i>	SKB	11			232						
Cobra	<i>Naja</i> spp.	B	1		20							18 bottles cobra oil
Salt-water Crocodile	<i>Crocodylus porosus</i>	SB	2	II		3						
Common Sun Skink	<i>Eutropis multifasciata</i>	B	1		45							
Hawksbill Turtle	<i>Eretmochelys imbricata</i>	S	1	P,CR,I								15 bekkko pieces
Dugong	<i>Dugong dugon</i>	SKB	14	PVU,I	1	13			12			See Table 2
Dolphin	S	S	3	P,II		2				1		
*Javan Slow Loris	<i>Nycticebus cf javanicus</i>	SB	2	P,EN,I					2			
Long-tailed Macaque	<i>Macaca fascicularis</i>	S	1	II						1		
Sunda Porcupine	<i>Hystrix javanica</i>	S	1									3 sets of quills
Leopard Cat	<i>Prionailurus bengalensis</i>	SK	4	P,II				30		1		
*Tiger	<i>Panthera cf tigris</i>	S	6	P,EN,I		2		8				
*Sun Bear	<i>Helarctos malayanus</i>	SKB	8	PVU,I		15		24		1		
Common Palm Civet	<i>Paradoxurus hermaphroditus</i>	S	1							1		1 skin
*Red Muntjak	<i>Muntiacus muntjak</i>	SKB	6	P						10		10
Javan Deer	<i>Rusa timorensis</i>	SKB	7	PVU						3		10
*Babirusa	<i>Babirusa cf. celebensis</i>	S	1	PVU,I						3		
Wild Boar	<i>Sus cf. scrofa</i>	SKB		6		25						
*Asian Elephant	<i>Elephas maximus</i>	SB	2	P,EN,I								2 ivory pieces
*Green Peafowl	<i>Pavo muticus</i>	S	1	P,EN,II								10 feathers
White-bellied Sea-eagle	<i>Haliaeetus leucogaster</i>	K	1	P,II						1		
Frigate bird	<i>Fregata</i> spp.	B	1							1		1 foot

Table 1. Animals and animal products for sale at Satria (S), Krenang (K) and Beringkit (B) markets, Bali, between 19 and 23 June 2013, inclusive.

Status: P=protected in Indonesia; DD=Data Deficient, VU=Vulnerable, EN=Endangered, CR=Critically Endangered; I=Appendix I and II=Appendix II of CITES. Species not occurring on Bali or in Balinese waters are preceded by an asterisk.

of these three species were claimed by retailers to have derived from the seas surrounding Bali, and not imported from elsewhere in Indonesia (Fig. 2). It is increasingly recognized that the international trade in Chambered Nautilus for the international shell trade has detrimental effects on population survival. In preparation for CoP15, held in March 2010, the US Fish and Wildlife Service initiated a public consultation process requesting input on potential species proposals. The Humane Society of the United States and the Humane Society International responded with a request to consider submitting an Appendix-II listing proposal for Chambered Nautilus due to concerns that populations were at risk of over-exploitation. Together with the National Marine Fisheries Service (NMFS), FWS began an assessment of the taxa. Their findings concluded that, while several nautilus life history traits render them vulnerable to being overharvested in the wild, and aspects of the fishery and trade have the potential to lead to overfishing, biological information and global industry data are insufficient to fully assess the impact of international trade on these taxa. For these reasons, the USA did not propose listing nautilus in the CITES Appendices at CoP15 (De Angelis, 2012).

Rays: the dried tails of two species of stingray—Kuhl's Stingray *Neotrygon kuhlii* and Cowtail Stingray *Pastinachus sephen*—were available for sale in large numbers (Table 1) for medicinal or decorative purposes. Some shops offered single tails, but most specimens were displayed in bundles of ten or more, such that reported counts in this survey are likely to be an underestimate of the total volume of trade. While rays are not protected under Indonesian law, no quota has been established allowing these taxa to be traded commercially, deeming all observed trade illegal. Skulls and the saw-like rostrum of the Critically Endangered sawfish *Pristis* spp.—species of ray—were offered for sale in Satria (with one rostrum at Beringkit). In recent years it has been increasingly clear that the trade in rays is not sustainable, and Parties have discussed the role of CITES in regulating this trade at the last three meetings of the Conference of the Parties (Vincent *et al.*, 2013; Lack and Sant, 2012).

Dugong: Dugongs *Dugong dugon* are coastal marine mammals found in the Indo-Pacific region, and threatened in part by overexploitation and trade. Dugong parts were the most commonly available items derived from protected species on offer in the Bali markets surveyed, with sales attributed to both medicinal and decorative purposes. Of all the species surveyed, Dugong items were openly displayed in the greatest number of outlets and were recorded in all three markets (Table 2). It was difficult to verify whether the items claimed to be Dugong were genuine; however, the apparent frankness and openness of traders, as well as the frequency of unsolicited responses by numerous traders identifying the items as *Ikan Duyong* [Dugong], suggests authenticity. Dugong ribs and other long bones are very solid and contain little or no marrow, which, according to traders, make them ideal for carving.



Fig. 2. Chambered Nautilus for sale in Ubud market, Bali, June 2013.



Fig. 3. Eight Babirusa skulls were observed in Bali in June 2013, including this one photographed in Tampaksiring.

Fig. 4. Carved dagger handles made from Dugong bone, for sale in Bali, June 2013.



All photographs by Vincent Nijman and K.A.I. Nekaris

Cigarette pipes mostly carved from rib bones, as well as other bones or tusks, were the most frequently recorded item pertaining to Dugong. These pipes were typically sold alongside other pipes made from resin or other synthetic material. The custom of selling a combination of authentic and artificial products was similar to the situation in Sumatran wildlife markets, although the pipes there were made out of elephant ivory (V. Nijman, unpubl. data from surveys in 2008–2010). The most expensive items made of Dugong parts were two carved dagger handles (Fig. 4), offered for USD150 each. One healer/mystic had a complete Dugong skeleton on display, and other traders offered bottled Dugong “tears” for sale. Dugongs are hunted throughout their range for their meat (Marsh *et al.*, 2002) which may potentially be the source of the bones and tusks (E. Burgess, *in litt.*, October 2013); trade in Dugong parts as curios and for medicinal purposes has been reported in small quantities from nearby Thailand, Viet Nam, Malaysian Borneo and eastern Indonesia, but hitherto not from Bali (Marsh *et al.*, 2002; Rajamani *et al.*, 2006).

Primates: one Long-tailed Macaque *Macaca fascicularis* skull was observed for sale in Satria market, and two sets of slow loris bones—one each in Satria and Beringkit. Long-tailed Macaques are found throughout Bali and while often revered by the Hindu inhabitants, are also traded as pets. Slow lorises are not native to Bali and reach their easternmost distribution in Java (Nekaris, 2013). It is uncertain which of the eight species of slow loris were observed for sale but the use of the word “*Tukang*” suggests the individuals were derived from adjacent eastern Java. In the authors’ experience, the term “*Tukang*” is only used in that part of Indonesia as opposed to the more widespread “*Kukang*”. Hence it is likely the slow lorises in Bali were Javan Slow Lorises *Nycticebus javanicus*. In late 2012, P. Harzani (pers. comm. 2013, with photographs shown to the authors) observed 30 dried slow lorises for sale at Satria market, said to be obtained from the easternmost part of Java.

While slow lorises are traded throughout Indonesia as pets and medicinal trade in these animals is known elsewhere in South-east Asia (e.g. Cambodia), (Nekaris *et al.*, 2010), trade for medicinal purposes within Indonesia has been rarely documented.

Sun Bear: teeth and claws from Sun Bears were frequently offered for sale, and one shop displayed the skull of an adult individual. Sun Bears, which are protected in Indonesia, are found on the islands of Sumatra and Borneo, suggesting long trade routes from these locations to Bali.

Deer and Babirusa: a relatively large number of Javan Deer *Rusa timorensis* and Red Muntjak *Muntiacus muntjak* antlers (including some with the skull attached) were observed. In Beringkit, sawn parts of Javan Deer antler were on sale for medicinal purposes; three Babirusa skulls were seen in Satria, in addition to one in Ubud and another four in Tampaksiring (Fig. 3). All of these ungulate species are protected under Indonesian law, and babirusa species are listed in CITES Appendix I and prohibited from international trade. Trade in babirusa, mainly for meat, has been reported from Sulawesi, with animals being transported within the island (Milner-Gulland and Clayton, 2002). Melisch (1995) reported that it was demand for their skulls for souvenirs that had contributed to increased hunting pressure on babirusa populations in south Sulawesi. The authors’ observations are amongst the few of trade of babirusa outside Sulawesi.

CONCLUSIONS AND FUTURE DIRECTIONS

A significant and open trade in protected and globally threatened wildlife was detected on the island of Bali during the course of this survey. The level of illegal trade in such public areas, particularly the high diversity of species on offer, may suggest that this trade is having a negative impact on biodiversity conservation on this small island. For globally threatened species, such as sawfish, Dugong, Javan Deer, Javan Slow Loris and babirusa, the volumes in trade warrant concern, especially when sourced locally from within Bali or elsewhere in Indonesia, where populations may be small already; any additional pressure imposed on local populations by wildlife trade may imperil their survival. The trade in stingray tails and Chambered Nautilus requires more detailed investigation to determine provenance, the volumes traded, and how the markets in these species operate. A similar investigation is needed for the Dugong trade. It is important to establish whether Dugongs are deliberately targeted to supply the curio and medicinal trade, or whether the Dugong parts observed in trade are derived from fisheries by-catch.

Immediately following this survey, the authors reported their findings to the Governor of Bali (I Made Mangku Pastika), the Director General of the Indonesian Ministry of Forestry (Darori) and the Director of Biodiversity Conservation (Dr Novianto Bambang Wawandono), urging them to take action consistent with

Item	No. of items (shops)	Price (USD)
Whole skeleton	1 (1)	-
Vertebrae	6 (1)	-
Ribs	4 (3)	8.00–10.00
Ear bones	2 (1)	25.00 pair
Carvings	70 (11)	-
Small cigarette pipe	15 (4)	10.00–15.00
Large cigarette pipe	6 (4)	15.00–20.00
Large cat canine	47 (8)	10.00–30.00
Statue	2 (1)	150.00
Teeth	13 (4)	5.00–15.00
Bottled eye fluid	3 (2)	-
Bottled fat (100 ml)	2 (1)	7.00

Table 2. Body parts of Dugong *Dugong dugon* for sale in three medicinal markets, Bali, June 2013.

Indonesian wildlife protection laws; no response has been received to date. Economically, Bali is largely dependent on its tourism industry. It is likely that many of the tourists and visitors to the island are ignorant of Bali's involvement in the trade of endangered and protected wildlife species. While the markets included in this survey are not on the main tourist track and cater mainly for the internal Indonesian market, with several million foreign tourists visiting Bali each year and many long-term foreign residents, their opinion on these matters may be a force for good. The authors urge Bali residents and visitors alike, to express their concern about this trade to the relevant authorities, including those linked to tourism.

ACKNOWLEDGEMENTS

Funding was provided in part by the Leverhulme Trust, Primate Action Fund, Cleveland Metroparks Zoo and Columbus Zoo; the authors thank Made Kesuma and Pramudya Harzani for information and support, and Elizabeth Burgess, Chris Shepherd and Kim Lochen for helpful comments and suggestions for improvement of the manuscript.

REFERENCES

- Atmojo, W. (2013). Domestic tourists flood Bali on vacation. *Jakarta Post* 25 June 2013.
- Bentley, N. (1998). An overview of the exploitation, trade and management of corals in Indonesia. *TRAFFIC Bulletin* 17:67–78.
- De Angelis, P. (2012). Assessing the impact of international trade on chambered nautilus. *Geobios* 45(1):5–11.
- De Iongh, H.H., Komara, A., Moeliono, M., Soemarto, P., Soebrata, S., Spliethoff, P.C., and Sunarja, I.S. (1982). A survey of the Bali mynah *Leucopsar rothschildi* Stresemann 1912. *Biological Conservation*, 23(4):291–295.
- Jepson, P. (2010). Towards an Indonesian bird conservation ethos: reflections from a study of bird-keeping in the cities of Java and Bali. Pp.313–330 in Tideman, S. and Gosler, A.G. (eds). *Ethno-ornithology: Birds, indigenous peoples, culture and society*. London, Earthscan.
- Lack, N., and Sant, G. (2012). An overview of shark utilization in the Coral Triangle region. *TRAFFIC and WWF*, Cambridge.
- Lunn, K.E., and Moreau, M.A. (2004). Unmonitored trade in marine ornamental fishes: the case of Indonesia's Banggai cardinalfish (*Pterapogon kauderni*). *Coral Reefs* 23:344–351.
- Marsh, H., Penrose, H., Eros, C. and Hugues, J. (2002). *Dugong Status Reports and Action Plans for Countries and Territories*. UNEP, Nairobi.
- Melisch, R. (1995). Babirusa skulls on sale in south Sulawesi. *TRAFFIC Bulletin* 15(2):99.
- Milner-Gulland, E.J., and Clayton, L. (2002). The trade in babirusas and wild pigs in North Sulawesi, Indonesia. *Ecological Economics* 42:165–183.
- Nekaris, K. A. I. (2013). Family Lorisidae (Angwantibos, Pottos and Lorises). Pp.210–235 in Mittermeier, R., Rylands, A., Wilson, D.E. (eds). *Mammals of the World, Vol 3 Primates*. Lynx Edicions, Barcelona.
- Nekaris, K.A.I., Starr, C.R., Shepherd, C.R., Nijman, V. (2010). Revealing culturally-specific patterns in wildlife trade via an ethnoprimate approach: a case study of slender and slow lorises (*Loris* and *Nycticebus*) in South and Southeast Asia. *American Journal of Primatology* 72:877–886.
- Nijman, V. (2005). *In Full Swing. An Assessment of the Trade in Gibbons and Orangutans on Java and Bali, Indonesia*. *TRAFFIC Southeast Asia*, Kuala Lumpur.
- Nijman, V., Shepherd, C.R., Mumpuni, and Saunders K.L. (2012). Over-exploitation and illegal trade of reptiles in Indonesia. *Herpetological Journal* 22:83–89.
- Rajamani, L., Cabanban, A.S., and Rahman, R.A. (2006). Indigenous use and trade of dugong (*Dugong dugon*) in Sabah, Malaysia. *AMBIO: A Journal of the Human Environment* 35(5):26.
- Shepherd, C.R. (2010). Illegal primate trade in Indonesia exemplified by surveys carried out over a decade in North Sumatra. *Endangered Species Research* 11(3):201–205.
- Sudiana, I., Ardika, I.W., Parimarta, I., and Titib, I. (2009). Exploitation and protection of turtles at Serangan and Tanjung Benoa villages, south Bali in the perspective of cultural studies. *E-Journal of Cultural Studies* 3(2):1–9.
- Van Balen, S., Dirgayusa, I., Adi Putra, I., Prins, H.H. (2000). Status and distribution of the endemic Bali starling *Leucopsar rothschildi*. *Oryx* 34:188–197.
- Vincent, A.C., Sadovy de Mitcheson, Y.J., Fowler, S.L., and Lieberman, S. (2013). The role of CITES in the conservation of marine fishes subject to international trade. *Fish and Fisheries* (in press).

Vincent Nijman and K.A.I. Nekaris,

Oxford Wildlife Trade Research Group, Oxford Brookes University, Oxford OX0 3BP, UK. E-mail: vnijman@brookes.ac.uk

A Review of the Sun Bear Trade in Sarawak, Malaysia

Kanitha Krishnasamy and Chris R. Shepherd

INTRODUCTION

Of the eight species of bear that occur globally, five are native to Asia, including the Asiatic Black Bear *Ursus thibetanus*, Sun Bear *Helarctos malayanus*, Sloth Bear *Melursus ursinus*, Brown Bear *Ursus arctos* and Giant Panda *Ailuropoda melanoleuca*.

The Sun Bear, the smallest of the world's bear species, occurs throughout South-east Asia. It is extinct in Singapore (Fredriksson *et al.*, 2008), and has possibly become extinct more recently in Bangladesh (Anwarul Islam *et al.*, 2010) and China (G. Fredriksson *in litt.*, to authors, 2014). Two subspecies are recognized, with *H.m. malayanus* occurring on Peninsular Malaysia (and all of mainland South-east Asia, as well as Sumatra, Indonesia) and *H.m. eurypilus* on Borneo (Meijaard, 2004). The Sun Bear is the only bear native to Malaysia.

Like most Asian bear species, the Sun Bear is listed in Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which effectively means that all international commercial trade in bear parts and products is illegal. It is listed as Vulnerable on the IUCN Red List, with a declining population reported across its range (Fredriksson *et al.*, 2008). The species is threatened by loss of habitat, and by wildlife trade, both of which are suspected to be the reason behind an estimated 30% population reduction over the last 30 years (Foley *et al.*, 2011). Bear parts, such as gall bladders, are in high demand for use in traditional Chinese medicines (TCM) and the meat is considered a culinary delicacy, the paws in particular.

BACKGROUND

In the Malaysian state of Sarawak on Borneo, trade in wildlife, including parts and derivatives, has been identified as the single leading factor that threatens the survival of species (Sarawak Forest Department and Wildlife Conservation Society, 1996). Wildlife is hunted predominantly for the wild meat trade, but also for trade as pets, trophies or for traditional medicine. The trade extends throughout the State, from remote indigenous settlements to markets in towns and cities and across national and international borders, via roads, ports and airports. It is large-scale and widespread, in virtually all villages and towns throughout the State (Sarawak Forest Department and Wildlife Conservation Society, 1996).

Historical accounts show that Sun Bears have been hunted and traded in Sarawak for decades as pets, for their meat, claws and gall bladders, with information suggesting that the Sun Bear is one of Borneo's most severely impacted mammal species (Meijaard, 1998; Pereira, 2002). Uses over time in Sarawak have varied. For example, in 1949, Sun Bear hides were used by men as decorative seating pads to keep dry when sitting down outdoors (Caldecott, 1988). In 1988, a door-to-door



Sun Bear *Helarctos malayanus*.

TIMBULL / KWPLH SUN BEAR EDUCATION CENTER

survey in 16 settlements and one town in Sarawak found 74 Sun Bear trophies, most of which consisted of bear paws for sale in shops and one captive animal kept as a pet (Meijaard, 1999). Research at the time found that approximately one bear was killed annually for every 50 hunting families, an estimated 10% of the Sun Bear population in Sarawak per year alone (Meijaard, 1999).

Between 1991 and 1996, 11 Sun Bears were licensed by the government as pets (Sarawak Forest Department and Wildlife Conservation Society, 1996). In addition, five animals were exported to Japan between January 1992 and March 1996, based on Forest Department records. However, according to the CITES Trade Database, only two animals were exported to Japan during this period (Sarawak Forest Department and Wildlife Conservation Society, 1996; CITES Trade Database, 2013).

The trade in gall bladders was reportedly continuing at high levels. During a survey on the availability of Sun Bear products in 1997, it appeared that almost every TCM shop in Sarawak stocked at least one or two bear gall bladders, and sometimes as many as 10 (Meijaard, 1998). In 2002, a study on the availability of bear bile products found that 14 of the 24 shops surveyed in Kuching sold bear products. Some of the traders in Peninsular Malaysia that were interviewed during that study cited the Sarawak border with Indonesia as a source for gall bladders (Pereira, 2002). With modern hunting methods, specifically the introduction of shotguns, the demand for bear parts and the growing accessibility to forests caused by development, logging and plantations, the effects of hunting on Sun Bears are likely to become more severe.

LEGISLATION

The Sun Bear is Totally Protected across its range, with the exception of Sarawak and Cambodia, where it is Protected. Although national legislation adopts varying terms within respective countries, in this paper, the term Totally Protected is taken to mean the highest degree of protection afforded by law, while Protected is taken to mean a second level of legal protection, where hunting and trade is regulated.

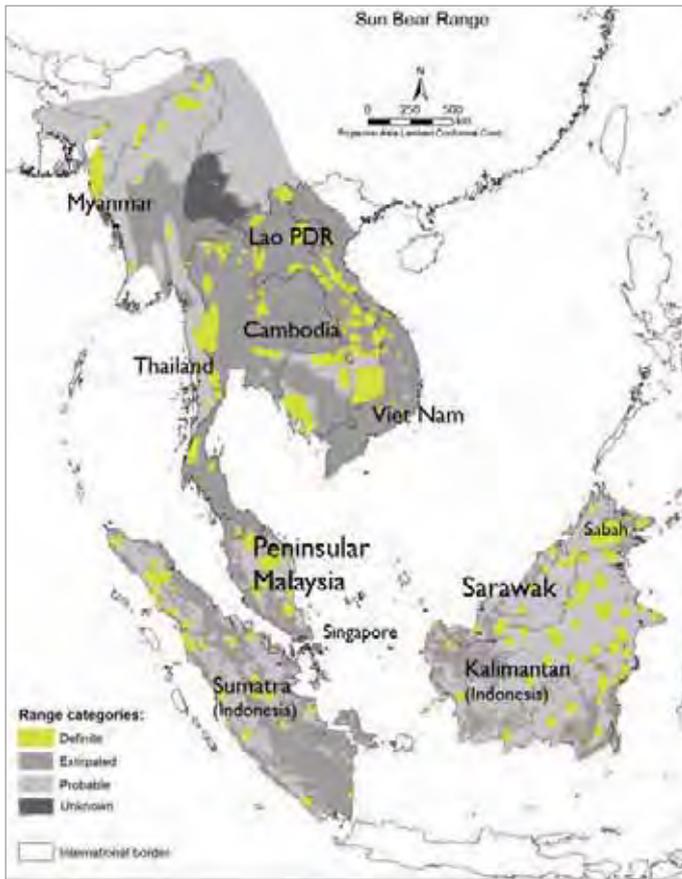


Fig. 1. Estimated distribution of Sun Bears.
 Source: IUCN/SSC Bear Specialist Group (adapted)

Malaysia is divided into three, semi-autonomous administrative regions: Peninsular Malaysia (comprising 11 States and two Federal territories), Sabah and Sarawak (Fig. 1).

The Sun Bear is listed as Protected under Sarawak’s *Wild Life Protection Ordinance*, yet it is increasingly threatened by hunting and commercial trade, largely to supply demand for its meat and for use in TCM, for which the gall bladder is the bear’s most sought-after body part. In addition, the Ordinance uses the term “recognisable part or derivative” when referring to parts of protected animals that cannot be traded. This clause poses a

severe challenge when dealing with products such as bear bile that are often sold in the form of pills or vials.

Further to being listed in Appendix I of CITES, to which Malaysia has been party since 1978, the Sun Bear is listed in Malaysia’s *International Trade in Endangered Species Act 2008*, which is the country’s CITES implementing legislation. Anyone caught illegally importing or exporting any CITES-listed species is liable to a fine of up to MYR1 million (USD322 580) or up to seven years in gaol, or both.

The three wildlife laws in Malaysia afford significantly different levels of protection to the country’s wildlife (Table 1). The *Wildlife Conservation Act 2010* in Peninsular Malaysia is the superior legislation of the three based on the number of species afforded Total Protection status and its corresponding levels of penalties for violation of the law.

There are three primary differences between the protection levels and penalties for crimes involving the Sun Bear in Peninsular Malaysia, Sabah and Sarawak:

1. Protection status: Totally Protected status for Sun Bear in Peninsular Malaysia and Sabah; Protected status for Sun Bear in Sarawak.
2. Fine: Up to 10 times higher for crimes involving the Sun Bear in Peninsular Malaysia, compared to Sarawak, and a fine up to five times higher for crimes involving the Sun Bear in Sabah, compared to Sarawak.
3. Gaol term: Up to three times higher for crimes involving the Sun Bear in Peninsular Malaysia, compared to Sarawak, and up to five times higher for crimes involving the Sun Bear in Sabah compared to Sarawak.

Further details on the major differences in the legislation covering Sun Bears in Sarawak, Sabah and Peninsular Malaysia can be viewed at: http://www.traffic.org/traffic-bulletin/traffic_publication_bulletin_26_1-SOM.pdf

Class	TOTALLY PROTECTED STATUS			PROTECTED STATUS		
	WCA 2010 (Peninsular Malaysia)	WCE 1997 (Sabah)	WLPO 1998 (Sarawak)	WCA 2010 (Peninsular Malaysia)	WCE 1997 (Sabah)	WLPO 1998 (Sarawak)
Mammalia	>272	6	28	>183	13	142
Aves	>947	0	37	>309	131	-
Reptilia	>66	3	11	>252	8	13
Amphibia	>9	0	0	>38	0	0
Insecta	4	0	0	>46	5	1
Arachnida	-	-	-	>11	0	0
TOTAL	>1298	>9	>76	>839	>157	>155

Table 1. Comparative summary of legislative protection for wildlife in Peninsular Malaysia, Sabah and Sarawak.
 WCA - Wildlife Conservation Act; WCE - Wildlife Conservation Enactment; WLPO - Wild Life Protection Ordinance
 Source: Mohd-Azlan J. (in prep.).



Bear gall bladder being weighed, observed in a shop in Sarawak.

Photograph: Lee SL / TRAFFIC

SURVEY FINDINGS

In 2010, TRAFFIC carried out surveys on the availability of bear bile products in 13 countries and territories in Asia. Findings show that Malaysia ranks as the fourth-highest in the region for the illegal trade in bear parts. This study also highlighted that 70–100% of the bear products found in Cambodia, Lao PDR, Malaysia, Singapore and Thailand were reportedly exported from China (Foley *et al.*, 2011).

Following TRAFFIC's first study, a second country-wide assessment on the availability of bear products in TCM shops in Malaysia was initiated in 2012 to assist enforcement agencies. A total of 365 shops were surveyed in Peninsular Malaysia, Sabah and Sarawak (Table 2). Traders who were interviewed claimed that some 60% of the bear gall bladders originated from locally sourced bears. A further 40% of bear gall bladders were allegedly imported, mainly from China and to a lesser extent from Indonesia, with the exception of one manufacturer of pills that was based in Malaysia. Results from this detailed study reinforce the fact that Malaysia is indeed a country of concern regarding trade involving bear products and that there is justification for improved legal protection in Sarawak in particular.

In Sarawak, 17 of the 48 (35%) shops surveyed in 2012 were found to sell bear products (bile, gall bladder and pills). Of greatest concern was the fact that Sarawak had more raw gall bladders available than any other State in Malaysia, with 94 observed (Table 3). This is consistent with the surveys conducted in 2010, where at least 115 gall bladders were recorded for sale—the highest proportion of whole gall bladders for sale compared to any other State in the country (Foley *et al.*, 2011). Almost all of the traders interviewed in Sabah and Sarawak (i.e. 90%) claimed to sell products from locally-sourced bears. The high number of gall bladders observed, and claims by traders that most bears were locally hunted, point to a large number of bears being hunted.

Any trade or importation of bear products into Sarawak is a clear violation of the *Wild Life Protection Ordinance 1998*, and the *International Trade in Endangered Species Act 2008*. All information received from this survey has been reported to the Sarawak Forest Corporation for information and action.

Reports to enforcement agencies	No. of shops surveyed	No. of shops selling bear products	%
Johor	36	28	78
Perak	50	27	54
Selangor	38	26	68
Penang	37	22	59
Kuala Lumpur	34	22	65
Melaka	30	18	60
Pahang	25	17	68
Kelantan	12	11	92
Kedah	11	6	55
Negeri Sembilan	11	4	36
Perlis	6	4	67
Terengganu	3	2	67
Sabah	24	10	42
Sarawak	48	17	35
TOTAL	365	214	59

Table 2. Number of traditional Chinese medicine shops surveyed across Malaysia.

State	No. of gall bladders observed
Sarawak	94
Kuala Lumpur	69
Johor	68
Perak	31
Sabah	24
Melaka	21
Pahang	16
Kelantan	12
Selangor	6
Penang	4
Terengganu	1
Kedah	1
Negeri Sembilan	0
Perlis	0
TOTAL	347

Table 3. Quantities of bear gall bladders recorded in traditional Chinese medicine shops surveyed across Malaysia.

The trade in Sun Bears for wild meat has also been reported in the State. In May 2013, local newspaper *Kosmo!* reported that at least five people were selling bear paws and gall bladders at Tersang market, Kapit. The outcome of this incident is unknown. The report noted that these illegal traders had hunted the Sun Bear from the nearby forest at Ulu Kapit, and that there was a high demand for Sun Bear parts locally (Asen, 2013).

Efforts by the State government to protect the Sun Bear

Information presented above underscores the fact that legislation protecting Sun Bears in Malaysia is the weakest in Sarawak, while trade involving bear parts and products is the highest compared to any other State in the country.

In January 1997, the Sarawak Cabinet adopted *A Master Plan for Wildlife in Sarawak* as a State policy to manage and conserve its natural environment and wildlife. The Master Plan marks the State's first attempt at consolidating all information on wildlife in the form of a comprehensive conservation strategy. It examines a wide range of issues including the management and protection of wildlife and its related challenges faced in the State. The Master Plan makes numerous recommendations to improve wildlife management, including specific recommendations for the Sun Bear. The Master Plan has proposed that the protection status of the Sun Bear (as well as certain other species) be upgraded because it is "Extremely rare; extinct in many areas, hunted heavily for meat, gall bladders, claws, teeth for trade".

The Master Plan also recommends that:

- 1) a moratorium be placed on all commercial sales of all wildlife and wildlife products in Sarawak. This can be done under the *Wild Life Protection Ordinance 1998*, so no change in legislation is required;
- 2) the moratorium should be announced six months before it is brought into effect, accompanied by an initial public announcement by the Chief Minister or State Secretary, and a major publicity campaign.

RECOMMENDATIONS

In light of the above, TRAFFIC strongly recommends that immediate efforts are put in place to improve protection of the Sun Bear from illegal hunting and trade in Sarawak, all of which are in line with the assessment and recommendations made by the *Master Plan for Wildlife in Sarawak*. These are:

- i. to include the Sun Bear in the Totally Protected list of the Sarawak *Wild Life Protection Ordinance 1998*;
- ii. to revise and increase penalties for both Totally Protected and Protected Species that would serve as a deterrent under the Ordinance, and that the increase in penalty is on a par with the *Wildlife Conservation Act 2010*;
- iii. to improve enforcement of the law through spot-checks and prosecution of those violating the law;
- iv. to place a moratorium on all commercial sales of all wildlife and wildlife products in Sarawak, under the WLPO. The moratorium should be announced six months before it is brought into effect, accompanied by an initial public announcement from the State government;

- v. to conduct sustained awareness-raising efforts on the illegality of the trade and consumption of bear products in the State, specifically with the TCM businesses and restaurants registered to sell wildlife, including the issuing of warning letters to those businesses selling bear products, and outlining the consequences of violating the law.

ACKNOWLEDGEMENTS

Animals Asia Foundation, the Myer Foundation and Hauser Bears are thanked for their generous support of TRAFFIC's work on the Malaysian bear bile trade. Anthony Sebastian, Gabriella Fredriksson, Wong Siew Te, Kim Lochen and Steven Broad are gratefully acknowledged for their useful comments on an earlier draft of this article.

REFERENCES

- Anwarul Islam, Sabir Bin Muzaffar, Md. Abdul Aziz, Md. Mofizul Kabir, Mayeen Uddin, Suprio Chakma, Sayam U Chowdhury, Md. Abdur Rashid, Gawsia Wahidunnessa Chowdhury, Samiul Mohsanin, Israt Jahan, Samia Saif, Md. Baharul Hossain, Dibendu Chakma, and Md. Kamruzzaman. (2010). *Baseline survey of Bears in Bangladesh 2008–2010*. Wildlife Trust of Bangladesh.
- Asen, M. (2013). Pasar Jual Daging Beruang. *Kosmo!* (Malaysia), 18 May. www.kosmo.com.my/kosmo/content.asp?y=2013&dt=0515&pub=Kosmo&sec=Negara&pg=ne_09.htm.
- Caldecott, J. (1988). *Hunting and Wildlife Management in Sarawak*. IUCN, Gland, Switzerland and Cambridge, UK.
- Foley, K.E., Stengel, C.J. and Shepherd, C.R. (2011). *Pills, Powders, Vials and Flakes: the Bear Bile Trade in Asia*. TRAFFIC Southeast Asia, Petaling Jaya, Selangor, Malaysia.
- Fredriksson, G., Steinmetz, R., Wong, S. and Garshelis, D.L. (IUCN SSC Bear Specialist Group) (2008). *Helarctos malayanus*. In: IUCN (2013). *IUCN Red List of Threatened Species*. Version 2013.1. www.iucnredlist.org. Viewed on 12 October 2013.
- Meijaard, E. (1998). *Ursus (Helarctos) malayanus, the Neglected Malayan Sun Bear*. Mededelingen No. 34 of the Netherlands Foundation for International Nature Protection.
- Meijaard, E. (1999). *Human imposed threats to Sun Bears in Borneo*. *Ursus* 11:185–192.
- Meijaard, E. (2004). Craniometric differences among Malayan sun bears (*Ursus malayanus*); Evolutionary and taxonomic implications. *Raffles Bulletin of Zoology* 52:665–672.
- Mohd-Azlan, J. (in prep). *Wildlife Conservation Legislations in Malaysia: Evolution and Future Needs*. Universiti Malaysia Sarawak.
- Pereira, D., Loh, R., and Bonfiglio, M.B. (2002). *The Bear Gall Bladder and Bear Bile Trade in Traditional Chinese Medicine Shops in Malaysia*, World Society for the Protection of Animals. October 2002.
- Sarawak Forest Department and Wildlife Conservation Society (1996). *A Master Plan for Wildlife in Sarawak*. Sarawak Forest Department, Sarawak, Malaysia.

Kanitha Krishnasamy, Senior Programme Officer, TRAFFIC
E-mail: kanitha.krishnasamy@traffic.org

Chris R. Shepherd, Regional Director—South-east Asia,
TRAFFIC; IUCN/SSC Bear Specialist Group, Chair: Trade in
Bear Parts Expert Team. E-mail: chris.shepherd@traffic.org

INDEX VOL 25

Entries in bold indicate illustrations

A

- Abalone (see also *Haliotis*), seizures and prosecutions, 31,71
Aceros, 52
Acipenser baerii, 21; *A. gueldenstaedtii*, 20–22; *A. nudiiventris*, 20–22; *A. ruthenus*, 20–22; *A. stellatus*, 20–22; *A. sturio*, 20–22
Acropora, seizure, 71
Adenia firingalavensis, CoP16, 68; *A. subsessifolia*, CoP16, 68
Agamura persica, illegal trade in Pakistan, 8
Ahlers, Nick, Bulletin Board, 42
Allan, Crawford, Bulletin Board, 42
Althaea officinalis, FairWild certified collection operation, 56
Anacyclus pyrethrum, FairWild certified collection operation, 12
Anas versicolor, seizure, 72
Anguilla, glass eels: assessing supply chain and market impacts of a CITES listing on *Anguilla* species, 24–30; *A. anguilla*, 24–30; *A. bengalensis*, 24–30; *A. bicolor*, 24–30; *A. borneensis*, 24–30; *A. celebesensis*, 24–30; *A. japonica*, 24–30; *A. luzonensis*, 24–30; *A. marmorata*, 24–30, **28**; *A. mossambica*, 24–30; *A. nebulosa*, 24–30; *A. rostrata*, 24–30
Aniba rosaeodora, CoP16, 62–63,68
Anthracoseros montani, 52–53
Antipathes, seizure, 71
Aquilaria spp., CoP16, 68
Arnica montana, 19
Astrochelys radiata, seizures, 23,33,34; *A. yniphora*, calls for international co-operation to save the Ploughshare Tortoise, 23; seizure, **33**
Australia, seizures and prosecutions, *Tachyglossus aculeatus*, **16–17**; 31,71

B

- Balochistan Province, Pakistan, illegal reptilian trade, 8
Bear (see also species name), seizures: gall bladders, 69, paws, 72
Beastall, Claire, trade in “captive bred” echidnas, 16–17; wildlife trade training sustainability and stewardship—a case study from South-east Asia, 47
Betula pendula, FairWild certified collection operation, **18–19**
Bhandari, Ashu, prosecution, 34
Biemei, Chen, prosecution, 70
Biofach trade fair, 13
Birds’ nests, seizure, 69
Boa constrictor, 77
Bolton, Gary, prosecution, 70
Boswellia, 13; *B. neglecta*, piloting FairWild certification, 56
Brazil, improving forest governance, 48,50
Broad, Steven, editorial, 1
Buceros rhinoceros, **52–53**; *B. vigil*, 82

- Bulgaria, caviar market surveys in Bulgaria and Romania, 20–22
Burgess, Gayle, editorial, 41
Burundi, seizure, 69

C

- Caiman latirostris*, 77
Caloprymus campestris, CoP16, 65,67
Cambodia, wildlife trade training programmes, 47; the decline in ivory trade, 43–45
Cameroon, seizures, 32,69
Campephilus imperialis, CoP16, 67
Canada, glass eels: assessing supply chain and market impacts of a CITES listing on *Anguilla* species, 24–30; seizures and prosecutions, 32,34,72
Caracara lutosa, CoP16, 67
Carcharhinus, 77; *C. longimanus*, CoP16, **57**,64,68
Carpmael, Andrew, prosecution, 31
Caviar, market surveys in Bulgaria and Romania, 20–22
Cayman Islands, seizures and prosecutions, 71
CBD (Convention on Biological Diversity), CoP11, 14–15
Ceratotherium simum, poaching/seizures, 34,71,72; *C.s. simum*, 67
Chad, seizures, 69
Chaeropus ecaudatus, CoP16, 65,67
Cheilinus undulatus, 5,64
Chelodina mccordi, CoP16, 67
Chelonia mydas, seizure, 71
China, seizures and prosecutions, 32,33, **34**,69,70,71,72; moray eels, 4–7; glass eels: assessing supply chain and market impacts of a CITES listing on *Anguilla* species, 24–30; Chinese buying ivory, 35–40
Chordeiles nacunda, seizure, 72
CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora), 1; sturgeon caviar labelling requirements, 20–22; glass eels: assessing supply chain and market impacts of a CITES listing on *Anguilla* species, 24–30; wildlife market inspections in Nigeria, 35–40; elephant loans, 46; report of CoP16, 1,57–68; ivory, 79–84
Chemmys guttata, CoP16, 67
Colombia, seizures, 72; the use of Green Iguanas in Fonseca, 73–78; improving forest governance, 48,50
Commiphora confusa, piloting FairWild certification, 56
Compton, James, editorial, 41
Congo, People’s Democratic Republic of, prosecution, 69
Coral (see also under scientific names), seizures, 34,71
Crocodylus acutus, CoP16, 67; *C. porosus*, seizure, 10; CoP16, 65,67; *C. siamensis*, CoP16, 65,67
Crook, Vicki, glass eels: assessing supply chain and market impacts of a CITES listing on *Anguilla* species, 24–30

- Ctenosaura* spp., 74
Cuora flavomarginata, seizure, 72; *C. galbinifrons*, CoP16, 67
Cyclomys dentata, seizure, 10
Cyphostemma laza, CoP16, 68
Czech Republic, seizure, 71; sustainable harvest of and trade in wild plants, 18–19

D

- Daeninck, Jayson, prosecution, 34
Dalbergia, CoP16, 62–63; *D. cochinchinensis*, CoP16, 62,68; *D. granadillo*, CoP16, 68; *D. retusa*, CoP16, 68; *D. stevensonii*, CoP16, 68
Dang, Duong, prosecution, 71
Dao, Duy Cam, prosecution, 31
Dasyatis sp., 77
Dasyus novemcinctus, 77
Diceros bicornis, poaching/seizure, 72
Diospyros, CoP16, 62–63,68
Dissostichus eleginoides (see also toothfish), 65
Dominican Republic, glass eels: assessing supply chain and market impacts of a CITES listing on *Anguilla* species, 24–30
Dong, Fengrong, prosecution, 71
Dubai, seizure, 70
Dudleya stolonifera, CoP16, 65,68; *D. traskiae*, 68
Dumusani, Daniel, prosecution, 72

E

- Echidna (see also *Tachyglossus aculeatus*), trade in “captive bred” echidnas, **16–17**
Ecuador, improving forest governance, **48,50**
Editorial, 1,41
Eel (see also species name), moray eel fishing in the Spermonde Archipelago, south Sulawesi, Indonesia, 4–7; glass eels: assessing supply chain and market impacts of a CITES listing on *Anguilla* species, 24–30; errata, 42
Elephant (see also species name and ivory), Partnership to Save Africa’s Elephants, 42; poisoning in Zimbabwe, 46; the decline in Cambodia’s ivory trade, 43–45; Asian Elephant loans from Lao PDR, to Japan, 46; CoP16, 59–61; poaching in Central Africa, and Chad, and People’s Republic of Congo, 69; reduction in demand for ivory in Singapore, but transit trade vigilance needed, 79–84
Elephas maximus (see also elephant and ivory), reduction in demand for ivory in Singapore, but transit trade vigilance needed, 79–84; loans from Lao PDR to Japan, 46; the decline in Cambodia’s ivory trade, 43–45
Emydoidea blandingii, CoP16, 67
Epipedobates machalilla, CoP16, 68
Equisetum arvense, FairWild certified collection operation, 18–19

- ETIS (Elephant Trade Information System), 42,60,70; Nigeria, 36,38; Philippines, 46; Singapore, 80,84
- Eublepharis macularius*, illegal trade in Pakistan, 8
- Eunectes marinus*, 77
- European Union, glass eel Customs commodity code, 27
- F**
- FairWild, 12,13; medicinal and aromatic plants of Morocco—national strategy puts FairWild into action, 12; FairWild certification—stories from the scheme, 18–19, 55–56
- Fan, prosecution, 70
- Fishes (see also species name), CoP16, 63–64
- FLEGT (Forest Law Enforcement, Governance and Trade), in Latin America, 48–51
- Fonseca, the use of Green Iguanas in Fonseca, Colombia, 73–78
- France, seizures, 33,71
- Frankincense (see also species name), piloting FairWild certification in Kenya, 56
- Fungia, seizure, 71
- G**
- Gabon, seizure, 32
- Gallus sonneratti*, CoP16, 65,67
- Garrulax bicolor*, protection urgently needed for the endemic Sumatran Laughingthrush, 53–54; *G. leucolophus*, 53
- GEM Manufacturing LLC, prosecution, 34
- Gentiana lutea*, 19
- Geochelone elegans*, seizure, 72; *G. platynota*, CoP16, 67
- Geoemydidae, CoP16, 67; *Geoemyda japonica*, CoP16, 67
- Glycyrrhiza uralensis*, 56
- Gómez, the use of Green Iguanas in Fonseca, Colombia, 73–78
- Gray, Julie, report of the 16th meeting of the Conference of the Parties to CITES, 57–68
- GSPC (Global Strategy for Plant Conservation), targets and objectives, 14–15
- Guinea, Republic of, seizures, 72
- Gymnothorax javanicus*, first evidence of targeted moray eel fishing in the Spermonde Archipelago, south Sulawesi, Indonesia, 4–7; *G. favagineus*, 6; *G. isingteana*, 6; *G. picta*, 6
- Gyrinops* spp., CoP16, 68
- H**
- Haliotis* (see also Abalone), seizures, 71; *H. midae*, seizure, 71
- Helarctos malayanus*, seizure, 31
- Heliopora*, seizure, 71
- Heosemys leytensis*, 9–11
- Hillman, Simon, prosecution, 31
- Hippocampus*, 63; seizure, 71
- Hippopotamus amphibius*, tusk carvings, 38
- Holothuria nobilis*, 5
- Hong Kong, seizures, 32,69; glass eels: assessing supply chain and market impacts of a CITES listing on *Anguilla* species, 24–30
- Hoodia*, CoP16, 68
- Hornbill (see also species name), seizures, 33,72; wild specimens in trade declared as captive-bred, 52–53; report of 6th International Hornbill Conference, 52–53
- Hungary, sustainable harvest of and trade in wild plants, 18–19
- Huso huso*, caviar market surveys in Bulgaria and Romania, 20–22
- I**
- Iguana iguana*, use in Fonseca, Colombia, 73–78
- India, seizures and prosecutions, 32,33,34,69,70,71,72
- Indonesia, moray eel fishing, Spermonde Archipelago, south Sulawesi, 4–7; trade in “captive bred” echidnas, 16–17; seizures, 31,33; protection urgently needed for the endemic Sumatran Laughingthrush, 53–54
- Inia geoffrensis*, 77
- INTERPOL, 1,3,31, Project LEAF (Law Enforcement Assistance for Forests), 49
- Ireland, seizures and prosecutions, 34
- ISSC-MAP, 55
- Italy, seizures, 72
- Ithaginis cruentus*, CoP16, 65,67
- Ivory, Lagos, Nigeria: one of the largest retail centres for illegal ivory surveyed to date, 35–40; increased demand, 41; reduction in demand for ivory in Singapore, 79–84; Philippines’ ivory stockpiles destroyed, 46; US intention to destroy ivory stockpiles, 46; seizures, 3,32,33,34,46,69,70,72; the decline in Cambodia’s ivory trade, 43–45
- J**
- Jadere, Daniel, prosecution, 72
- Jahrl, Jutta, caviar market surveys in Bulgaria and Romania, 20–22
- Japan, glass eels: assessing supply chain and market impacts of a CITES listing on *Anguilla* species, 24–30; elephant loans from Lao, People’s Democratic Republic, 46
- Jiang, Jiezhen, prosecution, 70
- Juglans regia*, FairWild certified collection operation, 18–19
- Juniperus communis*, FairWild certified collection operations, 18,56
- K**
- Kanari, Kahoru, 2
- Kecse-Nagy, Katalin, caviar market surveys in Bulgaria and Romania, 20–22
- Kenya, seizures and prosecutions, 69,70,71; piloting FairWild certification of Frankincense, 56
- Korea, Republic of, glass eels: assessing supply chain and market impacts of a CITES listing on *Anguilla* species, 24–30
- Kramer, Rachel, Bulletin Board, 2
- Krishnasamy, Kanitha, reduction in demand for ivory in Singapore, but transit trade vigilance needed, 79–84
- Krishnaswamy, Shashikumar, prosecution, 33
- Kuehl, Yannick, Bulletin Board, 42
- L**
- Lamna nasus*, CoP16, 64
- Lao, People’s Democratic Republic, elephant loans to Japan, 46
- Latin America, improving forest governance, 48–51
- Le, Van Thanh, prosecution, 71
- Lebanon, joins CITES, 2
- Lemtongthai, Chumlong, prosecution, 34
- Leptoria*, seizure, 71
- Li, Chenyang, Bulletin Board, 42
- Liquorice (see *Glycyrrhiza*)
- Lophura imperialis*, CoP16, 67
- Loxodonta africana* (see also elephant and ivory), 31,33; CoP16, 59–61,67; reduction in demand for ivory in Singapore, but transit trade vigilance needed, 79–84
- M**
- Macau Special Administrative Region, seizures, 69,70
- Macrotis leucura*, CoP16, 65,67
- Madagascar, glass eels: assessing supply chain and market impacts of a CITES listing on *Anguilla* species, 24–30; Ploughshare Tortoise, 23
- Magar, Sita Bahadur Dhenga, prosecution, 72
- Makhubela, Inaso, prosecution, 72
- Malaclemys terrapin*, CoP16, 67
- Malaysia, seizures and prosecutions, 31,32,33,71; wildlife trade training programmes, 47
- Malunga, Antonio, prosecution, 72
- Manihot esculenta*, 75
- Manis* (see also pangolin), seizures and prosecutions, 33,71; *M. pentadactyla*, seizure, 33
- Manta* spp., CoP16, 64,68
- Martin, Chryssee, the decline in Cambodia’s ivory trade, 43–45
- Martin, Esmond, Lagos, Nigeria: one of the largest retail centres for illegal ivory surveyed to date, 35–40; the decline in

- Cambodia's ivory trade, 43–45
- Martínez, David, the use of Green Iguanas in Fonseca, Colombia, 73–78
- Matsumoto, Tomoi, Bulletin Board, 42
- Mauremys annamensis*, CoP16, 67; *M. mutica*, seizure, 72
- Mauritius, sustainable eel fishery and eel farming, 28
- McCormick, James, prosecution, 70
- Medicinal and aromatic plants (MAPs), of Morocco—national strategy puts FairWild into Action, 12; Biofach trade fair, 13; CBD CoP11, 14–15; FairWild certification, stories from the scheme, 55,56
- Meibom, Stephanie von, Bulletin Board, 42
- Mhlongo, Leonard, prosecution, 72
- MIKE (Monitoring Illegal Killing of Elephants), 60
- Milliken, Tom, report of the 16th meeting of the Conference of the Parties to CITES, 57–68; impact statement, 70
- Monodon monoceros*, seizure, 72
- Montgomery, Alex, prosecution, 71
- Moray eel (see also species name), first evidence of targeted moray eel fishing in the Spermonde Archipelago, south Sulawesi, Indonesia, 4–7
- Morgan, Bryony, medicinal and aromatic plants of Morocco—national strategy puts FairWild into Action, 12; taking action on sustainable wild harvesting: building relationships, changing markets, 13; FairWild certification: stories from the scheme, 55–56
- Morocco, medicinal and aromatic plants—national strategy puts FairWild into action, 12; glass eels: assessing supply chain and market impacts of a CITES listing on *Anguilla* species, 24–30; FairWild certification: stories from the scheme, 55–56
- Mozambique, seizures, 31,34
- Mukwena, Rogers, prosecution, 34
- Musk, seizure, 72
- Mutungji, Enock, prosecution, 72
- Myanmar, wildlife trade training programmes, 47
- N**
- Nakamura, Miki, glass eels: assessing supply chain and market impacts of a CITES listing on *Anguilla* species, 24–30
- Nam Bak Enterprises Limited, prosecution, 32
- Naultinus* spp., CoP16, 67
- Neal's Yard Remedies, 13,56
- Nepal, shahtoosh seizure, 3; seizures and prosecutions, 3,31,33,34,72
- Netherlands, seizures, 33
- Newton, David, report of the 16th meeting of the Conference of the Parties to CITES, 57–68
- New Zealand, seizures and prosecutions, 70
- Ngobeni, Jorudo, prosecution, 72
- Ngo-Yebel, Louise, Bulletin Board, 2
- Ngondjo, Ghislain, prosecution, 69
- Ngwenya, Julius, prosecution, 72
- Nigeria, Lagos: one of the largest retail centres of illegal ivory surveyed to date, 35–40
- Nijman, Vincent, Asian Elephant loans from Lao PDR, to Japan, 46
- Niraj, Shekhar Kumar, Bulletin Board, 2
- Nkuna, Augustus, prosecution, 72
- Núñez-Miño, José, improving forest governance in Latin America, 48–51
- Nyoni, Foster, prosecution, 72
- O**
- O'Brien, Jeremiah and Michael, prosecutions, 34
- Odobenus rosmarus*, seizure, 33
- Oldfield, Thomasina, report of the 16th meeting of the Conference of the Parties to CITES, 57–68
- Onychogalea lunata*, CoP16, 65,67
- Operation, Cobra, 3,32; Ratchet, 71
- Operculicarya decaryi*, CoP16, 68
- Orchid, seizure, 33
- Origanum compactum*, FairWild certified collection operation, 12; *O. elongatum*, FairWild certified collection operation, 12
- Osyris lanceolata*, CoP16, 68
- Ottens, Bert-Jan, medicinal and aromatic plants of Morocco—national strategy puts FairWild into action, 12
- P**
- Pakistan, illegal reptilian trade in Chagai Desert, Pakistan: a narrative of bad governance and weakening of traditional institutions, 8
- Panax ginseng*, CoP16, 68; *P. quinquefolius*, illegal trade/seizure, 32; CoP16, 68
- Pangolin (see also species name), seizures, 3,32,33,71,72
- Panqiu, Lin, Bulletin Board, 2
- Panthera leo*, seizures/illegal trade, 72; *P. onca*, seizures, 69; *P. pardus*, seizures, 69,72; *P. tigris*, seizures/illegal trade, 31,32, 69,72; *Pt. altaica*, poaching, 31; *Pt. sumatrae*, seizures, 69
- Pantholops hodgsonii*, wool seizures, 3,34,72
- Pan troglodytes*, illegal trade, 72
- Papilio hospiton*, CoP16, 68
- Papua New Guinea, *Tachyglossus aculeatus*, 16–17
- Paraguay, Sainab Husain, first evidence of targeted Moray eel fishing in the Spermonde Archipelago, south Sulawesi, Indonesia, 4–7
- Paratrygon aiereba*, CoP16, 64,68
- Pelargonium sidoides*, 15
- Pépito, prosecution, 69
- Peru, improving forest governance, 48,50,51
- Philippines, the Palawan Forest Turtle, 9–11; ivory stockpiles destroyed, 46; glass eels: assessing supply chain and market impacts of a CITES listing on *Anguilla* species, 24–30; 6th International Hornbill Conference, 52–53
- Platysternidae, CoP16, 67
- Pocillipora, seizure, 71
- Poland, sustainable harvest of and trade in wild plants, 18–19
- Potomotrygon motoro*, CoP16, 64,68; *P. schroederi*, CoP16, 64,68
- Pristis microdon*, CoP16, 64,68
- ProFound, FairWild, 12
- Protobothrops mangshanensis*, CoP16, 67
- Pteropus brunneus*, CoP16, 65,67
- Pterocarpus santalinus*, seizures, 3,32,70
- Pukka Herbs, 15,56
- R**
- Rasheed, Tahir, illegal reptilian trade in Chagai Desert, Pakistan: a narrative of bad governance and weakening of traditional institutions, 8
- Ray (Stingray) (see also species name), CoP16, 64
- Reptile (see also under species name), illegal reptilian trade in Chagai Desert, Pakistan, 8; seizures, 33–34
- Rheobatrachus silus*, CoP16, 65,68; *R. vitellinus*, 65,68
- Rhinoceros (see also species name), seizures, 3,32,34,69,71,72; increased demand for horn, 41; CoP16, 61–62
- Rhinoplax vigil*, 52–53
- Rhyticeros plicatus*, 52
- Rodina, Kristina, traditional and wild: establishing sustainable collection of wild plants, 18–19
- Romania, caviar market surveys in Bulgaria and Romania, 20–22
- Rosa canina*, FairWild certified collection operations, 18–19,56
- Rosmarinus officinalis*, FairWild certified collection operation, 12
- Rubus idaeus*, FairWild certified collection operations, 18–19,56
- Rupicapra pyrenaica ornata*, CoP16, 67
- Rusa unicolor*, seizure, 31
- Russia, seizures and prosecutions, 31–32
- S**
- Saiga tatarica*, seizure, 72
- Saltwater Connection, prosecution, 34
- Sambucus nigra*, FairWild certified collection operations, 18–19,56
- Sangha, Symphorien, prosecution, 69
- Sant, Glenn, report of the 16th meeting of the Conference of the Parties to CITES, 57–68
- Sarmiento, Janer de Jesús, prosecution, 72
- Sceloglaux albifacies*, CoP16, 65,67
- Schaedla, Bill, Bulletin Board, 42

- Schoppe, Sabine, the Palawan Forest Turtle: under threat from international trade, 9–11
- Schwerdtner Máñez, Kathleen, first evidence of targeted moray eel fishing in the Spermonde Archipelago, south Sulawesi, Indonesia, 4–7
- Sea cucumber, 64; seizure, 72
- Seahorse, seizure, 34
- Seizures (and prosecutions), 31–34, 69–72
- Senna meridionalis*, CoP16, 68
- Shadbolt, Tanya, Bulletin Board, 42
- Shahtoosh (see also *Panholops hodgsonii*), seizure, 3
- Shark (see also species name), CoP16, 64
- Shepherd, Chris R., the Palawan Forest Turtle: under threat from international trade, 9–11; trade in “captive bred” echidnas, 16–17; calls for international co-operation to save the Ploughshare Tortoise, 23, 34; Bulletin Board, 42; hornbills: wild specimens in trade declared as captive-bred, 52–53; protection urgently needed for the endemic Sumatran Laughingthrush, 53–54; reduction in demand for ivory in Singapore, but transit trade vigilance needed, 79–84
- Shiraishi, Hiromi, Bulletin Board, 42
- Shiringa, Manyanga, prosecution, 72
- Siebenrockiella leytenis*, under threat from international trade, 9–11
- Singapore, hornbills, 52–53; seizures, 32; reduction in demand for ivory in Singapore, but transit trade vigilance needed, 79–84
- Slovenia, sustainable harvest of and trade in wild plants, 18–19
- Snake (see also species name), seizures, 33
- Solidago canadensis*, FairWild certified collection operation, 18–19
- Solomon Islands, hornbills, 52
- Sotalia fluviatilis*, 77; *S. guianensis*, 77
- South Africa, seizures and prosecutions, 31, 34, 71, 72
- Spain, seizure, 71
- Sphyrna* spp., CoP16, 64; *S. lewini*, CoP16, 68; *S. mokarran*, CoP16, 68; *S. zygaena*, CoP16, 68
- Sri Lanka, seizures, 72
- Stonex Corp, prosecution, 33
- Strombus gigas*, illegal collection, 71
- Sturgeon (see also species name), caviar market surveys in Bulgaria and Romania, 20–22
- Sumatran Laughingthrush (see also *Garrulax bicolor*), protection urgently needed for the endemic Sumatran Laughingthrush, 53–54
- Swietenia macrophylla*, CoP16, 63
- Syrigma sibilatrix*, seizure, 72
- T**
- Tachyglossus aculeatus*, trade in “captive-bred” echidnas, 16–17
- Taiwan, seizures, 72; moray eels, 4, 6; glass eels: assessing supply chain and market impacts of a CITES listing on *Anguilla* species, 4–7
- Tamoungang, Emmanuel, obituary, 2
- Tanzania, seizures and prosecutions, 70
- Taraxacum officinale*, FairWild certified collection operations, 56
- Teratoscincus microlepis*, illegal trade in Pakistan, 8; *T. scincus keyserlingii*, illegal trade in Pakistan, 8
- Terrance, Olivia, prosecution, 72
- Testudo horsfieldii*, in Pakistan, 8
- Tetraogallus caspius*, 65, 67; *T. tibetanus*, 65, 67
- Thailand, seizures, 23, 32, 33, 34, 70, 71; 16th meeting of the Conference of the Parties to CITES, 57–68
- Thomas, Richard, seizure of Tibetan Antelope wool in Nepal, 3
- Thomson, Julie, Bulletin Board, 2
- Thunnus thynnus*, 63
- Thylacinus cynocephalus*, 65, 66, 67
- Thymus saturejoides*, FairWild, 12
- Tibetan Antelope (see *Panholops hodgsonii*)
- Tiger (see also species name), increased demand for parts, 41
- Tillandsia kautskyi*, CoP16, 65, 68; *T. sprengeliana*, 65, 68; *T. sucrei*, 65, 68
- Timber (see also species name), increased demand, 41; FLEGT, 48–51; CoP16, 62–63
- Timoshyna, Anastasiya, taking action on sustainable wild harvesting: building relationships, changing markets, 13; sustainable use of wild plants: CBD CoP11 global framework to national implementation, 14–15
- Togo, seizure, 70
- Toothfish, CITES co-operation with CCAMLR, 65
- Trachemys callirostris*, illegal trade, 72
- Traditional and wild*, project on sustainable harvest of and trade in wild plants, 18–19
- Traditional Medicinals Inc., 13, 56
- Trichechus inunguis*, 77; *T. senegalensis*, CoP16, 65, 67
- Trionychidae, CoP16, 68
- Turkey, seizure, 33
- Turtle (see also species name), seizure, 69, 72
- Tympanuchus cupido attwateri*, 66, 67
- U**
- UK, seizures, 71
- Uncarina stellulifera*, CoP16, 68
- United Arab Emirates, seizure, 70
- Uromastix*, in Pakistan, 8
- Ursus arctos*, seizure, 72; *U. maritimus*, seizure, 72; CoP16, 66, 67; *U. thibetanus*, seizure, 72
- Urtica dioica*, FairWild certified collection operations, 18–19, 56
- USA, glass eels: assessing supply chain and market impacts of a CITES listing on *Anguilla* species, 24–30; advisory council on wildlife trade, 42; seizures and prosecutions, 32, 33, 34, 69, 70, 72
- V**
- Vaccinium myrtillus*, FairWild certified collection operation, 18–19
- Vaisman, Alexey, Bulletin Board, 42
- Vicugna vicugna*, 66, 67
- Viet Nam, seizures, 34, 70, 71, 72; wildlife trade training programmes, 47
- Vigne, Lucy, Lagos, Nigeria: one of the largest retail centres for illegal ivory surveyed to date, 35–40
- W**
- Wang, prosecution, 70
- Webber, Lola, reduction in demand for ivory in Singapore, but transit trade vigilance needed, 79–84
- Wei, Xingye, Bulletin Board, 42
- Wu, prosecution, 71
- Y**
- Yucca queretaroensis*, CoP16, 68
- Z**
- Zain, Sabri, report of the 16th meeting of the Conference of the Parties to CITES, 57–68
- Zhang, prosecution, 71
- Zhang, Ke, Bulletin Board, 42
- Zhang, Sheng, Bulletin Board, 2
- Zhang, Qianjin, prosecution, 33
- Zhu, prosecution, 71
- Zhuo, prosecution, 71
- Zimbabwe, elephants poisoned, 46

Papers on the subject of wildlife trade are invited for consideration by TRAFFIC, the publisher of the *TRAFFIC Bulletin*, provided the material is unpublished and not under consideration for publication elsewhere. Contributions can take the form of feature articles (which should not usually exceed 7000 words, excluding tables and references), Short Communications (up to 3000 words), and news items (up to 2000 words).

Referees and the Editor judge each submitted manuscript on data originality, accuracy and clarity. A minimum of two reviewers are selected by TRAFFIC for feature articles and Short Communications, with suggestions from the author welcome. The author will be notified of acceptance, rejection or the need for revision of the paper following the review process, which takes up to eight weeks. If accepted, the author will be responsible for incorporating the reviewers' comments, as appropriate. The paper will then be edited and returned to the author for comment/further amendment if necessary, and the author's approval. The author should correct the proofs and return them to the Editor within an agreed period (usually 10 days). Acceptance of a paper for publication in the *TRAFFIC Bulletin* will normally be confirmed when any outstanding points have been clarified with the Editor. Copyright of material published in the *TRAFFIC Bulletin* will be vested in TRAFFIC.

Editing at TRAFFIC: The editing process will include reading the report, checking for sense and style and making adjustments accordingly, as necessary; standardizing spelling, punctuation, checking for provision of sources; communicating with the author over any substantive changes; preparing layout; scanning and placing illustrations, etc.

The editing period at TRAFFIC usually takes a minimum of two weeks, depending on the length of the article and the extent of editing required. After this period, correspondence between the Editor and the author will aim to see the text finalized to the mutual satisfaction of both parties and to allow for any outstanding errors to be eliminated before the report is finalized.

Guide to Authors: Manuscripts should be written in the English language and submitted to the Editor via e-mail (in Word, Rich Text format). Submissions in other languages may be considered for translation but an English summary must be prepared. All submissions must provide an approximate word count and the spelling should be thoroughly checked, using a computerized spell-checker if possible.

A feature article in the *TRAFFIC Bulletin* will normally comprise the following structure, where possible:

Abstract. 200 words, or fewer, in italics. This should express briefly the purpose, results and implications of the study. Note that an Abstract is not necessary for Short Communications.

Introduction. This section should help familiarize the reader with the subject and explain the rationale for the study and the reasons for choosing any aspects highlighted in the report.

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.

Results. The results can consist of further sections of text which should be broken up, with subheadings, as appropriate. If research has been weak and flawed, point this out, rather than try to hide the fact. By flagging the main points emerging from the research throughout the article, it will be much easier to draw together a discussion and conclusions section.

Discussion and Conclusions. These sections, which may be combined, should constitute an analysis of what the results actually show, what may be inferred from them (if relevant), and what may be concluded on the subject in question, including any limitations. No new results should be introduced in these sections.

Recommendations. These should be linked to the discussion/conclusions in the report. Try to make these as specific as possible, stating who should take action, where possible.

Acknowledgements. These should include acknowledgement of funders of research and production, as well as of reviewers and contributors.

References. See also below.

SPECIFIC STYLE REQUIREMENTS:

Species names: Common or vernacular names of species should at first mention be accompanied by their full scientific name. If referring to a distinct species, use initial capital letters, for example, African Elephant *Loxodonta africana*. If discussing more than one species under a generic name, no capital letter is used, for example, rhinoceroses (as opposed to Black Rhinoceros). The common name only is used in subsequent references to the species name, except in cases where there may be several common names in use or when there is no common name; in such cases the scientific name only will be referred to.

References in text: Reference all material that is not based on the observation of the author(s). Published literature is cited in the text by author, and year of publication (Mabberley, 1997); three or more authors are represented by the first author's surname (Chen *et al.*, 1996). Personal communications should be cited in the text as: initial, surname and month/year (J. Smith pers. comm. to M. Brown, January 1999); correspondence cited as: initial, surname, *in litt.*, month/year (T. Holt, *in litt.* to M. Kray, May 1998).

Numbers: Numbers from one to nine, and all numbers at the beginning of a sentence should be spelled out in full; numbers of 10 and more should be written as figures.

Units of measure/currency: All measurements should be in metric units. Currencies should at first mention have a US dollar exchange rate, though original currencies should be quoted rather than converted values.

Tables/figures: Submit only essential tables and figures; these should not exceed 10 in number and preferably should be no more than five, or fewer. They must be referred to (in Arabic numerals) and interpreted in the text. Do not present the same data in a table and a figure. The caption should appear beneath the table/figure, and should indicate when the data were collected. All tables should be tabulated (do not use space bar), with no cells/boxes or horizontal/vertical rules. Rules will be incorporated at the desktop publishing stage. Where appropriate, both common and scientific names should be included in the table.

Illustrations: High quality colour images should be submitted by e-mail for selection by the Editor, in consultation with the author. Captions and names of photographers should be indicated. Maps should be of a quality for direct reproduction and to proportions appropriate for reproduction to a width of one column (80 mm) or one page (170 mm), and a maximum height of 130 mm. It is the author's responsibility to obtain copyright clearance for reproduction of illustrative material supplied and to ensure adequate acknowledgement.

Reprints: Following publication of the article, up to five reprints are provided free of charge. Additional copies can be obtained, stocks allowing, but postage costs will be charged for.

Please direct any queries to: traffic@traffic.org

TRAFFIC MAILING DATABASE FORM

PLEASE COMPLETE THE FOLLOWING FORM IF YOU ARE SUBSCRIBING TO THE *TRAFFIC BULLETIN* FOR THE FIRST TIME, YOUR DETAILS HAVE CHANGED, OR IF YOU PREFER TO RECEIVE THE *TRAFFIC BULLETIN* BY ELECTRONIC MAIL ONLY.

Title (Dr/Mr/Mrs/Ms/Other) _____ Reference No. _____ (Please refer to envelope label)

Organization _____
(Please spell out acronyms in full)

Name _____ Position _____

Address _____

Post/Zip code _____ Country _____

Website _____ E-mail _____

Tel. Number _____ Fax Number _____

- Please type "X" if your contact details have changed.
 Please type "X" if you wish to receive a copy of the *TRAFFIC Bulletin* in electronic format.
 Please type "X" if you wish to receive a hard copy of the *TRAFFIC Bulletin*.
 Please type "X" if you wish to CANCEL your subscription to the *TRAFFIC Bulletin*.

Nature of business (type "X" in square brackets):

- | | |
|---|---|
| <input type="checkbox"/> education (school, college, university) | <input type="checkbox"/> CITES Management Authority |
| <input type="checkbox"/> research (university, institute, laboratory) | <input type="checkbox"/> CITES Scientific Authority |
| <input type="checkbox"/> conservation organization | <input type="checkbox"/> CITES Enforcement Authority |
| <input type="checkbox"/> library | <input type="checkbox"/> IUCN Species Specialist Group |
| <input type="checkbox"/> museum | <input type="checkbox"/> media/communications |
| <input type="checkbox"/> enforcement agency | <input type="checkbox"/> zoo, park, nature reserve, marine park, aquarium, botanic garden |
| <input type="checkbox"/> government authority | <input type="checkbox"/> commercial |
| <input type="checkbox"/> non-governmental organization | <input type="checkbox"/> individual |
| <input type="checkbox"/> international government organization | <input type="checkbox"/> other <i>Please specify</i> _____ |

Please specify area of interest (type "X" in square brackets):

- | | |
|--|--|
| <input type="checkbox"/> mammals | <input type="checkbox"/> fish and fisheries |
| <input type="checkbox"/> primates | <input type="checkbox"/> plants |
| <input type="checkbox"/> invertebrates | <input type="checkbox"/> forestry |
| <input type="checkbox"/> big cats | <input type="checkbox"/> medicinal (fauna and flora) |
| <input type="checkbox"/> birds | <input type="checkbox"/> general topics |
| <input type="checkbox"/> reptiles and amphibians | <input type="checkbox"/> other <i>Please specify</i> _____ |

I would like to contribute towards the production of the *TRAFFIC Bulletin* or other important activities of TRAFFIC.

I enclose a cheque/international money order for _____ made payable to TRAFFIC International.
A donation can also be made online at <https://mydonate.bt.com/events/bulletin>

GIFT AID DECLARATION

If you are a UK taxpayer, did you know that using Gift Aid means that for every pound you give, TRAFFIC will receive an extra 25 pence from the Inland Revenue, helping your donation go further? To qualify for Gift Aid, what you pay in income tax or capital gains tax must at least equal the amount the charity will claim in the tax year.

If you would like to register for Gift Aid please fill out the following form:

- I would like to use Gift Aid for my donation to TRAFFIC.
- I would like all donations I have made to TRAFFIC since 6 April 2000, and all future donations, to benefit from Gift Aid until I notify you otherwise.

Signature: _____ Date: _____

INTERNATIONAL

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

CENTRAL AFRICA

Regional Office c/o IUCN, Regional Office for Central Africa,
PO Box 5506, Yaoundé, Cameroon.
Tel: (237) 2206 7409; Fax: (237) 2221 6497; E-mail: tcaf@traffic.org

EAST/SOUTHERN AFRICA

Regional Office c/o IUCN ESARO, PO Box 11536, Hatfield, Pretoria, South Africa.
Tel: (27) 12 342 8304/5; Fax: (27) 12 342 8289; E-mail: david.newton@traffic.org

Tanzania Office c/o WWF-Tanzania Country Office, 350 Regent Estate, Mikocheni,
Dar es Salaam, Tanzania.
Tel/Fax: (255) 22 2701676; E-mail: jumapili.chenga@traffic.org

NORTH AMERICA

Regional Office c/o WWF-US, 1250 24th Street, NW, Washington, DC 20037, USA.
Tel: (1) 202 293 4800; Fax: (1) 202 775 8287; E-mail: tna@wwfus.org

Canada Office c/o WWF-Canada, Suite 1588, 409 Granville Street,
Vancouver, BC, V6C 1T2, Canada.
Tel: (1) 604 678 5152; Fax: (1) 604 678 5155; E-mail: traffic@wwfcanada.org

Mexico Office c/o WWF-Mexico Programme Office,
Ave. México 51, Col. Hipódromo Condesa, C.P. 06100 México, D.F., Mexico.
Tel: (52) 55 5286 5631; Fax: (52) 55 5286 5637; E-mail: areuter@wwfmex.org

SOUTH AMERICA

Regional Office Quiteño Libre E15-12 y la Cumbre, Sector Bellavista, Quito, Ecuador.
Tel/Fax: (593) 2 226 1075; E-mail: bernardo.ortiz@traffic.org

EAST & SOUTH ASIA

Regional Office c/o WWF-Hong Kong, 15/F, Manhattan Centre, 8 Kwai Cheong Road,
Kwai Chung N.T., Hong Kong.
Tel: (852) 2161 9686; Fax: (852) 2845 2764; E-mail: traffic.eastasia@traffic.org

China Office c/o WWF-China Programme Office, Room 2616, Wen Hua Gong,
(Laodong Renmin Wenhua Gong Dongmen), Beijing Working People's Culture Palace,
Beijing 100006, People's Republic of China.
Tel: (86) 10 6511 6211; Fax: (86) 10 6511 6261; E-mail: traffic.china@traffic.org

Taipei Office 3F, No. 92, Ln 106, Sec. 3, Bade Road, Songshan District, Taipei City 105, Taiwan.
Tel: + (886)(2) 25795826; Fax: + (886) (2) 25796036; E-mail: traffictaipei@traffic.org

Japan Office 6th Floor, Nihonseimei Akabanebashi Bldg, 3-1-14, Shiba, Minato-ku, 105-0014,
Tokyo, Japan. Tel: (81) 3 3769 1716; Fax: (81) 3 3769 1304; E-mail: traffic@trafficyj.org

India Office c/o WWF-India, 172-B Lodi Estate, New Delhi-110 003, India.
Tel: (91) 11 41504786; Fax: (91) 11 43516200; E-mail: traffcind@wwfindia.net

SOUTH-EAST ASIA

Regional Office Unit 3-2, 1st Floor, Jalan SS23/11, Taman SEA, 47400 Petaling Jaya,
Selangor, Malaysia. Tel: (603) 7880 3940; Fax: (603) 7882 0171; E-mail: tsea@traffic.org

Greater Mekong Office Room 203, Building 2G, Van Phuc Diplomatic Compound,
298 Kim Ma Street, Ba Dinh District, Ha Noi, Viet Nam.
Tel: (84) 4 3726 5023; Fax: (84) 4 3726 4665; E-mail: tsea.gmp@traffic.org

EUROPE

Regional Office c/o TRAFFIC International, 219a Huntingdon Road, Cambridge CB3 0DL, UK.
Tel: (44) 1223 277427; Fax: (44) 1223 277237; E-mail: teur@traffic.org

Belgium Office Bd Emile Jacqmain 90, B-1000 Brussels, Belgium.
Tel: (32) 2 340 0927; Fax: (32) 2 343 2565; E-mail: traffic@traffic.org

Central Eastern Europe Office c/o WWF-Hungary, 1141 Budapest, Álmos vezér útja 69/A,
Budapest, Hungary. Tel: (36) 1 214 5554 (Ext 126); Fax: (36) 1 212 9353;
E-mail: Katalin.Kecse-Nagy@traffic.org

Germany Office c/o WWF-Germany, Reinhardtstrasse 14, D-10117 Berlin, Germany.
Tel: (49) 30 311 777 239; Fax: (49) 30 311 777 639; E-mail: volker.homes@wwf.de

Italy Office c/o WWF-Italy, Via Po 25/c, 00198 Rome, Italy.
Tel: (39) 06 84497357; Fax: (39) 06 84497356; E-mail: m.rocco@wwf.it

Sweden Office c/o WWF-Sweden, Ulriksdals Slott, S-17081 Solna, Sweden.
Tel: (46) 8 624 7400; Fax: (46) 8 85 1329; E-mail: mats.forslund@wwf.se

TRAFFIC, the wildlife trade monitoring network, is the leading non-governmental organization working globally on trade in wild animals and plants in the context of both biodiversity conservation and sustainable development.

For further information contact:

The Executive Director
TRAFFIC International
219a Huntingdon Road
Cambridge CB3 0DL
UK

Telephone: (44) (0) 1223 277427

Fax: (44) (0) 1223 277237

E-mail: traffic@traffic.org

Website: www.traffic.org

TRAFFIC
the wildlife trade monitoring network

is a strategic alliance of

