

VOL. 29 NO. 1

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TRAFFIC

BULLETIN

ETHICAL PLANT TRADE

GREATER GREEN LEAFBIRDS

SEROWS IN LAO PDR

MADAGASCAR TIMBER EXPORTS TO CHINA

REPORT OF 17TH CITES MEETING

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

APRIL 2017

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.



JURGEN FREUND / WWF

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

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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. Five regional TRAFFIC offices 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 publication 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.



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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).



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

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Cover photograph: Tongan women, Binga district, north-western Zimbabwe, with their harvest of Baobab fruit *Adansonia digitata*. The ingredients are supplied to B' Ayoba, a wild-collection operation newly FairWild-certified in 2016.
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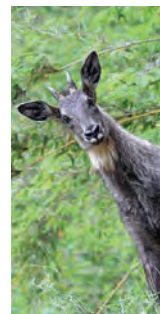
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Recent years have seen greater recognition that impacts of wildlife crime reach beyond species, undermining good governance, reducing opportunities for legitimate income generation and affecting local communities, the rural poor and national economies. Ending wildlife crime is rightly seen as a global development issue, addressed in the targets of the 2030 Agenda for Sustainable Development, and linked implicitly to corruption, illicit financial flows and rule of law. Nature-based tourism, for example, an economic powerhouse of many African States and worth an estimated USD30 billion per year, is directly threatened by wildlife crime.

According to the UN Office on Drugs and Crime (UNODC) and others, corruption is a key enabler of wildlife crime. It is prevalent along the entire wildlife value chain, including bribery of officials to issue permits or to turn a blind eye to illegal shipments. It is also a complex challenge. Rangers, for example, are essential to preventing poaching but equipment deficits resulting from procurement abuse may render them unable to patrol; some may also be bribed not to patrol. In both cases the result is the same, but potential solutions are very different.

EDITORIAL

A formal conversation around corruption in wildlife trafficking would have been unimaginable just a few years ago. There has been progress more recently: legal frameworks and conventions, for example the UN Convention Against Corruption (UNCAC) and the Organisation for Economic Co-operation and Development (OECD) Convention on Combating Bribery of Foreign Public Officials in International Business Transactions have come into being; and, the Sustainable Development Goals explicitly recognize corruption and illicit financial flows as obstacles to their achievement. The United Nations General Assembly resolution (2015), *Tackling Illicit Trafficking in Wildlife*, devotes three paragraphs to anti-corruption; outcomes of State-led processes, for example, the London, Kasane, Hanoi Conferences on Illegal Wildlife Trade, the Brazzaville and Forum on China—Africa Cooperation (FOCAC) declarations, all call upon countries to address corruption facilitating wildlife crime; and, in October 2016, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the principal global wildlife trade convention, adopted its first anti-corruption resolution.

References to “corruption” as an aggregate phenomenon make it appear impenetrable, causing paralysis compounded by fear (people who know or say too much are sometimes killed) or by an entrenched defensiveness in environmental organizations that “we work on conservation, not anti-corruption”. Unpacked, however, it becomes easier to understand, for example, judges giving lenient sentences, embezzlement of funds or bribery of an official, and thus easier to manage. But are conservation organizations building on progress in the policy fora to take up the challenge and incorporate anti-corruption strategies into conservation planning? Where anti-corruption elements are incorporated, are external experts sought to inform through an anti-corruption lens?

Uninformed or politically expedient interventions can give rise to greater harms: selective or misplaced enforcement interventions can increase injustices towards local communities and the rural poor, while more powerful actors such as those funding illicit operations are left untouched. A human rights perspective in addressing corruption facilitating wildlife crime is critical: pressure on police to demonstrate results may lead to increased bribes or to

increased human rights abuses against vulnerable communities, especially to those unable to pay bribes¹. The extrajudicial killing of people alleged to be poachers or of environmental human rights defenders is unfortunately by no means uncommon².

Frustrated with the siloed status quo, but cognizant that collaboration between the anti-corruption and wildlife conservation communities is critical to informed approaches, the Durrell Institute of Conservation and Ecology, Transparency International, and WWF convened a meeting in early 2016 to cement a new alliance of stakeholders from the anti-corruption, development and conservation communities—including TRAFFIC—forming the 3C Network: Countering Conservation-related Corruption. A collaborative research paper³ arising from this meeting highlighted the need for informed corruption risk assessments and tailored responses with iterative monitoring in order to build the evidence base.

Focusing analysis at the sectoral level is now recognized as essential, but cross-sectoral partnerships that reach beyond the natural living resource sectors also inform. Algorithmic assessments identifying irregular financial flows to disrupt human trafficking networks are equally applicable to wildlife trafficking; existing principles and policies of financial and regulatory bodies concerning money laundering could be adapted to make more explicit the links between wildlife crime and financial crime. Targeting financial beneficiaries of wildlife trafficking would help redress the disproportionate focus on low-level actors, bring into play a different suite of laws with harsher penalties and enable asset recovery. Approaching transnational environmental crimes through a financial crime lens is not new, but so far has gained more traction perhaps in the fisheries sector than in other wildlife sectors. Strengthened partnerships between public, civil society and the private sector would inform due diligence procedures, strengthen integrity along the value chain, and push corruption to the margins. There are promising signs of this approach in the transport sector, notably through The United for Wildlife Transport Taskforce Buckingham Palace Declaration⁴.

Unfortunately, the discourse around wildlife crime and corruption is often centred around Africa (elephants/rhinoceroses) and Asia (consumers) and takes place largely from a Western-centric perspective; it is something that happens “out there”. This is very convenient particularly in the fisheries and timber sectors where it overlooks illicit payments made by corporations in “the west” for access rights in developing countries. Addressing corruption requires us to look inwards in Europe and the Americas, to banking secrecy, tax havens, and to opportunities created by normative financial systems enabling investment of corrupt monies in the luxury goods and property markets.

Conservationists are not going to exchange conservation for anti-corruption targets, and nor should they. The line of engagement does however need to be redrawn, starting with an understanding of the anti-corruption landscape and the added value that conservation organizations bring to the table, informed through partnerships with anti-corruption specialists, development agencies, civil society and the private sector. In doing so, conservationists perhaps may find that they have more to contribute than they realize in terms of knowledge and data to inform the anti-corruption discourse.

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¹See Downs, F. (2013). *Rule of law and environmental justice in the forests: The challenge of 'strong law enforcement' in corrupt conditions*, U4 Issue. June 2013 No 6. U4 Anti-corruption Resource Centre, Chr. Michelsen Institute (CMI), Bergen, Norway. ²See Knox, J. (2016). *Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment*. Human Rights Council. A/HRC/34/49; ³See Williams, A., Parry-Jones, R. and Roe, D. (2016). *The resource bites back: Entry-points for addressing corruption in wildlife crime*. U4 Anti-corruption Resource Centre, Chr. Michelsen Institute (CMI), Bergen, Norway. ⁴the Declaration identifies 11 commitments that the transport industry can support where relevant, e.g. adopting zero tolerance policies to illegal wildlife trade, enhancing due diligence and risk assessment, etc.

SECOND SOUTH-EAST ASIAN SONGBIRD CRISIS SUMMIT

South-east Asia is a hotspot for illegal and unsustainable trade in songbirds, leading to serious declines in many species. The vast majority of the songbirds in trade are taken from the wild, sought after for their attractive song, colourful plumage and their increasing rarity. Unfortunately, songbird conservation has not received the attention it deserves, and as a result, many species have slipped perilously close to extinction, all but unnoticed.

In September 2015, a group of concerned experts came together for the first Asian Songbird Trade Crisis Summit, held in Singapore, to begin the process of co-ordinating a response to the alarming numbers of songbirds trapped from the wild in South-east Asia for domestic and international trade (see *TRAFFIC Bulletin* 27(2):47). This unprecedented meeting in the region led to the development of the much-needed Conservation Strategy for Southeast Asian Songbirds in Trade.

In this strategy, four main themes of work were identified to reduce illegal and unsustainable bird trade in South-east Asia. These were: genetic and field research to fill in knowledge gaps on taxonomy, trends and status of wild populations; captive breeding and husbandry to establish and expand ex-situ assurance breeding colonies; community engagement, communication and education for a bottom-up approach involving trade actors and to raise awareness of the issues and key conservation efforts ultimately to reduce demand for songbirds; and trade legislation and increased monitoring of trade hubs and forums, and the lobbying for and support of increased enforcement actions at national and international levels.

Since the first meeting, TRAFFIC has greatly intensified efforts under the fourth theme in particular, to understand current levels of trade in markets throughout South-east Asia, looking at the species involved, numbers of each, and the levels of trade. This information has been published in a number of peer-reviewed papers and reports in an effort to make the information useful and accessible, and to influence others to join in the effort



SERENE CHING / TRAFFIC

Sharing the discussion outcomes following a break-out group activity on behaviour change.

to end this crisis. The focus has also been on particular species in dire need of immediate conservation attention, including the Rufous-fronted Laughingthrush *Garrulax rufifrons*, which is now known from fewer than a dozen individuals, and others, such as the Sumatran Laughingthrush *G. bicolor* and the Greater Green Leafbird *Chloropsis sonnerati* (see pages 4–8 of this issue), all birds highly threatened by trade in Indonesia, the epicentre of the songbird trade crisis. These also contributed to the latest IUCN Red List update of 17 species threatened by the Indonesian cage bird trade—including the three aforementioned species—to reflect their current conservation status more accurately. While not all the species threatened by trade in Indonesia are protected by law, there is a zero quota for the harvest of any songbirds, which technically makes the trade in any of these species against Indonesian law and policy.

Other participating organizations and individuals have also made impressive progress on some actions over the past two years. For instance, a workshop convening trappers, traders and government officials to discuss issues and solutions to reduce unsustainable and illegal bird trade was organized in Kalimantan. Genetic research has yielded preliminary results elucidating the distinctiveness of sub-populations of priority species, ►



SERENE CHING / TRAFFIC

Participants at the second South-east Asian Songbird Crisis Summit, Jurong Bird Park, Singapore.

► which is crucial to informing future conservation efforts. Assurance colonies have also grown for a number of priority species, with more breeding stock acquired and breeding facilities expanded.

From 19 to 21 February 2017, the second Asian Songbird Trade Crisis Summit, organized by Wildlife Reserves Singapore and TRAFFIC, took place at Jurong Bird Park, Singapore. Approximately 60 experts came together to discuss this progress and to look ahead to the implementation of the strategy. Participants discussed a variety of future actions ranging from advocating the closure of illegal markets, motivating enforcement actions, breeding highly threatened species in captivity for eventual release in the wild, and the need for further research and monitoring of trade and wild populations. Opportunities to raise global awareness of this crisis through campaigns by zoos were also discussed at length.

Other priority action areas included improving knowledge on wild populations, community-based interventions to reduce poaching and reduce demand for wild birds, supporting law enforcement successes along the trade chain and developing a plan for the rehabilitation and release of confiscated birds.

The Government of Indonesia is strongly encouraged to take immediate action to close down the markets facilitating the illegal and unsustainable trade in songbirds. It is also vital that the governments of other South-east Asian nations take stronger measures to protect songbirds from unsustainable over-exploitation and shut down pet shops and markets facilitating illegal trade.

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TAN SIAH HIN DAVID

Straw-headed Bulbul *Pycnonotus zeylanicus*, one of the Tier 1 species identified in the first Summit, was recently uplisted from Vulnerable to Endangered.

Report by Serene C.L. Chng, James A. Eaton, and Adam E. Miller

INTRODUCTION

It is widely known that the greatest threats to Indonesia's avian species are illegal and unsustainable wildlife trade and habitat loss largely due to conversion of forest to agricultural production (Sodhi and Brook, 2006). Yet, our understanding of the nature and severity of these impacts on most species is limited, with basic information on the current population status of avian species in Indonesia lacking (Lee *et al.*, 2017). Over 169 avian species in Indonesia are now listed as globally threatened by the International Union for Conservation of Nature (IUCN) and BirdLife International (2016a), with harvest and trade to meet national demand amongst the leading threats. A number of these species are in demand in Indonesia for the popular hobby of bird keeping, which is also seen as a sign of wealth, sophistication, and status (Jepson and Ladle, 2005; Jepson *et al.*, 2011), and it is this practice which is driving demand for the capture of wild birds.

GREATER GREEN

the trade in South-east Asia

Monitoring bird markets is an important tool to gain insights into the dynamics of the wild bird trade and to identify species of concern (Courchamp *et al.*, 2006; Wilcove *et al.*, 2013; Harris *et al.*, 2015). Of the over 300 species traded in Indonesia, the volume of trade in one species in particular has shown a rapid increase. The Greater Green Leafbird *Chloropsis sonnerati*, the largest of the leafbirds, is native to Sundaland, including Brunei Darussalam, Indonesia (Sumatra, Borneo, Java and the outlying islands of Natuna, Riau archipelago, Nias, Bangka and Belitung), Malaysia, south Myanmar, Singapore and south Thailand (Wells, 2016). The race *zosterops* was previously considered to be common where habitat remains, in lowland forest and occasionally heavily wooded parkland and tree-shaded plantations, up to 1100 m (Wells, 2016), but both this and the race *sonnerati* are now thought to be uncommon, becoming scarce (Eaton *et al.*, 2016).

The capture of and trade in the Greater Green Leafbird is banned in parts of its native range (Malaysia, Singapore, Thailand) but not others (Brunei, Indonesia, Myanmar). Although the Greater Green Leafbird is currently not listed as a protected species in Indonesia, only species with a harvest quota are permitted to be harvested from the wild; as there is no harvest quota for the Greater Green Leafbird, in theory trapping is not permitted.

This species has been observed in trade for decades. Nash (1993) noted that the Greater Green Leafbird was the 19th most numerous bird on sale in Singapore in



MALE GREATER GREEN LEAFBIRD CHLOROPHAPS SONNERATI (AMAR-SINGH H.S.S.)

LEAFBIRDS: with a focus on Indonesia

the early 1990s, with 400 specimens recorded in seven shops. In Indonesia, the species was recorded for sale in 1987 in Pramuka market, Jakarta, in very low volumes (Basuni and Setiyani, 1989). It was also found in 30 of 39 markets surveyed in Indonesia between 1991 and 1993, and between 1990 and 1992 some 406 were imported into Hong Kong (Nash, 1993). It was not recorded in trade in Malaysia, Philippines or Viet Nam in 1993, nor in Medan, North Sumatra, Indonesia, in 1997 and 1998, although 110 were observed there over the following three years (Shepherd, 2006). Numbers appeared to increase, with an annual number traded through the markets in Medan estimated at 842 birds during 2012 and 2013 (Harris *et al.*, 2015). More recent surveys carried out in key markets in other parts of South-east Asia, as well as reports of seizures made by authorities, have shown that demand for the species has suddenly surged, particularly in Indonesia. High volumes observed in recent surveys of bird markets in Indonesia and suspected increasing rarity in some locations noted by professional bird-watching tour companies and researchers, indicate the Greater Green Leafbird may be in peril as a result of unsustainable and illegal capture for trade (Chng *et al.*, 2015; Chng and Eaton, 2016a; Eaton pers obs). In light of these “early warning” indicators, the species was identified at the inaugural Asian Songbird Trade Crisis Summit (September 2015) as one of 28 species requiring action as a matter of priority (Lee *et al.*, 2017). Its conservation status was also recently revised on the

IUCN Red List of Threatened Species from Least Concern to Vulnerable, with a decreasing population trend, due to evidence that trade is a far greater threat to the species than previously thought (BirdLife International, 2016a). This paper consolidates existing knowledge from recent research on the rise of poaching and trade of this species in South-east Asia, and proposes steps to prevent further declines.

METHODS

Information on wild populations was obtained through informal discussion with experts in the field, including professional bird-watching tour leaders, field researchers and wildlife trade experts. Questions covered whether there was any anecdotal evidence of poaching, the frequency in sightings and any population trends at individual localities or range of the species.

A two-month field study in June and July 2015 across 119 point counts in Gunung Palung National Park, West Kalimantan, was also carried out by a team of two (A.E. Miller, and a field assistant) to investigate the impacts of trade on wild bird populations. The data presented here form part of a larger study including additional counts and areas in 2017.

Full inventories of markets in Indonesia were carried out in July 2014 in Barito, Pramuka, Jatinegara (Jakarta) (Chng *et al.*, 2015); surveys in June 2015 were undertaken in Yogyakarta (Central Java), Bratang, Kupang, Turi (Surabaya, East Java) and Malang (East Java) (Chng and Eaton, 2016a); and in Bandung (West Java) in September 2016 (Chng *et al.*, 2017). In West Kalimantan, three large surveys were conducted from July to December 2015, February to March 2016, and June to August 2016, from which data on Greater Green Leafbirds were extracted and analysed. Each consisted of four sub-surveys to cover all major cities and provincial roads within the province: one survey involved four separate teams working in: (a) Pontianak (capital of province), (b) north-west coast (Pontianak to Sambas), (c) the interior of West Kalimantan (Pontianak to Kapuas Hulu), and (d) the south-west coast (Pontianak to Ketapang). Provincial roads were used to map out markets, where species were identified and data collected on prices, volumes, and place of origin. Additionally, in August 2016, one survey was conducted in Palangkaraya, the capital city of Central Kalimantan.

Additionally, as part of the Kalimantan research, informal interviews were conducted with shopkeepers to gain insight into the socio-economic dynamics of the trade, and to identify any rise in demand for and price of species over the past five years. Price has been shown to be an accurate indicator of species status in the wild as increasing prices and corresponding decreasing trade volumes may indicate species rarity (Harris *et al.*, 2015).

Information was also obtained from other published and unpublished literature on the bird trade in this region, from open media and from enforcement agencies.

The exchange rates used were: USD1=IDR11 650 (July 2014); USD1=IDR12 500 (July 2015 to August 2016); and USD1=IDR13 100 (September 2016). The inflation calculator at fxtop.com was used to account for inflation for historical prices.

RESULTS

Field observations

The field survey in Gunung Palung National Park found Greater Green Leafbirds present at only nine of 119 point count sites in two months of sampling. As this species should be common in the lowland forests of Gunung Palung, its lack of appearance across point counts raises cause for concern. In the past five years of birding in the lowland forests in Peninsular Malaysia by one of the authors, the species is now rarely encountered (in the States of Johor, Pahang, Kedah and Perak), and is vastly outnumbered by Lesser Green Leafbird; both used to be observed regularly. Where once it was recorded almost as regularly as Lesser Green Leafbird, on most birding days the species is no longer seen (J.A. Eaton, pers. obs.). Recent visits to Sumatra reveal the same, and it is the species most trappers are reportedly now searching for (Eaton *et al.*, 2015). Another field expert noted that bird trappers in Sumatra, Kalimantan and Java were now targeting Greater Green Leafbirds where previously they focused on Straw-headed Bulbuls *Pycnonotus zeylanicus* and White-rumped Shamas *Copsychus malabaricus* (Eaton *et al.*, 2015).

Market observations

In Indonesia, Greater Green Leafbirds were observed in bird markets in each province surveyed during this study, with a total of 3008 individuals recorded from 515 shops (Table 1). This species was seen in unexpectedly high numbers in a 2014 survey in Jakarta (Chng *et al.*, 2015), the fourth most numerous species, comprising 6.6% of all birds recorded. A further 658 individuals were recorded at five markets in Surabaya, Malang and Yogyakarta in June 2015, making it the ninth most numerous species recorded (Chng and Eaton, 2016a). Relatively lower volumes (17 individuals at 13 stalls) were recorded for sale in Bandung in September 2016 (less than 0.5%), where one individual said to be from Sumatra was priced

at USD99 (IDR1.3 million). From the three surveys covering West Kalimantan, the authors found 13 498 individuals from 123 species in over 90 shops. The Greater Green Leafbird was the fifth most commonly traded species in this area, with 720 individuals for sale.

Prices for this species appear to have increased over time. In 1987, a specimen cost IDR27 500 (equivalent to IDR345 816 in 2014) (Basuni and Setiyani, 1989). Then, it was of similar value to other popular songbirds such as Straw-headed Bulbul and Chinese Hwamei *Garrulax canorus*. Contemporary prices have risen slightly to IDR512 600 (USD44) in 2014 (Chng *et al.*, 2015) and ranged between IDR350 000 and IDR1 296 900 (USD28 and USD99) in 2016. However, there appear to be multiple factors determining the value of birds, based mostly on the quality of their song and singing abilities. Interestingly, female Greater Green Leafbirds were also offered for sale, despite their lack of singing prowess; one vendor claimed that an adult female bird was a young male, suggesting that sellers may try to pass the females off as more valuable males.

Additionally, when 20 shop owners in West Kalimantan were asked which five species had increased the most in price over the past five years, the Greater Green Leafbird and White-rumped Shama were the species most commonly cited, with 75% of shop owners indicating a price increase. When asked which three species were the hardest to find in West Kalimantan, 58% of respondents indicated the White-rumped Shama, 33% the Oriental Magpie-robin *Copsychus saularis* and 25% noted the Greater Green Leafbird and Straw-headed Bulbul. Demand for this species is clearly high and increasing. Greater Green Leafbirds from Kalimantan were also deemed to be more prized than those from Sumatra or Java; the winner of the “president cup bird competition”, the most prestigious bird-singing competition award in Indonesia, was a Greater Green Leafbird from Kapuas Hulu in West Kalimantan.

Greater Green Leafbirds have also been recorded for sale in Thailand and Singapore albeit in much smaller volumes (TRAFFIC data). The source of these birds is unclear. Outside Indonesia, just 12 individuals were observed in Bangkok, Thailand, in four surveys between March 2015 and February 2016 (23 surveys between 1999 and 2016; Chng and Eaton, 2016b; Chng and Shepherd, in prep.) and seven in Singapore (survey of pet shops in November to December 2015; Eaton *et al.*, 2017). None was observed in a 2016 survey of bird shops in Ho Chi Minh City and Hanoi, Viet Nam (Eaton *et al.*, in prep.). It is clear that the epicentre of this trade is in Indonesia.

Seizures

Worrying volumes of Greater Green Leafbirds have been confiscated, especially in Indonesia. Between October 2014 and September 2016, 13 seizures of at least 2244 Greater Green Leafbirds were seized in Indonesia, apart from a single individual in Malaysia. Based on seizures information, most shipments originate from Kalimantan and Sumatra, and are destined for major cities in Java; 2019 of the birds were seized by port



AMAR-SINGH HSS

GREATER GREEN LEAFBIRD, KLEDANG-SAYONG FOREST RESERVE, IPOH, PERAK, MALAYSIA.

Province	Market	Date	No. of individuals	No. of stalls/shops	% of total birds	Price USD	Price IDR
West Java	Jakarta	21–22 July 2014	1248	72	6.60	44.00	512 600
Central Java	Yogyakarta	24 June 2015	89	17	2.20	NA	NA
East Java	Malang	23 June 2015	193	23	4.00	NA	NA
East Java	Surabaya	22 June 2015	378	58	2.70	NA	NA
West Kalimantan	Pontianak, NW Coast, Interior, SW Coast	July–December 2015	325	86	7.10	68.00	850 000
West Kalimantan	Pontianak, NW Coast, Interior, SW Coast	February–March 2016	226	118	4.10	65.80	822 500
West Kalimantan	Pontianak, NW Coast, Interior, SW Coast	June–August 2016	462	112	7.50	44.00	550 000
Central Kalimantan	Palangkaraya	August 2016	70	16	8.50	28.00	350 000
West Java	Bandung	3 September 2016	17	13	0.53	99.00	1 296 900

Table 1. No. of Greater Green Leafbirds observed at various market locations in Indonesia.

Prices cited are the first prices given by the vendors.

authorities in Tanjung Perak Port, Surabaya, in three consignments originating from Kalimantan. One of these shipments (1411 individuals) was destined for Pasar Pramuka in Jakarta, while another (408 individuals) was destined for Semarang. The third, comprising 140 birds and seized at Minangkabau Airport in Padang, was destined for Jakarta. Of particular concern is the mortality rate of the seized birds. In the largest shipment on 2 December 2015, 678 of the 1411 Greater Green Leafbirds discovered had perished three days later due to malnourishment, dehydration and stress. There have also been confiscations involving poachers found with this species, including two incidents in Gunung Leuser National Park in Sumatra.

DISCUSSION

Much of the demand in Greater Green Leafbirds centres around the cage bird trade in Indonesia, particularly the phenomenon known as *kicau mania*, as the bird-singing competition is known. In recent years, the species has been included as a category for songbird competitions, which is likely to have increased demand for the species. This bird is an excellent songster, and able to mimic the song of other species such as White-rumped Shama and Asian Fairy Bluebird. The singing ability of other species of leafbirds is deemed to be inferior, but it is possible that demand may be displaced to these species when the Greater Green Leafbird becomes difficult to obtain. Interviews with trappers noted that possession of this species is now “fashionable”. The higher asking prices for good quality birds reflects this, and is likely to continue rising in response to increasing rarity (Harris *et al.*, 2015).

Origin of Greater Green Leafbirds

In Jakarta, traders suggested the Greater Green Leafbirds originated from Sumatra (traders referring to them as “Lampung”, a generic term used to describe birds from Sumatra, which is the nearest port to Java). In Surabaya and

Yogyakarta, traders indicated that the birds originated both from Sumatra and Kalimantan, along with other species such as White-rumped Shama and Oriental Magpie-robin.

In West Kalimantan, traders interviewed suggested that Greater Green Leafbirds are sourced locally; they are then either sold to local shops or transported to major port cities for onward transport to Java. Traders in Bengkayang district in Indonesia were found to be actively smuggling birds across the border with Malaysia, one trader dealing in as many as 6000 Greater Green Leafbirds a month from Malaysian Borneo to Kalimantan. Anecdotal evidence from locals indicated that many individuals along the Indonesian-Malaysian border in Borneo have traded large volumes of Greater Green Leafbirds, indicating that the species has declined greatly in or even been extirpated from West Kalimantan and that trappers are seeking new forests to target this species. Eaton *et al.* (2016) states that 5000 individuals a month are currently being imported into Kalimantan from Sarawak.

CONCLUSIONS AND RECOMMENDATIONS

The illegal harvest from domestic and cross-border sources and trade to supply the growing demand in this species is of increasing concern. It is clear that over the past decade or so the extent of occurrence of the Greater Green Leafbird has been greatly reduced, with declines noted in parts of its range, and extirpations a possibility in many other areas. Increasing levels of exploitation are demonstrated from market data, which, judging by other species similarly in demand for and heavily hit by the caged bird trade such as Straw-headed Bulbul (BirdLife International, 2016b), will eventually plateau as a result of rising prices and a difficulty in obtaining wild-caught Greater Green Leafbirds owing to its rarity. The authors believe that high demand and the medium-to-high (but potentially decreasing) supply, has placed this species at a tipping point.

The following steps need to be taken immediately if the Greater Green Leafbird is not to be terminally affected by current trade levels: while the reclassification of this

species to Vulnerable is to be welcomed, the authors believe that an Endangered listing would more accurately reflect the rates of decline. A lack of quantitative evidence of rates of population decline hindered the meeting of criteria for listing the species as Endangered (projected decline of >50% over 10 years). Researchers and birdwatchers are therefore urged to share their recent observations of the species in the wild with the authors. More research is also needed into the supply of birds moved from Malaysia to Indonesia for the trade. It is recommended that the Indonesian Government considers adding Greater Green Leafbird to the list of protected species, which will allow for improved regulation of the trapping and trade of the species. The Natural Resources Conservation Agency (BKSDA) under the Directorate General of Forest Protection and Nature Conservation (KKH)—responsible for the regulation of harvest and trade in wildlife in Indonesia—should take action to reduce and eventually eliminate illegal trade of this species in the country's bird markets. Where confiscations take place, it would be constructive if the authorities can work with local conservation groups and birders to rehabilitate the birds and release them in forests that are well patrolled by rangers and the birds therefore less likely to be hunted.

Education awareness and demand reduction campaigns should be designed and implemented to discourage buyers from purchasing Greater Green Leafbirds. It is recommended that songbird competition groups phase out the use of Greater Green Leafbirds and other wild-caught birds, focusing instead on common avicultural species such as canaries, which are legitimately bred in captivity.

Although other leafbird species are not as sought after as the Greater Green Leafbird, they may be increasingly targeted as numbers of this species decline. It is important that bird markets are policed regularly and the trade in all leafbirds monitored closely for early warning signs so that action can be taken to safeguard these increasingly vulnerable species.

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REFERENCES

- Basuni, S. and Setiyani, G. (1989). Bird trading at the Pasar Pramuka, Jakarta and the bird catching techniques. *Media Konservasi* 2(2):9–18.
- BirdLife International (2016a). *Chloropsis sonnerati*. The IUCN Red List of Threatened Species 2016: e.T22704950A939 92403. <http://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22704950A93992403.en>. Viewed 16 December 2016.
- BirdLife International (2016b). *Pycnonotus zeylanicus*. The IUCN Red List of Threatened Species 2016: e.T22712603A943 38033. <http://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22712603A94338033.en>. Viewed 14 February 2017.
- Chng, S.C.L., Eaton, J.A., Krishnasamy, K., Shepherd, C.R. and Nijman, V. (2015). *In the market for extinction: an inventory of Jakarta's bird markets*. TRAFFIC, Petaling Jaya.
- Chng, S.C.L. and Eaton, J.A. (2016a). *In the Market for Extinction: Eastern and Central Java*. TRAFFIC, Petaling Jaya, Selangor, Malaysia.
- Chng, S.C.L. and Eaton, J.A. (2016b). Snapshot of an on-going trade: an inventory of birds for sale in Chatuchak weekend market, Bangkok, Thailand. *BirdingASIA* 25:24–29.
- Chng, S.C.L., Guciano, M. and Eaton, J.A. (2017). In the market for extinction: Sukahaji, Bandung, Java, Indonesia. *BirdingASIA* 26:22–28.
- Courchamp, F., Angulo, E., Rivalan, P., Hall, R. J., Signoret, L., Bull, L., and Meinard, Y. (2006). Rarity value and species extinction: the anthropogenic Allee effect. *PLoS Biol* 4(12), e415.
- Eaton, J.A., Shepherd, C.R., Rheindt, F.E., Harris, J.B.C., van Balen, S.B., Wilcove, D.S. and Collar, N.J. (2015). Trade-driven extinctions and near-extinctions of avian taxa in Sundaic Indonesia. *Forktail* 31:1–12.
- Eaton, J.A., van Balen, B., Brickle, N.W. and Rheindt, F.E. (2016). *Birds of the Indonesian Archipelago. Greater Sundas and Wallacea*. Lynx Edicions, Barcelona.
- Eaton, J.A., Leupen, B.T.C. and Krishnasamy, K. (2017). *Songsters of Singapore: An overview of the bird species in Singapore pet shops*. TRAFFIC, Petaling Jaya, Selangor, Malaysia.
- Jepson, P. and Ladle, R.J. (2005). Bird-keeping in Indonesia: conservation impacts and the potential for substitution-based conservation responses. *Oryx* 39(04):442–448.
- Jepson, P., Ladle, R.J. and Sujatnika (2011). Assessing market-based conservation governance approaches: a socio-economic profile of Indonesian markets for wild birds. *Oryx* 45(04):482–491.
- Harris, J.B.C., Green, J.M.H., Prawiradilaga, D.M., Giam, X., Giyanto, Hikmatullah, D., Putra, C.A. and Wilcove, D.S. (2015). Using market data and expert opinion to identify overexploited species in the wild bird trade. *Biol. Conserv.* 187:51–60.
- Lee, J.G.H., Chng, S.C.L. and Eaton, J.A. (eds). (2017). *Conservation strategy for Southeast Asian songbirds in trade*. Recommendations from the first Asian Songbird Trade Crisis Summit 2015 held in Jurong Bird Park, Singapore, 27–29 September 2015. Wildlife Reserves Singapore/TRAFFIC.
- Nash, S.V. (1993). *Sold for a Song: the Trade in Southeast Asian non-CITES birds*. TRAFFIC International.
- Shepherd, C. (2006). The bird trade in Medan, north Sumatra: an overview. *BirdingASIA*:16–24.
- Sodhi, N.S., and Brook, B.W. (2006). *Southeast Asian biodiversity in crisis*. Cambridge University Press.
- Wells, D. (2016). Greater Green Leafbird (*Chloropsis sonnerati*). In: del Hoyo, J., Elliott, A., Sargatal, J., Christie, D.A. and de Juana, E. (eds). *Handbook of the Birds of the World Alive*. Lynx Edicions, Barcelona. <http://www.hbw.com/node/58063>. Viewed 16 December 2016.
- Wilcove, D.S., Giam, X., Edwards, D.P., Fisher, B., and Koh, L.P. (2013). Navjot's nightmare revisited: logging, agriculture, and biodiversity in Southeast Asia. *Trends in ecology & evolution*, 28(9):531–540.

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TRADING FAIRWILD:



COLIN WINTER/NEALS YARD REMEDIES

Identifying challenges to establishing ethical trade relationships for sustainably sourced wild products, and opportunities to facilitate market links

Laura Antosch and Bryony Morgan

The FairWild Standard guides the sustainable and equitable trade of wild-harvested ingredients such as medicinal and aromatic plants (MAPs). It forms the basis of a third party audited certification scheme, in which companies from different parts of the value chain are participating. To reach market share objectives for the next five years and ensure the sustainability and resilience of the fair-trading system, the FairWild Foundation aims to support a substantial increase in the number of participating companies and the volume and diversity of certified ingredients in trade. This requires efforts both to recruit new members, and to encourage and facilitate developing trade relationships under FairWild.

This paper reviews lessons learned from the development of other certification systems (organic, fair trade), and considers their applicability in the context of the FairWild system. Furthermore, it presents the results of consultations with past, current and potential members of the certification scheme to explore barriers to trading and identify actions to be taken in support of expansion. The paper is based on the BA thesis research of the first author (Antosch, 2016), carried out in collaboration with TRAFFIC and the FairWild Foundation.

BACKGROUND

The FairWild Standard was developed in response to environmental and socio-economic concerns arising from the international trade of wild-harvested plants, fungi and lichen. It guides sustainable sourcing of wild species and introduces equitable business concepts for working with harvesters of wild products. The Standard is managed by the FairWild Foundation, a non-profit organization established in 2008 in Switzerland. The Foundation's objective is to transform resource management and business practices to be ecologically, socially and economically sustainable throughout the supply chain of wild-collected products.

The FairWild Standard version 1.0 (Meinhausen *et al.*, 2006) focused primarily on social and fair trade issues, implemented in combination with organic and/or ISSC-MAP standards. It has since been revised to fully integrate ecological aspects in version 2.0 (FairWild Foundation, 2010), providing a comprehensive sustainability framework. The first FairWild certified ingredients became commercially available in 2007, with finished products reaching consumers in 2009. Since this time, the volume and diversity of products on the market has continued to grow. This initial success has in large part been due to the engagement of committed pioneer companies who piloted

▲ Collection of myrrh *Commiphora confusa* resin for supply to Arbor Oils, Kenya, a company that implements principles of the FairWild Standard in arid regions of northern Kenya. The operation was FairWild certified between 2013 and 2016.

FairWild within their value chains. In line with Principle 11 of the Standard, “Promoting FairWild buyer commitment”, traders and manufacturing companies sourcing wild plant ingredients have taken a very active role in developing the scheme and supporting its implementation, such as financing auditing costs for collection operations, provision of technical support and training.

Activities of the FairWild Foundation and partner organizations have up to now primarily focused on developing and implementing the Standard and making the certification scheme operational, including recent efforts to accredit additional certification bodies. The supply of certified ingredients was initially not sufficient in volume or stability to allow a wider promotion in the market, and hence the Foundation’s aim was a gradual growth in participation and market share. This has been encouraged through promotion at trade fairs, and inclusion of FairWild in conservation and development projects on sustainable sourcing. In addition to the formal certification scheme participants, which are listed on the FairWild website, a considerably larger group of companies has been engaged in implementation—over 100 in total, including currently registered companies and applications in process. Certified operators (wild ingredient producers) are spread across Europe, Central Asia, South Asia and East Africa, whereas traders and finished product manufacturers are mainly based in Western Europe and North America.

Although the scheme has grown since establishment, and long-term trends are positive, overall uptake of formal participation has been relatively slow and has fluctuated. One of the factors identified concerns trade links: on the supply side, newly certified wild collection operations may experience difficulties in securing sufficient stable trade relationships for their certified ingredients, and hence in covering annual certification costs. On the demand side, companies approaching FairWild are looking for particular certified ingredients that some operators could potentially supply, if they knew there was interest and a market. Participation in a new scheme can involve risks; manufacturers may be hesitant to commit to switch their product labelling when there is only one certified supplier of a specific plant, as they consider the supply to be potentially unstable. Likewise, producers need assurance on volumes to be purchased that buyers may not initially be in a position to provide. Despite these difficulties, interest in FairWild remains strong, with more and more companies enquiring about how to become involved.

In recent years, the Foundation has been exploring opportunities to facilitate market links, as well as working to more clearly define the role of the Foundation and partners in this process. To increase both the number of participating companies and the volume and diversity of certified ingredients in trade, there is a need to evaluate interventions which can be applied to facilitate trade and support the match of supply and demand within the FairWild scheme. To create solid development plans, information is required on the challenges in establishing and maintaining trade relationships that are perceived by different (potential) actors in FairWild value chains. Furthermore, opportunities for actors to become active players in facilitating these market links need to be defined.

METHODS

The objective of the research was to obtain insight into issues of matching supply and demand for FairWild certified products, and to identify and prioritize actions for the FairWild system.

The project took place in three stages. First, a desk study of possible approaches to trade facilitation was conducted. Concepts applied by other comparable certification schemes were examined, particularly their early stages of development. The review included analysis of approaches taken by—or advised to—organizations from the organic and fair trade sectors, consulting reports on sustainable trade initiatives, their history and progress, as well as on successful business development. A conceptual framework was developed against which the FairWild system could be compared.

Second, an analysis of the problems and needs for improvement at meso (i.e. system) or micro (i.e. individual valuechain) level perceived by different actors was undertaken. A series of semi-structured interviews was conducted during April–June 2016 with actors of the value chain. Individuals from seven different categories were approached (Table 1). In total, eight interviews were conducted with past, current and potential certification scheme participants (Groups 1–6), and five with chain supporters (Group 7), i.e. “agencies and...organizations representing the collective interest of the...community and providing support services” (Springer-Heinze, 2007). The last group includes the FairWild Board, Secretariat and partner organizations such as TRAFFIC, a non-governmental organization working on wildlife trade issues, and *ProFound-Advisers in Development*, a consulting organization.

The interviews aimed to identify the problems perceived by different actors in (potential) FairWild value chains as leading to a mismatch in supply and demand. Furthermore, the aim was to find out what concrete ideas and requests for interventions are suggested by interview partners. The latter included evaluation of interventions already considered by the FairWild Foundation, these being drawn primarily from an internal report (Brinckmann *et al.*, 2014). The information obtained was analysed according to how many interview participants mentioned a dimension and by relating the different categories and their cross relations.

The final phase involved presentation and discussion of these preliminary results in a consultation meeting with the FairWild Board of Trustees in June 2016. This article is a summary of the main findings, with additional discussion by the authors.

	Description	No. of participants
Group 1	Certified collection operations	1
Group 2	Registered traders/ processors	2
Group 3	Registered licensees	1
Group 4	Potentially certified collection operations (including previously certified)	1
Group 5	Potential traders and processors	1
Group 6	Potential licensees	2
Group 7	Chain supporters	5

Table 1. Categories of interviewees and number of participants per group.

RESULTS

Learning from other voluntary sustainability standards

Since voluntary sustainability standards (VSS) and certification schemes were introduced towards the end of the 20th century, a valuable body of experience has accumulated with regards to their implementation. Problems experienced in matching supply and demand of certified produce have been apparent since the beginning in most VSS markets. Experts acknowledge that in general “too many projects have been set up where it was not at all clear that there would be demand for the products” and as a result “in many international trade commodities demand never seems to match supply” (van Elzakker and Eyhorn, 2010). However, several approaches can be taken to increase the likelihood of success.

Before a sustainable trade scheme is ready to reach for a higher market share, the literature indicates that certain preconditions should be met.

- **Ensure information on production capacity is available.** Experience from the organic sector stresses the importance of complete and up-to-date information (participants/production/volume) to be realistic “when and what quantity of products will be available” (van Elzakker and Eyhorn, 2010). Detailed information should be available at supplier level (for enquiring buyers), but it is also important for the sustainability scheme to have an overview.
- **Adapt organizational structures and activities to suit delivery at scale.** As the fair trade movement has developed, organizations from the sector have established regional networks and auditing capacity to reduce cost and strengthen local capacity (Redfern and Snedker, 2002). Asen *et al.* (2012) stress that the effect of activities to support trade links will be greater if all chain actors are involved in their design and implementation.
- **Ensure producer security.** As a scheme develops, it can be anticipated that producers may have problems selling all their certified products at premium prices, due to the potential mismatch of supply and demand. Lessons from the organic sector show that producers may need to be prepared to adapt to changes in demand and price and build a buffer by diversifying selling channels and products, as well as having a “fall back” such as conventional (non-certified) markets (van Elzakker and Eyhorn, 2010). However, mechanisms should also be prepared for rapidly scaling up in response to increasing demand (van Elzakker and Eyhorn, 2010).
- **Ensure chain transparency to facilitate communication.** Good communication is vital to maintain relationships between value chain actors, e.g. between producer groups and their clients or potential clients (van Elzakker and Eyhorn, 2010). A high degree of transparency and traceability of the value chain will help to improve linkages.

In driving a scheme expansion, Molenaar *et al.* (2013) reflect that the “key driver for producer uptake is market demand, while key drivers for buyers are reputation management, brand value and security of supply”. Overall, the imbalance of demand and supply is one of the main potential barriers to success and must be carefully managed. Different strategies may help to achieve a better match of supply and demand, and to increase market demand overall.

- **Encourage industries in key markets to set targets.** The advisors of the International Finance Corporation (IFC) point out that it will be easier to increase demand in existing markets (especially Europe and the USA) and suggest encouraging companies and national industries in northern key markets to set “sustainable import targets” (Molenaar *et al.*, 2013). To promote demand in harder-to-reach “new” or southern markets, they suggest the involvement of multi-national companies, generating local awareness and involvement in local standards.
- **Increase consumer demand with clear messaging and strategic product choice.** Although initial successes in working with producer organizations led to a wide offer of products certified by the Fairtrade Labelling Organisation (FLO, now renamed Fairtrade International), at first there was not enough consumer demand. Approaches which led to the current level of success were the development of a product range with a focus on commodities characterized by a high consumer demand (e.g. coffee, cocoa, banana) combined with big media campaigns on issues which addressed public concern, such as child labour and slavery (Redfern and Snedker, 2002). A wider product range was then introduced at a later stage. The authors also note that working with mainstream businesses—rather than developing alternative parallel supply chains—helped to achieve more Fairtrade products in the shops and higher overall sales.
- **Ensure support service provision for producers.** The experience from the fair trade movement highlighted a “lack of effective export marketing service providers in developing countries” (Redfern and Snedker, 2002). To fill this gap, many European organizations offered business development services to producers in the form of training, consultancy and sharing of market information. However, these services could not be sustained financially over time. This led to experiments with “NGO sister organizations” to provide inputs through donor supported activities, a measure which was effective but, again, too expensive to sustain. Efforts next focused on developing local capacity, leading to the establishment of different national organizations, of which some were successful and others failed. Redfern and Snedker (2002) also describe how several business development service providers in producer countries developed their own trading company as a “bridge between producers and markets”.
- **Enhance the role of intermediaries to reduce friction.** As described by Asen *et al.* (2012), business matchmaking and information sharing are among the key tasks of intermediaries, who may, among others, be “business people along the value chain, investment advisors, NGOs, donor agencies, international organizations”. Intermediaries can play a critical role, helping to match investors and projects, as well as producers and markets. They should help in building management capacity and providing information, mediating between buyers and sellers by providing trust to both.
- **Support new producer entry.** Ultimately, to increase supply in line with demand it will be important to promote uptake among new producers. Mechanisms to support producer entry may include a better adaptation of standards to different sourcing contexts, lower entry requirements linked to systems of continuous improvement, and recognition between different standards to lower the cost of certification.

Problems in matching supply and demand for FairWild certified ingredients: interview outcomes

Many of the factors above were revealed to be important in the FairWild context. Interview participants described various issues leading to a potential mismatch in supply and demand, which would need to be overcome as part of the efforts to support a successful scaling up of the scheme.

An overarching concern identified is that too few consumers are aware of the presence of wild-collected ingredients in the products they use. Even manufacturers may not realize that they are sourcing from the wild. Hence there is little awareness about wild collected plants and related sustainability issues, and few companies/consumers know about the FairWild Standard. Demand for FairWild-certified ingredients is therefore limited, and needs to be further built.

A significant obstacle for finished product companies to enter certified supply chains is the perceived instability of supply. Companies would only enter the FairWild scheme if more suppliers were available in the system (to spread risk). They may require multiple sources of an ingredient to be available before committing to a change of product labelling.

A lack of transparency was also noted as an issue potentially preventing the expansion of sales from current certified suppliers. In some cases, the FairWild certificate is held by a trading company (certificate mandator) paying certification costs and providing oversight to implementation. The name of the certified operator is then not publicly listed and hence not available to other buyers.

Lack of market demand was identified as the main factor limiting producer uptake overall. Operators do not yet certify all the species and quantities they could potentially supply. Other challenges mentioned were inspection and certification costs, and difficulties in complying with the Standard and meeting quality requirements of their buyers.

Interviewees also highlighted that since the FairWild Standard was developed, the sustainability standards landscape has evolved, becoming increasingly competitive. Other certification schemes have now started to apply their own standards to wild-harvested plants, focusing to a greater or lesser extent on each of the different sustainability issues: ethical trading rules or organic/environmentally sustainable sourcing systems. Some interview partners believed that these certification systems are in comparison not only characterized by more demand (having pre-existing buyers), but may be easier and cheaper for a producer to implement. The latter would particularly be the case for schemes not requiring an annual onsite audit, or being less comprehensive in issue coverage than FairWild.

Facilitating trade: suggested interventions for the FairWild system

A number of strategies have been proposed to improve the match of supply and demand for FairWild certified ingredients and support market development—through the research interviews, and from FairWild’s own internal analysis.

First, activities could focus on increasing the demand. Together with some of its partner organizations (such as TRAFFIC, WWF), the FairWild Foundation could organize campaigns to highlight threats related to wild sourcing and to promote the FairWild Standard as a successful tool to assure sustainable sourcing of wild plant material used in cosmetics, herbal medicine and food. To this end, interviewees stressed the need to distinguish

clearly between industry- and consumer-focused communications, and to target campaigns accordingly. Interviewees had mixed opinions on the value of adopting a communications approach focused on particular species and/or products (beyond some broader sectoral priorities already established in Brinckmann *et al.*, 2014). They highlighted the diversity of different species that FairWild aims to cover as its greater mission. However, there was support for associating FairWild with “flagship” species, of conservation concern and/or high market value and consumer interest (e.g. liquorice, baobab or frankincense).

Companies from the buying industry would like to know more of what is or could potentially be available in the FairWild scheme. In the cross-cutting activity areas of information sharing and enabling communication between chain actors, the FairWild Foundation and/or partners may take an active role in matchmaking and providing more information on supply potentially available in the FairWild system, e.g. through additional news services tailored to the industry. However, some of the information on scarce resources may be considered commercially sensitive.

Publishing profiles of all suppliers and creating a searchable online database of certified ingredients would help to increase transparency and information availability. Producer profiles could contain more information of relevance to the industry such as yield expectations, harvesting calendars and quality specifications. Interviewees proposed considering a rule change on naming of sources, to increase transparency at producer level.

Interview participants also appreciated the idea of developing an online platform where companies can express their interest in offering or buying certified ingredients. This platform, and other tools and industry events aiming to support match-making, should also be made available for producers that had previously participated in the scheme and would be interested to re-enter.

In terms of the proliferation of other standards covering wild-harvested ingredients, interview participants stressed the need to investigate harmonized approaches for implementing FairWild together with other standards, and to pursue recognition strategies with other schemes. These are approaches already being taken by the FairWild Foundation, with several other systems now formally recognizing FairWild as fully or partially meeting their requirements for product labelling (e.g. Fair for Life, FTUSA). Attention is being paid to synergizing requirements and document systems with e.g. organic standards, in collaboration with certifiers and partners.

The Foundation has prioritized improvements to the certification system to reduce complexity and cost of participation—including establishing a new accreditation system and auditor training programme to expand coverage. The interviews highlighted that certified collection operations may also need increased incentives to avoid them exiting the scheme, and to ensure they can be economically sustainable in the face of fluctuating demand. In this regard, a stronger focus could be placed on producer security and increasing their capacity with regard to business planning, enabling them to plan prices that cover the real cost of production, and negotiate long-term commitments.

DAVID BRAZIER / B'AYOBA, ZIMBABWE



ANASTASIYA TIMOSHINA / TRAFFIC



HILARY SOMERLATTE / ARBOR OILS



Left to right: collecting baobab *Adansonia digitata* seeds for supply to B' Ayoba, Zimbabwe, a FairWild-certified operator; liquorice *Glycyrrhiza* sp. confectionery on sale, Borough Market, London, UK; collecting myrrh *Commiphora* sp. resin, Isiolo District, Kenya.

To implement the proposed interventions, strong partnerships and alignment with other organizations focused on market access were seen as key to success, particularly for value chain development and match-making. This would allow the Foundation itself to focus on more neutral and cross-cutting activities such as facilitating information exchange. However, the Foundation should work to sensitize all actors to the FairWild model: emphasizing the need to ensure that buyer commitment is secured from the start, and the operator is committed to a continuous improvement approach.

The requirement for additional work to achieve the preconditions necessary for a scale-up was also highlighted. Internal organizational capacities and systems need to be reconfigured, to maximize efficiency when operating with a larger number of certification scheme participants. To gain a more comprehensive overview on production capacities of operators and the volumes currently sold with the certificate (versus potential supply), additional data would need to be collected and assessed.

DISCUSSION AND CONCLUSIONS

The challenges identified with the FairWild system reflect the issues in trade relationships encountered in other certification schemes; notably that demand remains behind supply (Molenaar *et al.*, 2013).

In considering interventions, it is useful to reflect on specific issues of importance in the FairWild context: the MAPs trade sector is complex and the trade is not very transparent. This is particularly the case for conventional (non-certified) ingredients. Sustainability concepts are taken up slowly in the sector and few stakeholders are aware of the threat unsustainable collection practises pose on the resources they use.

More awareness among both companies and consumers is needed to increase market demand. However, the FairWild Standard started to reach markets when other labelling initiatives such as organic and fair trade already had a strong position. As most brand companies with a focus on their sustainability profile already apply organic and/or fair trade certification systems and often use a mix of cultivated and wild-sourced ingredients, they may have difficulties to fit FairWild in their business model and marketing concepts. The unique benefits of FairWild must be clearly articulated to increase the brand value for companies that are interested to communicate about their

use of wild products. Meanwhile, continuing to pursue strategic recognitions with other labels will be needed for sectors and products where there is less potential for consumer recognition of the label. In addition, the more intrinsic benefits of a FairWild-certified supply chain can be promoted—providing comprehensive assurance on sustainability issues, guaranteeing traceability from the point of collection, and providing evidence to help meet the increasingly stringent regulatory requirements in major markets.

The complexity of the sector and diversity of species harvested also complicates research into production and trade volumes. Investing further efforts into data collection and analysis of actual versus potential certified supply would help to understand better the dimension of any current and future mismatch in supply and demand, as well as to know (and potentially help communicate to buyers) what is available in the system. Reconsidering and updating systems of data collection and information sharing will be part of preparing for an upscale in the FairWild system.

The research highlighted the need for a review of transparency to the public on sources and producers. However, the issue is not straightforward to address, as such decisions are agreed between supply chain actors, and may be considered beneficial to both parties. In most cases, the first buyer covers certification costs because the producer cannot afford to do so, and furthermore commits to purchase 100% of the FairWild certified ingredients harvested as well as provide technical support. In considering feasibility of a rule change, the extent to which this is truly limiting expansion of trade in certified ingredients (e.g. if the first buyer does not purchase all available ingredients as FairWild) should be considered, alongside other factors such as producer empowerment and transparency to consumers.

In the creation of greater market demand, ultimately, two strategies are possible. One approach would see FairWild prioritize consumer awareness, working with other organizations to make the public aware of wild species in trade, the associated problems and promoting the FairWild Standard as a solution. The other would see FairWild take a more business-focused approach, working with the industries involved to make them aware of the threatened resource they are using and encouraging them to set sustainable sourcing targets.

To establish FairWild as a globally relevant framework for wild-harvesting and value-adding trade, a business-focused approach would seem central. Not all species

(and finished products using wild ingredients) have the same potential to resonate with consumers. Also, while increasing consumer awareness was seen by interviewees as highly desirable, it was considered less achievable, given existing resources and the complexity of the wild ingredients sector. Efforts may hence focus on developing a more stable supply of many different species, fitting the range of ingredients searched by product developers. In parallel, more companies of the sector need to be encouraged to make commitments on adopting FairWild as a tool to protect the resources they are using.

However, there is a clear desire—and a potential market niche—to harness the drive of consumers as advocates for sustainable wild collection; something of importance also to FairWild licensees (manufacturers) planning their own consumer awareness efforts. While FairWild's own communications may remain broad, the Foundation could partner with others on campaigns organized around selected species, where conservation concerns are more apparent—especially those that are very popular among consumers.

The FairWild Foundation is already actively working on a number of projects which will help the market to develop. Activities to “de-risk” the system with regards to the perceived instability of supply (e.g. developing a more comprehensive policy on labelling derogations, in case of ingredient non-availability), should encourage entry. Ideally, manufacturers will start to realize that the true “risks” come from *not* addressing issues of sustainability and traceability in their supply chains.

There is much that can be and is already being done to increase information provision and aid linkages. Improving operator profiles with additional information and designing a platform or communication system to help buyers and sellers find each other more effectively, is a high priority. The FairWild Foundation and the certified producers can also do more to provide information and images in support of companies upstream in the value chains, helping them to communicate to consumers about wild plants, the FairWild label and its core values.

Moving from a relatively small-scale system to a larger initiative requires adaptation. The FairWild Foundation has already prioritized the training and accreditation of more certification bodies, to expand auditing capacity worldwide. The research indicated that a similar development may be needed in terms of delivery of support services to producers. Much of the technical support is currently provided through industry partnerships; while this can be expected to continue, one could also envision a more specialized service provision developing, with FairWild Foundation and/or partners taking an enhanced role. While support systems for producers were not a major focus of this research, the review highlighted valuable lessons from other initiatives to bear in mind, i.e. maximizing local capacity and building on existing structures wherever possible. A tool in development by partner organization *ProFound-Advisers in Development* also holds promise with regards to producer support, and in lowering the cost of obtaining multiple certifications. The “CheckApp” will help wild collection operations put in place a management and documentation system for

the harvest and trade of wild ingredients, assisting them to fulfil the FairWild requirements in combination with other schemes that may be requested by their buyers (i.e. organic or other fair trade standards).

The FairWild system has already demonstrated its potential as a framework for wild product sustainability, and a further mobilization is now building to take it to a higher level of market share. However, the effect will be greater if all stakeholders are involved in the process—collectors, traders, processors, brand companies and consumers. Let's trade FairWild!

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REFERENCES

- Antosch, L. (2016). *Scaling up FairWild value chains: identifying problems in establishing trade relationships and opportunities in facilitating market links*. BA Thesis report. Van Hal Larenstein University, Netherlands.
- Asen, A., Boscolo, M., Castrén, T., Savenije, H., Schmidt, F., and van Dijk, K. (2012). Making private investments work for tropical forests—a synthesis. *ETFRN News, Good Business: Making Private Investments Work for Tropical Forests* (54): vii–xx.
- Brinckmann, J.A., Buitrón Cisneros, X., Hogervorst, R., Morgan, B., Ottens, B., and Timoshyna, A. (2014). FairWild Foundation Market Share Task Team Report. Internal publication. FairWild Foundation, Switzerland.
- FairWild Foundation (2010). FairWild Standard: Version 2.0. FairWild Foundation, Weinfelden, Switzerland.
- Meinshausen, F., Winkler, S., Bächli, R., Staubli, F. and Dürbeck, K. (2006). FairWild Standards Version 1 (11/2006). Weinfelden: Institute for Marketecology (IMO).
- Molenaar, J.W., Kessler, J.J., El Fassi, M., Dallinger, J., Blackmore, E., Vorley, B., Gorter, J., Simons, L., Buchel, S., Vollaard, B. and Heilbron, L. (2013). *Building a roadmap to sustainability in agro-commodity production*. Aidenvironment, NewForesight, IIED.
- Redfern, A. and Snedker, P. (2002). *Creating market opportunities for small enterprises: experiences of the fair trade movement*, ILO Geneva.
- Springer-Heinze, A. (ed.) 2007. *ValueLinks manual: The methodology of value chain promotion*. Eschborn, Germany: GTZ.
- van Elzakker, B. and Eyhorn, F. (2010). *The organic business guide. Developing sustainable value chains with smallholders*, IFOAM.

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CITES COP17: THE CONVENTION BREAKS NEW GROUND

Sabri Zain and Thomasina Oldfield

The 17th meeting of the Conference of the Parties to CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) (CoP17) took place in Johannesburg, South Africa, from 24 September to 4 October 2016 and was acclaimed by many as one of the most successful ever held. For many species—from pangolins to marine species and even including a whole genus of trees—stronger trade regulation measures were adopted through amendments to the CITES Appendices. Moreover, some key CITES Resolutions were strengthened and new Resolutions and Decisions adopted that broke new ground on a number of important issues, such as traceability and corruption.

The meeting took place following several years of increasing political attention to the issue of wildlife crime—as testified to by the adoption of the first-ever United Nations General Assembly Resolution on Tackling the Illicit Trafficking in Wildlife (Resolution A/RES/69/314) just the year before, committing countries to step up their collective efforts to address wildlife crime and diminish the “increasing scale” of global poaching. CoP17 also started in the wake of intense media coverage on a host of controversial wildlife use and trade issues in the preceding year, such as trophy hunting, national ivory bans and high-profile burning of ivory stocks in several countries.

While this attention did bring wildlife trade to the forefront of government agendas, it demonstrated the polarized views on many of these topics and made meaningful debate on key issues such as sustainable use challenging. Moreover, CoP17 revealed that more work was needed to improve CITES in a number of areas, such as in strengthening the role of science in decision-making, as well as strengthening the role of local communities in shaping decisions expected to affect them.

This article will examine some of the key decisions taken and strategic issues that emerged from CoP17 and discuss a way forward for trying to ensure that its outcomes strengthen the implementation of the Convention and the conservation benefits it is intended to produce.

The role of evidence

The operation of CITES is founded on evidence, as set out in the Text of the Convention, such that the decisions of its Parties are expected to be based upon the best available information on species and trade. This is particularly crucial with regard to the inclusion of species in the CITES Appendices and, to this end, the Parties adopted a set of biological and trade criteria—in 1994, via *Resolution Conf. 9.24 Criteria for amendment of Appendices I and II*, a Resolution that has been kept under careful review and regularly refined—to guide their decisions on this.

At CoP17, as at previous CoPs, many of the proposals to amend the Appendices submitted provided uncertain information or lacked sufficient detail regarding the status and levels of trade of the species in question. Annex 4 of the current version of *Resolution Conf. 9.24 (Resolution Conf. 9.24 (Rev. CoP17))* states that “When considering proposals to amend Appendix I or II, the Parties shall, by virtue of the precautionary approach and in case of uncertainty ... act in the best interest of the conservation of the species concerned and adopt measures that are proportionate to the anticipated risks to the species”. It is problematic in this case that Parties have not agreed any clear guidance on how to implement the said precautionary approach; nor have they given guidance on how to handle information of uncertain quality. Moreover, the criteria set out in the Resolution do not include any reference to assessment of conservation benefit that a listing may bring.

The case of African pangolins, proposed for inclusion in Appendix I at CoP17, provides an example to illustrate some of the difficulties highlighted. There are few population data to determine if African pangolin species meet the biological criteria for inclusion in Appendix I and the proposal judged solely against these would therefore have been unlikely to achieve success. However, the proposal for the pangolins’ listing in Appendix I was strongly supported by Parties because they felt these species were clearly at risk of following the Asian pangolin species into serious decline as a result of illegal trade and that the listing would provide a conservation benefit by providing a higher degree of regulatory scrutiny to prevent illegal international trade.

Clearly articulating the conservation benefit that a listing could bring would allow more confident decision-making—particularly in situations where the information is either uncertain or lacking. Conversely, Parties may determine that listing a given species will not result in any conservation benefits—even if the evidence suggests the species meets the listing criteria. In this case, they may wish to explore what other role CITES could play to achieve a positive impact for the species. Conservation benefit may be an issue that Parties wish to consider in any future discussion of amendments to the guidance on listing in the Appendices.

Conservation success or failure?

Related to the question of conservation benefit is the need for clarity in a CITES context of what constitutes conservation success or failure. The inclusion of all eight species of pangolin in Asia and Africa in Appendix I of the Convention was celebrated as one of CoP17’s outstanding successes. The case for urgent international action on pangolins is clear. In Asia, pangolins are increasingly

threatened by high demand for their scales, which are used in traditional medicines, and for their meat, which is consumed as a luxury food. Recent TRAFFIC research, such as that presented in its report on pangolin trade in the Mong La wildlife market and the role of Myanmar in the smuggling of pangolins into China, testified to a booming illegal trade in live pangolins, their meat, and their scales in Asia. Populations of Asian pangolins are in severe decline, as stated, and, worryingly, supply is shifting to the four pangolin species found in Africa.

However, the listing of all eight pangolin species in Appendix I is arguably a reflection of failure—the failure of the regulatory measures employed under CITES since the listing of these pangolin species in Appendix II many years before. In 2000, a zero quota on trade in the Asian species apparently had little impact on the levels of trade (albeit illegal trade), leading to further declines in numbers of these species and a serial depletion of other species in Africa. How far the current inclusion of pangolin species in Appendix I will stem these declines remains to be seen. As with the zero quota that was imposed in previous years, the listing is unlikely to prevent declines unless there is a very real change in the enforcement of the listing by the countries along the trade chain.

More encouragingly, the pangolin listings were complemented by a Resolution on conservation and trade in pangolins (*Resolution Conf. 17.10*), the first such Resolution agreed by CITES, which urges Parties to address critical issues such as legislation, law enforcement, captive breeding, international co-operation, awareness and assistance of local communities, demand reduction, and management. It is probably through effective implementation of this Resolution that conservation benefit is most likely to follow the Appendix-I listing of pangolins.

The proposal to transfer the Peregrine Falcon *Falco peregrinus* from Appendix I to Appendix II, on the other hand, presented the opposite scenario to that presented by the pangolins, in so far as wild populations appeared to be stable overall, and to have recovered in instances in North America and Europe. Categorized as Least Concern in the IUCN Red List, the species clearly did not meet the biological criteria for inclusion in Appendix I at the time of CoP17. However, the Parties decided by majority vote to maintain the Peregrine Falcon in Appendix I on the basis that information on controls of trade in a number of range States was lacking. Some may argue that this is taking precaution to an extreme level. Also concerning, is the message sent by this CoP17 outcome that once a species is in Appendix I, it may be extremely difficult to transfer it to Appendix II. This is unfortunate, as Appendix II is at the core of the means CITES intends should ensure that trade “is not detrimental to the survival of the species”. Additionally, it may discourage some Parties from considering proposals to list species in Appendix I in future, including proposals that clearly merit consideration for fear that future approval of trade-based conservation solutions could be impossible to secure.

Ensuring legal and sustainable trade

At the heart of the effectiveness of CITES as a conservation tool is that it supports sustainability and

legal acquisition. CoP16 in March 2013 saw the historic listing of five species of shark and two manta ray species in CITES Appendix II and, at CoP17, four other species of shark—the Silky Shark *Carcharhinus falciformis* and three thresher sharks—and the genus of *Mobula* rays were added. However, the effectiveness of these listings will depend greatly upon how Parties implement their Non-detriment Findings (NDFs), these being the mechanism by which Parties determine sustainability so as to try and ensure exports of specimens of a given species will not be detrimental to its survival and will be limited in order to maintain the species’s range at a level consistent with its role in the ecosystem. Considerable efforts have been made by CITES over the years to develop general and taxon-specific guidance for making NDFs and CoP17 saw further progress in this area, a number of shark Decisions (*Decisions 17.209–17.216*) having focused on this. *Decision 17.209*, for example, urges Parties to consider Germany’s offer to support training workshops on the application of the Shark NDF Guidance developed by the German Scientific Authority.

Another significant outcome of CoP17 related to ensuring legal and sustainable trade was the regulation of the commercial international trade in a record number of timber species, predominantly by the listing of the genus *Dalbergia*, including several species commercially traded as “rosewood”, in Appendix II. While many of these species are subject to very heavy over-exploitation and do indeed require regulation under CITES, the listing of some 300 species of the genus may raise implementation challenges, particularly because of the somewhat confusing annotation adopted with the listing, and its relationship with other listings of *Dalbergia* species. However, the Standing Committee and Plants Committee are likely to look at these annotations as part of their work under *Decision 16.162 (Rev CoP17) Annotations*.

CoP17 saw CITES embark upon the next step in the sustainability process—traceability, whereby wildlife commodities considered to have been sustainably sourced are tracked to try and ensure they are traded in a legal and transparent manner. At CoP17, Parties adopted a series of pioneering Decisions (*Decisions 17.152–17.155*) aimed at achieving coherence of the different systems being developed on traceability under CITES.

In looking forward, it is important that certain key issues are considered when developing these traceability systems. These include the issue of their potential socio-economic impact and the issue of balance between assurance of minimum standards or universal guidelines on the one hand, and flexibility for operators and Parties to implement systems adapted to their specific contexts on the other, for example in terms of level of technology, resources or user capacity, or in terms of the taxa involved. At the 66th meeting of the CITES Standing Committee in January 2016, TRAFFIC highlighted a new review it had carried out of means of tracking trade in CITES-listed shark species along the supply chain, using lessons learned from case studies of trade in sturgeon caviar, crocodile skins, Queen Conch *Strombus gigas* and timber. Common to all four case studies was indication of this need to strike the right balance between standards or guidelines for traceability systems and the provision of flexibility.

In addition, it will be helpful if the CITES Parties can agree a traceability definition and “umbrella guidelines” to “develop traceability systems for different species that are mutually supportive and that generate standardized data” (see *Decisions 17.152–17.155*), as well as agreeing business requirement specifications. The lack of universal standards has allowed the proliferation of different systems, as mentioned, which are not necessarily interoperable—it is to be hoped that the new Decisions adopted at CoP17 will reduce this problem.

NDFs and traceability also featured in other CoP17 outcomes. A new CITES Resolution on conservation, sustainable use of and trade in snakes, for example, urged Parties to use available guidance in making NDFs for trade in snakes of wild origin and to take into account lessons learned from projects on traceability implemented for other CITES-listed species.

Any improvements in traceability would be welcome towards curbing further decline of the wild populations of many CITES-listed species and to help towards the goal of trade that occurs only in legal and sustainably sourced products.

If there is one issue that really tested the ability of CITES to deal with controversies surrounding sustainable use, it was trophy hunting. Trophy hunting was already the subject of intense debate and attention prior to CoP17, as manifested through the huge, public and global outcry over the killing of Cecil the Lion, which led many NGOs to call for a complete ban on trophy hunting. This led in turn to debate that tended to mix and muddle a range of arguments relating to animal welfare, conservation impact and local community benefits. There was also increased attention given to fraudulent hunts (so called pseudo-hunts) and their link with illegal trade, particularly with respect to some Appendix-I species such as rhinoceroses.

These developments led to moves by certain countries to apply stricter domestic measures with regard to hunting trophies in international trade. However, many recognize the important role that trophy-hunting programmes can and do play in supporting both conservation objectives and local livelihoods and economies, while also recognizing that problems can result from illegal and poorly-managed trophy hunting. The European Union and South Africa submitted draft resolutions on trophy hunting at CoP17, aiming to address problematic aspects. Parties agreed to a consolidated Resolution (*Resolution Conf. 17.9 Trade in hunting trophies of species listed in Appendix I or II*) that provides guiding principles for striking a balance between achieving scientific rigour to determine the sustainability of harvest levels and consideration of socio-economic impacts, and stresses close and timely consultation between importing and range States.

Discussion of the proposal to transfer the African Lion *Panthera leo* from Appendix II to I clearly demonstrated the many and polarized positions on trophy hunting, particularly with regard to so-called “canned hunting” of captive-bred lions. One of the arguments for the proposal was that it would curtail the trade in lion bone, including from captive-bred lions, to Asian markets, a concern being that this trade may be keeping demand for bones from wild

big cats alive. Ultimately, the CoP decided to retain the present Appendix-II listing for all range States but with a zero quota for bones, bone pieces, bone products, claws, skeletons, skulls and teeth from wild specimens. South Africa, however, obtained an exemption for exports of those parts from captive-bred lions, on the condition that it establishes annual export quotas and communicates these to the CITES Secretariat. CoP17 took additional measures for lion conservation via *Decision 17.241*, which calls for studies on legal and illegal trade in lions and lion parts, including bones, to be undertaken in collaboration with TRAFFIC and/or other relevant organizations, so as to ascertain origins and trade routes.

Captive sourcing

Recent years have seen the issue of captive sourcing come to the fore in CITES, with concerns arising from serious anomalies in trade in specimens claimed to be from captive-breeding operations but in fact removed from the wild. The volume of specimens reported to CITES as being from captive-bred animals has been increasing since the 1990s, and is now higher than that declared to be of wild origin: between the years 2000 and 2012, captive-bred specimens (source code “C”) accounted for 13.3 million live animals in commercial trade, whereas wild specimens (source code “W”) accounted for 10.5 million animals. It is difficult to determine what proportion of specimens declared as “C” have been fraudulently declared as captive-bred, but a growing body of evidence, including that from TRAFFIC research, shows that such declaration is a widespread occurrence.

Owing to the size of the trade and/or threatened status of some of the taxa concerned, any trade in wild specimens falsely declared as captive-bred is likely to have a discernible impact on wild populations. Many examples of such impacts are documented in a report to the Animals Committee (“Concerns regarding trade in specimens claimed to be derived from captive breeding or ranching. Assessment of select examples”) undertaken by TRAFFIC (presented as Annex 1 to *document AC27 Doc. 17 (Rev. 1)*). Without a systematic, transparent and regular process under CITES for reviewing trade from captive sources, it was always likely that captive breeding would pose a continual threat to wild populations. Beyond its impact on species populations, this type of “laundering” constitutes a significant compliance issue, which may be linked to fraud and corruption extending into fundamental problems with governance and the rule of law.

Such laundering is clearly a form of illegal trade and undermines the operations of legitimate commercial captive-breeding facilities. Captive breeding of wildlife for commercial purposes is often seen as a useful conservation tool to relieve pressure on wild populations, while still allowing trade to continue and contribute to livelihoods. The deliberate misuse of source codes (i.e. claiming specimens are captive bred when they are in fact from the wild) completely undermines any such good intentions.

A new Resolution agreed at CoP17, *Resolution Conf. 17.7 Review of Trade in Animal Specimens Reported as Produced in Captivity*, provides a structure for CITES

to identify and address anomalies in trade such as those described above and provides a means of increasing transparency and accountability in transactions from captive breeding operations.

A fundamental aim of CITES is to ensure that international trade in specimens of wild animal species does not threaten their survival, and this must include trade mis-reported as entailing captive-bred specimens. The four-stage process outlined in *Resolution Conf. 10.10* will be as integral to CITES as some of its other “cornerstone” mechanisms, such as the Review of Significant Trade, which ensure that the aims of CITES are upheld, supported by compliance measures where necessary.

The elephants in the room

As in previous CITES CoPs, listing proposals for African Elephants *Loxodonta africana* dominated a great deal of the debate. Proposals from Namibia and Zimbabwe were cases in point: they sought to remove the annotation to the current Appendix-II listings so as to achieve, in effect, an unqualified Appendix-II listing of their elephant populations and establishment of the option for regular trade in future. This was primarily motivated by the failure of the Parties to adopt a CITES “decision-making mechanism” to establish a process for trade in ivory—a mechanism forming part of the so-called compromise reached at CoP14 in 2007 to persuade the southern African countries not to submit proposals for one-off sales in ivory.

Another proposal, from a number of other African range States, sought to transfer the African Elephant populations in Appendix II to Appendix I. The proponents’ reasoning was that the listing of all African Elephant populations in Appendix I was “the only way to send an unambiguous message” that elephants were “protected globally” and that buying ivory was “unacceptable”. While the proposal was often referred to as an attempt to impose a global ban on ivory trade, it should be noted that the annotation to the Appendix-II listing only allowed a one-off sale of ivory stockpiles, which was completed in 2009. In effect, therefore, there already is a global ban on international commercial trade in ivory and any further one-off sales would have to be approved by a future CoP. Moreover, there were also concerns that Parties might enter reservations with respect to an Appendix-I listing for all African Elephant populations and thereby open a channel through which international commercial trade could resume. Indeed, Namibia went as far as to state during debate that it intended to enter a reservation to such a listing if it were approved.

In the event, all three African Elephant listing proposals went to a vote and were unsuccessful—although debate in session revealed that there was still a profound chasm between some African Elephant range States and others, at a time when co-operation and collaboration to address poaching and illegal trade among the range States on the continent is most sorely needed.

Fortunately, there was much more encouraging news that emerged from discussions on the other elephant-related issues on the CoP agenda. The National Ivory

Action Plan (NIAP) process, for example, has resulted in many very positive actions taken by a wide range of players and various amendments were made to *Resolution Conf. 10.10* on trade in elephant specimens which further streamlined and strengthened processes, enhancing the level of consultation with the Parties involved in the making of decisions, as well as providing them with guidance and support in implementing their NIAPs.

TRAFFIC’s analysis of the Elephant Trade Information System (ETIS) that was presented to CoP17 made clear that Africa’s elephants continue to face a very serious threat from the illicit trade in ivory: while the findings provide a hint of improvement on the horizon, additional data in subsequent years will be required to confirm if a meaningful decline in the illicit ivory trade trend is commencing.

A number of countries had made significant progress in the implementation of their NIAPs. Thailand has made commendable progress and is a good example of a country using its NIAP to make sound stepwise progress towards meeting its obligations under CITES to regulate strongly any domestic trade in elephant ivory. Improved legislation in place in Thailand, could be seen as having shifted to an implementation phase which, if sustained, would be a very significant development. Whilst the overall effort taken to reach this stage in a fairly short period of time is admirable, CoP17 noted that Thailand’s domestic ivory trade still required attention to ensure full compliance with CITES requirements for domestic trade in ivory. Key issues to address include the roll-out of a robust product-marking system to track registered worked ivory products and ensure that unregistered products are not laundered into the system, and the need to test ivory products randomly to demonstrate the integrity of Thailand’s management system for legal ivory trade.

The ETIS analysis identified a number of additional countries that might warrant consideration under the NIAP process. For example, some key countries in the ivory trade chain still have not reached the essential starting point of having the basic legislation in place to support assiduous law enforcement and impose meaningful penalties on offenders. There also remains a need for greater and more focused commitment to the investigation of large ivory seizures along the entire trade chain, including through increased forensic examination to determine the source of ivory and through full use of controlled deliveries as a means to penetrate deeper into the identities of large-scale criminal operatives.

While progress made on implementation of the NIAPs has been encouraging, it is still very much at a nascent stage and the continuation of the NIAP process needs to be further encouraged. For the process to have a lasting impact, there must be renewed scrutiny and review of the various NIAPs to ensure that they meet all their objectives. There is hope that effective use of the NIAP Guidelines and timely assistance and support to the countries concerned will assist in these efforts.

As many countries recently responded to reports of increased elephant poaching significantly increasing the level of restrictions imposed on the sale of ivory nationally, it is not surprising that the issue of domestic ivory markets

also gained prominence in discussions at CoP17. As a result, amendments to *Resolution Conf. 10.10* on trade in elephant specimens were adopted, recommending that Parties in whose jurisdiction there is a legal domestic market for ivory that is contributing to poaching or illegal trade take all necessary legislative, regulatory and enforcement measures to close their domestic markets for commercial trade in raw and worked ivory.

There is evidence that some legal ivory markets are indeed being used to launder illegal ivory and countries should be commended for introducing stricter regulation of their domestic markets to prevent that from happening. Such moves must be accompanied by practical and enforceable provisions and compliance systems that will assist, rather than hinder, the enforcement authorities in their efforts to curb illegal ivory trade. It is also essential that global attention must remain firmly fixed on those few markets that are indeed directly fuelling the elephant poaching crisis in Africa.

Beyond elephants

The year 2015 saw a slight decrease in rhinoceros poaching incidents in South Africa, to 1175 from the 1215 record total in 2014. However, overall rhinoceros poaching figures for Africa in total recorded a high for the continent of 1342. The 2015 decrease in South Africa has been more than offset by significant increases in neighbouring Zimbabwe, where rhinoceros poaching rose from 12 in 2014 to a widely reported total of “at least 50” last year, while losses in Namibia also rose sharply from 24 in 2014 to 94 in 2015. The global rhinoceros poaching crisis had not abated and the “IUCN/TRAFFIC report on African and Asian rhinoceroses status, conservation and trade” presented at the CoP provided evidence that rhinoceroses remain in serious straits. It highlighted South Africa’s continuing role as the main source of rhinoceros horns for illegal trade but also noted the escalation of poaching in Namibia and Zimbabwe, making these two important range States a focus of

concern as well. Mozambique remained as a major *entrepôt* and exporter and Viet Nam was identified as the primary end-use destination for rhinoceros horn. China (including Hong Kong SAR) emerged as the second-most prominent destination, although Chinese authorities demonstrated a far more active commitment than most to prosecution of rhinoceros crimes.

Recommendations from the IUCN/TRAFFIC report were adopted by Parties, including for amendments to *Resolution Conf. 9.14* on conservation of and trade in African and Asian rhinoceroses and for a series of rhinoceros Decisions (17.133–17.144) calling for evaluation of measures to prevent and combat rhinoceros poaching and trafficking in rhinoceros horn in those countries identified for priority attention in the report, as well as continued scrutiny on legislative and enforcement measures being implemented by Viet Nam and Mozambique. Measures were also introduced to address issues relating to trophies, fakes and synthetics, prosecution rates and penalties.

The situation with rhinoceroses is still a major concern and, similarly, there is also no evidence of a decline in Tiger trafficking across Asia. A TRAFFIC analysis of seizures released during the CoP revealed that parts equating to a minimum of 1755 Tigers were seized in the period 2000 to 2015—an average of more than two animals per week. The analysis indicated that an increasing number of seized animals undoubtedly originated from captive breeding operations: at least 30% of the Tigers seized in the period 2012–2015 were known to be captive-derived. It is widely believed this increase in live seizures is directly related to the rise in Tiger farms. Traffickers also appear to be exploiting a previously identified trade route stretching from Thailand to Viet Nam through Lao PDR—three countries where the number of Tiger farms has risen.

Fortunately, great progress had been made by the CITES Asian Big Cats working group in the inter-session period prior to CoP17 and a number of the draft decisions submitted by it were adopted by

Left to right: Barbary Macaque *Macaca sylvanus* (transferred from App. II to I); Cuban land snails *Polymita* spp. (inclusion in App. I); Peregrine Falcon *Falco peregrinus* (proposal to transfer from App. I to II rejected); Natal Ginger *Siphonochilus aethiopicus* (inclusion of populations of Mozambique, South Africa, Swaziland and Zimbabwe in App. II).



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the CoP (*Decisions 17.224–17.231*). These included recommendations to review actions being implemented by Parties on: legislative and regulatory measures; national law enforcement; demand reduction, education and awareness; management of national and privately-held stocks of parts and derivatives; and on prevention of illegal trade in parts and derivatives from Asian big cat captive facilities. The Decisions also direct the CITES Secretariat to conduct a review of the number of facilities keeping Asian big cats in captivity, review legal and illegal trade in Asian big cats from or through such facilities, identify those which may be of concern, and undertake missions to relevant countries for the purpose of gaining a better understanding of the operations and activities undertaken by these facilities.

Many of the Decisions adopted were based on recommendations from the review of the implementation of *Resolution Conf. 12.5* on Asian big cats that was conducted for the 65th meeting of the CITES Standing Committee and the CoP17 Decisions also call for the review of implementation of *Resolution Conf. 12.5* to be continued. It is hoped that this review will be able to recommend targeted and time-bound actions to address gaps and weaknesses identified.

Making wildlife crime a serious crime

Corruption is one of the biggest facilitators of illegal wildlife trade, taking place at every stage in the illegal trade chain, from poaching and illegal harvesting through transportation of illegally poached or harvested goods, processing and export, to sale and laundering of proceeds. Corruption threatens to undermine action against the organized criminal networks whose activities deplete wildlife and undermine good governance, the rule of law and the well-being of local communities.

Corruption is also a highly sensitive issue which, in the past, CITES Parties have been reluctant to address in an open and transparent manner. However, this changed dramatically at CoP17 when Parties adopted the first-ever CITES Resolution on prohibiting, preventing, detecting and countering corruption-facilitating activities conducted in violation of the Convention (*Resolution Conf. 17.6*). The Resolution is for implementation of a variety of measures to address the scourge of corruption, including the imposition of appropriate penalties for corruption offences and ratification of the UN Convention on Transnational Organized Crime and the UN Convention Against Corruption. It encourages closer cooperation between CITES Authorities and national anti-corruption enforcement authorities. The Resolution even goes as far as recommending compliance proceedings by the Standing Committee against Parties where corruption is identified as a problem in the effective implementation of the Convention.

While this is a significant step forward for CITES, it is urgent that practical guidance be developed for countries to assist them in mitigating the risks of corruption in the wildlife trade sector. To this end, the primer “Strategies for Fighting Corruption in Wildlife Conservation” was produced by WWF and TRAFFIC to provide a practical

framework for understanding corruption and why it is a problem for wildlife conservation, and to initiate processes that can reduce wildlife-related corruption.

CITES also made significant headway against wildlife crime specifically on another front. Recognizing that e-commerce and online auction sites, as well as social media platforms, are increasingly used to sell illegal wildlife products, providing as they do an alternative to physical markets which may be perceived to be or actually be more exposed to monitoring and enforcement action, Parties adopted *Decisions 17.92–17.96* on combating wildlife cybercrime. These Decisions mandate the establishment of a working group that will include representatives of both producer and consumer countries and those with large internet companies, representatives of NGOs with expertise, lawyers, and other relevant experts. It is hoped that they will allow CITES Parties to keep up with the speed at which wildlife traffickers are using fast-moving internet technology.

TRAFFIC research has documented increases in transactions for illegal wildlife products over the past decade, particularly ivory, and traffickers are seen to have shifted away from online retailers such as auction sites and onto social media platforms which are far more “closed” and difficult to monitor. The shift to social media marketing creates a whole new suite of challenges, yet monitoring and policing this “underground” marketplace must become a top enforcement priority.

Beyond the usual suspects

The CoP was opened by the President of South Africa, Jacob Zuma. He stressed the need for CITES to involve rural communities that live in close proximity to wildlife and bear the brunt of conflict with wildlife or conflict in connection with wildlife trade. He also noted the importance of wildlife to livelihoods and the benefits it can bring. The CoP took a number of significant steps to address and engage with key stakeholders and audiences critical for the effective implementation of the Convention. For example, a proposal was put forward for the establishment of a rural communities committee of the Conference of the Parties. Owing to a disagreement over its mandate, the idea of the committee was not accepted, but Parties did agree in general on the principle behind it and on the need for a practical way to strengthen the role and participation of indigenous peoples and local communities that live with and/or depend on wildlife in decisions around its conservation and sustainable use. As a result, the CoP adopted *Decisions 17.28–17.30* instructing the Standing Committee to establish an inter-sessional working group to consider how to engage rural communities effectively in CITES processes. These Decisions should accordingly lead to development of a structured process to enhance the importance of inputs from these communities in analysis and decision-making. This will not only enhance the effectiveness of CITES but will also better take into account socio-economic impacts of CITES decisions, including effects on livelihoods, and ensure stronger alignment between CITES and the United Nations Sustainable Development Goals.

The issue of consumer choice was highlighted by discussions at the CoP, particularly in terms of reducing the demand for illegal wildlife products. “Reducing demand” in this sense relates to efforts to lower consumer desire for acquisition of illegally traded wildlife specimens. It is seen as a critically necessary complement to anti-poaching, anti-trafficking and other enforcement actions, in order that these should not be continually undermined by persistent, unaddressed demand. CITES has given increasing attention to the issue of reducing demand over the years through, for example, the inclusion of relevant text in Resolutions pertaining to elephants, rhinoceroses and Asian big cats, as well as through *Decision 14.65*, which deals specifically with developing demand reduction strategies for rhinoceros parts. Attention to demand reduction was further elevated at CoP17 with the adoption of *Resolution Conf. 17.4 on Demand reduction strategies to combat illegal trade in CITES-listed species*, which exhorts countries to conduct in-depth and regular research on the demand for specimens of illegally traded CITES-listed species, where possible, using standard methodologies to understand the drivers and dynamics of the demand and to provide solid information for use in demand-reduction campaigns. It also urges countries to develop and implement well-targeted, species-specific, evidence-based campaigns by engaging key consumer groups, targeting the motivations for the demand, and developing specific messaging and methods for reaching target audiences.

Parties also adopted a series of Decisions on demand reduction (*Decisions 17.44–17.48*), which set in motion an assessment of best practices, challenges, strategies and programmes for increasing the effectiveness of efforts to reduce demand for illegal wildlife specimens and the development of CITES guidance on demand-reduction strategies.

There have been many efforts in the past to dissuade consumers from seeking illegal wildlife products, primarily concentrated on generating greater awareness of the importance of the conservation of these species or of the illegal nature of consuming products derived from them. However, continued demand for these products indicates that consumers have not changed and may not change their attitudes and behaviour in response to awareness of these issues. Rather, if demand for these products is to be significantly reduced, a paradigm shift in the design, planning and execution of strategies for the same is required: there is a need for them to be more evidence-based and better targeted to specific consumer groups. Implementation of *Resolution Conf. 17.4* and associated Decisions should facilitate efforts to understand the factors influencing the behaviour of consumers of illegally traded wildlife specimens and, therefore, better appreciation of how to influence this behaviour in a lasting way. It is essential that conservationists, in partnership with experts from relevant fields, examine behavioural change processes in a scientific manner, as this will provide a foundation for more structured thinking about demand reduction efforts and how to apply behavioural science to produce a measurable lessening of desire for trade in endangered species. It is also important that these efforts are targeted on those specific trade chains where consuming illegal

products is having a significant and detrimental impact on the species concerned. Otherwise they run the risk of conveying a simplistic message that any consumption of wildlife is undesirable—a message that undermines CITES efforts to shift wildlife trade chains towards legality and sustainability.

Conclusion

In many respects, CoP17 clearly enhanced the potential impact of action under CITES to address wildlife trade challenges. With respect to wildlife crime, decisions were taken to strengthen existing provisions and processes as well as to implement new and innovative approaches. This includes, for example, the strengthening of processes such as the NIAP efforts and the adoption of new Resolutions on anti-corruption and demand reduction.

Decisions were also taken to enhance the effectiveness of CITES in promoting legal and sustainable trade, through the bolstering of existing science-based processes and tools as well as through the adoption of new and innovative approaches to augment attempts to ensure international trade is legal, sustainable and traceable. CoP17 outcomes in this regard include, for example, the strengthening of measures for the implementation of effective NDF tools and the adoption of guidance on traceability and captive breeding.

How effectively these decisions deliver positive impact on the ground will depend greatly on a number of factors. Despite the CoP having adopted an ambitious and exciting programme of work, one exploring new frontiers in wildlife conservation, Parties accepted an increase of no more than 0.24% in the budget for implementing this. Parties, aid agencies, inter-governmental organizations and NGOs will need seriously to consider how they can assist CITES in ensuring it has the resources to reach the high bar that has been set by the Parties at CoP17 and meet the needs of a rapidly growing Convention.

Parties will also need to ensure that there is constant monitoring and evaluation of progress in the inter-sessional period so that gaps and weaknesses in implementation are quickly identified and addressed and Parties are held accountable for the commitments they took in Johannesburg. The level of compliance with and effective implementation of the provisions outlined in the Resolutions and Decisions will be the real test of the seriousness of these commitments. Various outcomes during CoP17 led many to believe that the Convention has not been hesitant in baring its “teeth”, but has been reticent in actually using them. Parties must not be afraid to use compliance tools where it is clear that no serious progress is being made in implementing the ambitious targets that CoP17 has set for the next three years. The successes and achievements of what was clearly a remarkable CoP will otherwise just remain paper commitments and adversely affect the credibility of the Convention as an effective tool for conservation that delivers results.

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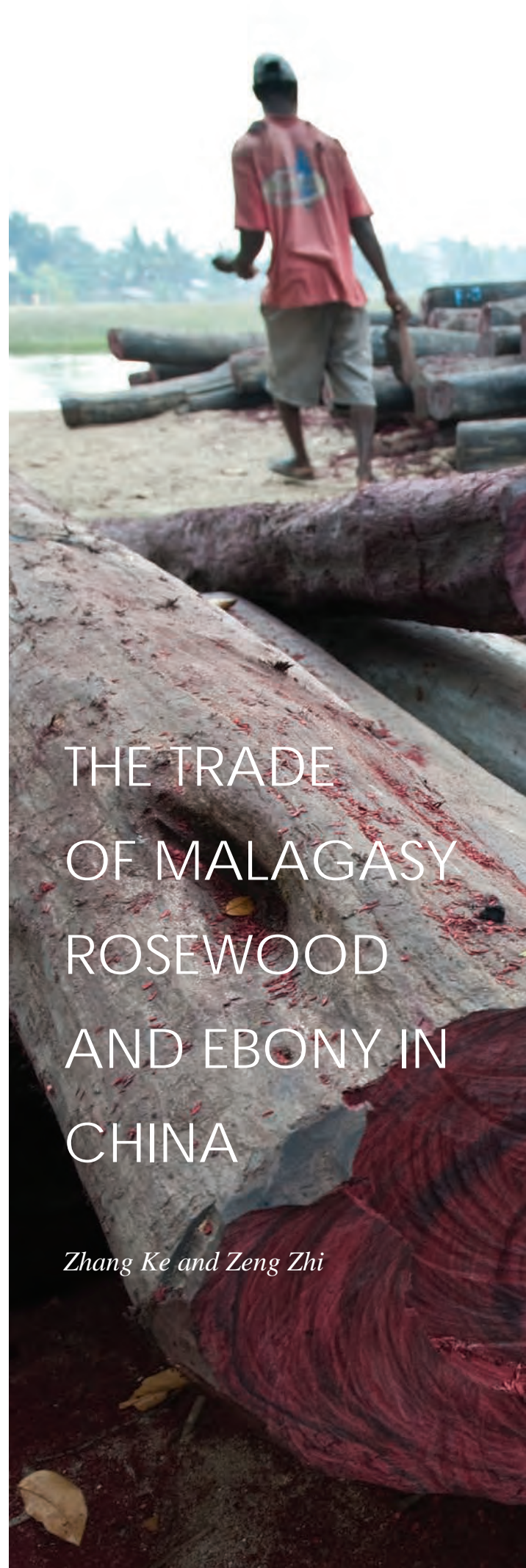
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China has been the main destination for Malagasy *Dalbergia* (rosewood and palisander) and *Diospyros* (ebony) species for over a decade. Since 2013, these species have been listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and their trade embargoed by Madagascar until such time that the country's rosewood stockpile management and trade control measures were approved by the CITES Standing Committee; despite this, there are indications that the illegal international trade of these CITES-listed timber species is continuing.

This research aims to understand the market and supply chain dynamics of Malagasy hardwood demand in China, as well as the infiltration of illegal timber into the legal trade. Based mainly on desktop data research and field investigations, this survey noted that approximately 48 *Dalbergia* and 85 *Diospyros* species are found in Madagascar, but that the many products manufactured in China are reportedly based on three main species, namely *Dalbergia louvelii*, *Dalbergia greveana* and *Diospyros mcphersonii*. This study shows that the use of Malagasy hardwoods proliferated in the Chinese market during 2000–2010. While declared imports of Malagasy timber have declined since 2013, the large-scale seizures of Malagasy timber would suggest that the trade has been driven underground following the CITES listings and export bans, and its popularity and price has remained stable in recent years.



THE TRADE OF MALAGASY ROSEWOOD AND EBONY IN CHINA

Zhang Ke and Zeng Zhi



NATURPL.COM / NICK GARBUIT / WWF

Illegally felled rosewood sp. on
the quayside in Maroantsetra,
Masoala National Park,
north-east Madagascar, 2009.

BACKGROUND

During the first decade of the 21st century, China became the most important importer, processor and consumer of Malagasy rosewoods (including palisanders) (*Dalbergia* spp.) and ebonies (*Diospyros* spp.) (EIA, 2010), as well as other tropical woods sourced from across the world (ITTO, 2011). A study conducted by TRAFFIC (Ratsimbazafy *et al.*, 2016) in Madagascar revealed that 98% of the *Dalbergia* and *Diospyros* species exported between 2010 and 2014 were landed in China.

There are approximately 48 species of *Dalbergia* and 85 species of *Diospyros* in Madagascar (Yin, 2013). In 2013, the Conference of the Parties to CITES agreed to include Malagasy populations of these genera in Appendix II, as well as to adopt a CITES Action Plan for the conservation and sustainable use of these species (CITES *Decision 16.152*). In the same year, Madagascar agreed to embargo exports through a voluntary zero quota (CITES *CoP17 Doc 55.2*). While some progress had been made regarding implementation of the Convention with regard to these species, at the Standing Committee meetings held between 2014 and 2016, concern was expressed that the illegal harvest and export of *Dalbergia* and *Diospyros* species from Madagascar was continuing and recommended that all Parties suspend commercial trade in these species. Adoption of *Decisions 17.203 to 17.208* at the seventeenth meeting of the Conference of the Parties (CoP17), held in Johannesburg, South Africa, in September and October 2016, called on Madagascar to strengthen control and enforcement measures against illegal logging and export at the national level, including those relating to seizures, investigations, arrests, prosecutions, and sanctions. Furthermore, in recognition of growing international pressure on *Dalbergia* species in general, a proposal was approved to include global populations of the genus *Dalbergia* in CITES Appendix II, with the exception of species included in Appendix I, thus expanding trade regulations to all species of this valuable genus.

The laws that govern the harvest and export of precious timber in Madagascar fluctuate between authorization and prohibition. In 2000, Order No. 2000-11832 banned the harvest and export of rosewood and ebony, except in the form of finished or processed products such as craft products. Following strong lobbying by timber operators from the Sava region, in 2005, the ministry in charge of forests issued a note (No. 923-05 of 6 October 2005) authorizing certain timber operators to export their existing stocks of ebony and rosewood. In 2009, an order was issued to authorize 13 timber operators to export rosewood and ebony within three months following the issuing of export permits (Order No. 003/2009 of 28 January 2009). In the same year, another order was issued authorizing 45 operators to export rosewood and ebony within two months from the signature of the export permit (Order No. 38/244/2009 of 21 September 2009). Since 2010 to date, any rosewood and ebony exports from Madagascar are illegal according to the country's legislation. The zero quota under CITES has reinforced the ban at the national level.

In China, Malagasy rosewoods are prized raw materials in the traditional furniture industry. According to interviews with manufacturers, Malagasy rosewoods are valued for their wood-working properties, making them suitable for furniture styles that many Chinese buyers consider aesthetically pleasing. The continued demand for Malagasy rosewood today is proof of the sustained interest in furniture and arts and crafts based on traditional Chinese culture, which first became popular during the Ming Dynasty (EIA, 2010). The royal furniture in the Forbidden City Museum, constructed partly out of Malagasy timber, tells the story of the first shipment of timber from that country exported to China following the explorer Zhenghe's visit to Africa nearly 600 years ago. Malagasy rosewood was once considered a special gift to ancient China from Madagascar. However, in recent decades, the economic boom and rising middle class incomes in China have stimulated the legal and illegal harvesting and trade of Malagasy timber (EIA, 2014).

INTRODUCTION

To understand the magnitude of illegal trade in Malagasy ebonies and rosewoods between Madagascar and China, it is important to understand the scale of China's domestic Malagasy timber trade, policy gaps, and trade and enforcement loopholes that mitigate against the sustainable trade of Malagasy timber species.

China has a set of national standard definitions for rosewoods (红木 Hongmu). China's National Rosewood (Hongmu) Standard (Anon, 2000) identifies 33 species across the *Pterocarpus*, *Diospyros*, *Dalbergia*, *Millettia* and *Cassia* genera as recognized rosewood species. There are two species from Madagascar, namely *Dalbergia louvelii* and *Diospyros crassiflora*, listed on the Standard. The listing of species seems to have the effect of increasing demand by Chinese consumers for these species and this in turn pushes up prices. To illustrate this, during the market survey it was found that industry players in the markets had advocated that *Swartzia madagascariensis* (now *Bobgunnia madagascariensis*) and *Pterocarpus tinctorius* be listed in the National Standard to attract consumers and encourage them to buy furniture made from these species for investment purposes; accordingly, the authors found that the prices for these species had increased in recent years.

Of the two genera of timber from Madagascar, the species most in demand due to its value, quality and scarcity is *Dalbergia louvelii* (卢氏黑黄檀). Also included in the standard is *Diospyros crassiflora* (厚瓣乌木), regarded as an ebony in continental Africa and a synonym for *Diospyros mcphersonii* (麦氏乌木) in Madagascar (Yin, 2013). For the purposes of this report, Malagasy rosewood traded in China refers to *Dalbergia louvelii* (卢氏黑黄檀) and *Diospyros mcphersonii* (麦氏乌木), both of which are well known to the Chinese market.

However, as described above, in China some ebony *Diospyros* species are also confusingly regarded as rosewoods, or Hongmu. Adding to the confusion is that all other rosewood *Dalbergia* spp. traded in China are named using the alternative common name palisander (巴黎桑) or African *Dalbergia* (非洲酸枝). Palisander is usually imported to make low-end furniture and panels. Ebonies (*Diospyros* spp.) are often imported to make art, crafts and instruments, but the total volume of consumption is relatively low, except for *Diospyros mcphersonii* that, according to manufacturers based in Hebei Province, is used for making valuable antique-looking furniture which is more valuable.

This interchangeable use of common names causes confusion in the international market and may undermine enforcement effectiveness due to misidentification, and cause bias in trade statistics through the use of various product names and HS Codes. Similarly, it has also been reported that the genus level CITES listing causes misunderstanding amongst Chinese end consumers about which species are listed and hence about the legality of timber products in the supply chain.

The trade in Malagasy rosewood, ebonies and other tropical woods is an important source of income for the country, and helps to sustain livelihoods by providing



CYNTHIA RATSIMBAZAFY / TRAFFIC



CYNTHIA RATSIMBAZAFY / TRAFFIC

Rosewood being loaded onto a vessel in the north-east coast of Madagascar (top); rosewood stockpile secured at a government facility in north-east Madagascar.

employment. However, illegal timber logging and trade have severely damaged forest resources for local Malagasy communities and have had an adverse impact on the survival of other endangered wildlife (EIA, 2010; Ratsimbazafy *et al.*, 2016). In response to the threats of the illegal timber trade to the island's rich biodiversity, Madagascar committed to a logging ban (Decree No. 11832/2000) and to the implementation of the action plan agreed to by the Parties during CITES CoP16 in 2013, when all Malagasy ebony and rosewood species were listed in Appendix II. The most recent decree released in 2010 (Decree No. 2010-141 of 24 March 2010) prohibits logging, transport, trade, and export of rosewood and ebony.

To understand the dynamics of Malagasy timber traded in China, this study was commissioned by TRAFFIC, with funding from USAID as part of the SCAPES, (Preserving Madagascar's Natural Resources Program).

METHODS

The research was carried out in late 2015 and 2016 using two methods, namely desktop data research and field investigations with eye-witness and stakeholder interviews. The findings were cross-checked against each other. Data were collected using the following means:

- collecting, examining, and analysing import procedures, border controls, import/export documents and other Chinese policies and mechanisms relevant to Malagasy timber. The results were verified by relevant officials through interviews;
- seizure records from open-sourced data such as web and media news;
- compilation of China's Customs statistical data for the timber trade between Madagascar and China for the period 2005 to 2015;
- conducting structured interviews with staff from within the timber industry and international biodiversity conservation organizations in China;
- conducting price trends, trade flow, and gaps analysis of Malagasy timber within China using data sourced from importing and manufacturing industries using Malagasy timber.

According to China's Customs information, there are 14 Customs areas (ports) that have reported imports of Malagasy timber, namely Nanjing, Qingdao, Shanghai, Xiamen, Tianjin, Huangpu, Guangzhou, Shenzhen, Hangzhou, Fuzhou, Ningbo, Zhanjiang, Jiangmen, and Shantou. Due to time and travel budgets limitations, the project team chose to examine only the most important ports, wholesale timber markets, processing centres, and furniture markets for this survey. Thus focus was placed on Shanghai City, Putian City (including Putian port and Xianyou Country), and Beijing City. Information about the other locations was obtained from the results of a previous survey (Zhang *et al.*, 2017) conducted in 2015 and 2016.

Thirty-three respondents, including members of the timber and furniture industry associations (six persons), traders (five persons), furniture manufacturers (10 persons), sales managers (10 persons), and forest researchers (two persons) were selected based on their understanding of and/or involvement in the Malagasy timber trade. The 33 selected individuals were interviewed using structured questionnaires. Secondary data were collected from various published sources, such as books, websites and research papers, as well as publications and reports from the Chinese Customs authority.

The research set out to gather data about both legal and illegal timber trade. Difficulty was experienced in distinguishing between legal and illegal businesses, since some businesses seem to trade in both legal and illegal timber without any possibility of distinguishing between the sources or volumes owing to a lack of monitoring

systems and capacity in the consumer markets. The analysis of "legal" trade was based on statistical data from Customs and timber associations, while only a descriptive overview was possible for the illegal trade, including examination of open sources of data owing to Customs timber seizures records being inaccessible.

RESULTS

Laws and Regulations Related to Timber Importation in China

China banned the export of its own locally produced raw timber in 2001 and has since implemented quotas and licensing policies for sawn wood (Anon, 2001). Meanwhile, policies have been developed for the export of processed timber products.

China ratified CITES on 25 April 1981 and, as such, requires the issuance of CITES permits for the importation of Appendix II specimens. Regulation of the People's Republic of China for the Administration of Import and Export of Endangered Wild Animals and Plants is in place to manage the export trade for domestically protected species. The policies of other government agencies that are relevant to the control of timber imports are listed in Table 1.

Customs Policies and Systems in China

All trade of timber into and out of China requires a Customs declaration. Traders are obliged to submit a declaration form to Customs stating the species name of the products, volumes, and monetary value. Customs may decide to inspect the consignment to verify that the shipment correctly matches the declaration. However, inspections are not conducted for every consignment and depend on the respective provincial Customs authority's risk assessment analysis. However, the rates of inspection for consignments at China's ports of entry are not known, but they are still based on individual risk assessments.

According to the Regulation on Custom Statistics of the People's Republic of China, 1 March 2006, different Customs tariff rates apply to imports according to the consignment's country of origin. They are, respectively, Most Favored Nation (MFN) Tariff Rates, Conventional Tariff Rates, Special Preferential Tariff Rates, General Tariff Rates and Interim Tariff Rates. The MFN tariff on import of raw timber and sawn wood have been maintained at zero since 1999.

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- Customs Law of the People's Republic of China, adopted 22 January 1987, amended 8 July 2000
 - Import and Export Tariff of the People's Republic of China, 1 January 2004
 - Regulation of origin of imported and exported cargo, 1 January 2005
 - Forest Law of People's Republic of China, 20 September 1984
 - Regulations of People's Republic of China on Administration of Import and Export of Endangered Wild Animals and Plants, 1 September 2006
 - Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES)
 - Law of the People's Republic of China on Import and Export Commodity Inspection, 1 August 1989, and revised 28 April 2002
 - Regulations for the Implementation of the Law of the People's Republic of China on the Entry and Exit Animals and Plants Quarantine, Decree [1996] No. 206 of the State Council, 2 December 1996, effected 1 January 1997
 - Regulation on Custom Statistics of the People's Republic of China, 1 March 2006
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Table 1. List of China's laws and regulations related to the import and export of timber (compiled by TRAFFIC).

To understand China's Customs statistics, individuals within the General Administration of Customs in China were interviewed. Trade statistics in China are collected by Customs, based on the declarations made by importers and exporters. Although trade data are also collected by the exporting country, there are no mechanisms or systems linking import and export procedures on a global level apart from CITES and so, in addition to errors caused by the incorrect use of common names, poor co-ordination leads to further inconsistencies between import and export data.

Voluntary initiatives

During the interviews, no Chinese companies were identified that are currently implementing global forest management standards such as the Forestry Stewardship Council (FSC) in Madagascar, or trading FSC-certified Malagasy timber products between Madagascar and China. Instead, the Chinese Central Government has issued numerous policies and regulations promoting sustainable trade and consumption abroad, including voluntary social and environmental guidelines in multiple sectors.

The two most relevant guidelines for timber trade are *A Guide on Sustainable Overseas Forest Management and Utilization by Chinese Enterprises* jointly issued by the State Forestry Administration of China and Chinese Ministry of Commerce in 2009, and *Environmental Protection Guidance for Chinese Enterprises Operating Overseas* issued by the Chinese Ministry of Environment Protection and the Chinese Ministry of Commerce in 2013. Currently under development is *A Guide on Sustainable Overseas Forest Investment and Trade by Chinese Enterprises* from the State Forestry Administration of China and the Chinese Ministry of Commerce.

All Chinese enterprises operating overseas are encouraged by the Chinese government to adhere to the voluntary *Guide on Sustainable Overseas Forest Management and Utilization by Chinese Enterprises* (herein called "the Guide"). The Guide serves as a set of principles for procuring timber in overseas countries, and addresses concerns about timber legality and sustainability. However, there is currently no prescriptive guidance given to enterprises on how to meet the principles in the Guide. TRAFFIC is implementing another project which is developing a prescriptive guidance framework for the Guide for timber exported from Cameroon using the EU Forest Law Enforcement Governance and Trade's (FLEGT) Voluntary Partnership Agreement (VPA) legality definition.

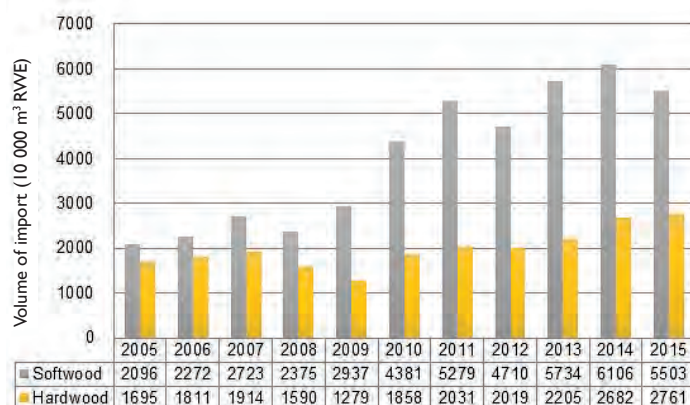


Fig. 1. Total timber imports into China, 2005–2015. (10 000 m³). Source: China Customs, compiled by TRAFFIC.

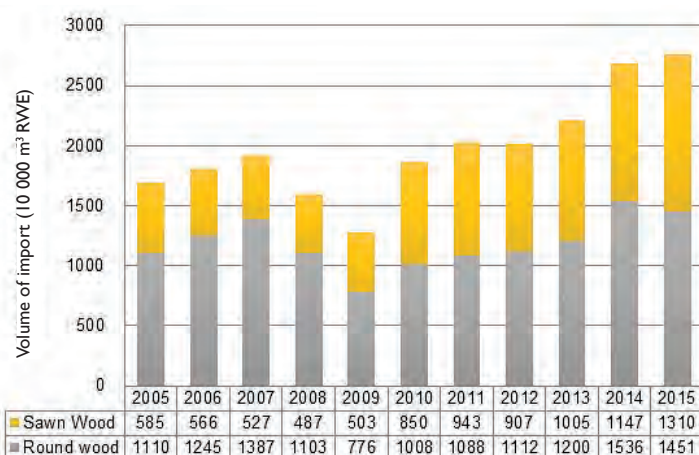


Fig. 2. Total hardwood imports into China, 2005–2015. (10 000 m³). Source: China Customs, compiled by TRAFFIC.

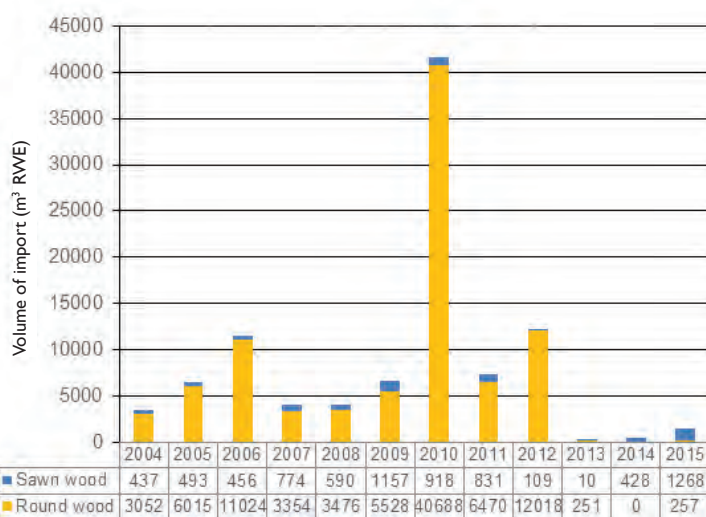


Fig. 3. Total imports of Malagasy timber into China, 2004–2015. (m³) Source: China Customs, compiled by TRAFFIC.

China's Malagasy Timber Trade and Industry

China's import of timber

China is the world's leading importer of timber, with volumes of Round Wood Equivalent (RWE) doubling between 2005 and 2017 (see Fig. 1); while its exports of wood-based products have tripled in volume of RWE and quadrupled in value in recent years (Sun, 2014). Since 2009, Asian demand for luxury furniture (Hongmu) has boomed, with products made using deeply hued rosewoods, mahoganies and ebonies, which are more rare and of high value. Principally, targeting 33 species within the *Pterocarpus*, *Diospyros*, *Dalbergia*, *Millettia* and *Cassia* genera, sales in China's Hongmu sector reportedly exceeded USD25 billion in 2014 (China Rosewood Committee, 2015).

Data during the period 2010 to 2015 show that there has been a significant increase in softwood (see also Fig. 1) imports from Russia, the USA, New Zealand, Canada, and the EU (Anon, 2015b). The importation of hardwood has also increased despite dips in trade during 2008–2009 resulting from the global economic crisis (see Fig. 2).

Specifically, for Madagascar, China Customs data analysis shows that the importation of Malagasy round wood (logs) declined in 2008, however with the rebounding of the Chinese economy in 2010 the volume of imported Malagasy wood peaked (see Fig. 3).

Declared legal timber exports to China fell steeply in 2011 (Fig. 3), presumably owing to a logging ban in Madagascar. In 2013, Malagasy exports fell further (coinciding with the export ban) and from that time the volume of declared imported Malagasy timber, including round wood and sawn wood, has remained low. All the wood sellers and timber market managers interviewed at the market have stated that much of the Malagasy timber offered for sale is from old China-based timber stockpiles that have accumulated for five years or more.

Interviews with traders and other stakeholders have revealed why round wood is often preferred over sawn wood for imports: 1) round wood shortens the value chain and allows for greater profits for the importer; 2) the furniture and art and crafts manufacturers prefer round wood because it allows for greater variety of uses and product types, especially for high-value rosewood; 3) it is possible, and preferred, to process wood in China, with its advanced, cost-efficient and high-quality processing facilities.

As shown in Fig. 4, Madagascar's share of China's overall hardwood timber imports is small, even at its peak in 2010. According to CTWPDA (China Timber & Wood Products Distribution Association), Chinese timber importers hold considerable bargaining power in the global timber trade, and are able to negotiate relatively low prices for Malagasy timber.

The market shares of Malagasy timber in China's hardwood imports (Fig. 4) does not give the full picture as it does not reflect hardwood imports that have been seized by Customs.

The Industrial Chain for Malagasy Timber in China

Main entry points (ports)

Surveys and interviews revealed that the port of Huangpu in Guangzhou City (Guangdong Province), and Jingjiang and Zhangjiagang ports of Jiangsu Province are the main entry points into China for Malagasy timber. In 2011, EIA (EIA, 2016) found that Huangpu and Zhangjiagang were the most important ports for Malagasy timber in China. Shanghai and Hong Kong Special Administrative Region (hereafter Hong Kong) are considered to be less important import cities. However, Hong Kong could be considered as one of most important illegal transit points, as suggested by recent seizures. During the survey, an interviewee also noted that once illegal timber is smuggled into Hong Kong, it is illegally transported across Hong Kong-Shenzhen border, and into Guangdong Province.

It was a challenge to access complete seizures data for this study as most data compiled by China Customs that are publicly available can only be accessed via news websites.

The key primary market cities

Previous market surveys and research carried out in 2015 and 2016 (Zhang *et al.*, 2017) revealed that the main Chinese cities involved with primary tropical timber markets (i.e. first-hand markets, where sellers are directly involved in the trade and invest in source countries) are Zhangjiagang City (Jiangsu Province), and the cities of Guangzhou, Dongguan and Zhongshan (all in Guangdong Province), as well as Xianyou County (Fujian Province), and Shanghai Municipality. Secondary markets (i.e. those that do not import directly but which receive timber from primary importers) for tropical timber are located in Beijing Municipality and Hebei Province. The locations of primary markets for tropical timber were verified in consultation with the China Timber and Wood Products Distribution Association (CTWPDA).

Key industrial centres

There are four key industrial centres manufacturing products from tropical timber species (see Fig. 5). These comprise the industrial timber clusters of Guangdong/Fujian, Jiangsu/Zhejiang/Shanghai, Beijing/Tianjin/



Fig. 4. The percentage of Malagasy timber imported by China as a proportion of China's hardwood imports, 2009–2014. Source: CTWPDA



Fig. 5. Main entry ports, manufacturers and key primary wholesale markets for Malagasy timber in China.

Hebei and Yunnan/Guangxi. The latter cluster mainly processes South-east Asian timber according to the China Hongmu Industry Development Plan for 2015–2025 developed by the China Rosewood Committee (Anon, 2015a), and has thus not been considered in this study. Based on field observations and interviews, Jiangmen City and Zhongshan City in the Guangdong sub-region, are the main manufacturing centres for various *Dalbergia* spp., while Xianyou County in Fujian Province appears to specialize in *Diospyros* spp. sculptures and decorative crafts, as well as high-end *Dalbergia louvelii* used for traditional rosewood furniture. Within the cluster of Guangdong/Fujian, Jiangmen and Zhongshan City are the manufacturing centres with a long history in making furniture, specializing in Cantonese style (Guangzuo 厂作), while the famed Xianyou style (Xianzuo 仙作) is characterized by statues, carvings and decorations of Buddhist and Taoist temples and traditional architectures, as well as furniture in recent decades. Within the Jiangsu/Zhejiang/Shanghai cluster, Dongyang County is the main manufacturing centre for Dongyang style (Dongzuo 东作) furniture, and tends to manufacture low-end furniture using *Dalbergia* spp., commonly referred to as palisander (巴黎桑) or African *Dalbergia* (非洲酸枝). Within the Beijing/Tianjin/Hebei cluster, Langfang City is a minor traditional Chinese furniture manufacturing centre using timber from a variety of sources including Madagascar.

Transport routes from Madagascar to China

Interviews have revealed that the main loading ports in Madagascar include Tamatave, Diego-Suarez, and Mahajanga, while key transit countries used for timber en route to China, include Mauritius, Mozambique, Somalia,

Kenya, Comoros, Sri Lanka, and Singapore (Butler, 2014). In addition, timber companies and sellers in the timber markets noted during interviews that Hong Kong can be regarded as a transit route for Malagasy timber entering China.

As discussed earlier and confirmed during interviews, one of the most common trade routes for timber destined for mainland China is via Hong Kong, which is known as the “Golden Route”. Hong Kong is a free trade port and traders reported that imported goods with irregular documentation are unlikely to be inspected. Therefore, some traders might consider smuggling illicit products into Hong Kong. Random inspections on the mainland still present a risk to would-be smugglers, as do higher penalties for wildlife smuggling in China. According to Shanghai Customs, a set of systems to identify illegal shipments has been introduced, which is very effective. They operate a “risk assessment” approach which bases inspections on intelligence or other information that indicates when a shipment has a high probability of containing illegal goods. Chinese Customs agencies should continue to identify gaps in inspection procedures and exchange information with Customs officials in Hong Kong in order to improve detection of illegal timber shipments.

It should also be noted that authorities in Singapore, made a large seizure of rosewood logs from Madagascar in 2014, providing further evidence that industrial-scale smuggling of Madagascar’s rainforest timber continues despite an official ban on the trade. The shipment amounted to 3000 t, or more than 29 000 logs. The shipping documents indicated the final destination was China (Butler, 2014).

Information from the logistics website (www.5688.com) shows that the main shipping companies for Malagasy timber include Delmas, Maerskline, PIL (Pacific International Lines 太平船务), SAFMARINE, CMA (Compagnie Maritime d’Affrètement), MSC (Mediterranean Shipping Company), amongst others. Delmas made a commitment to the Madagascar government to stop transporting *Dalbergia* and *Diospyros* species from November 2010, which is a way for the shipping and logistic companies to counter the illegal timber trade.

Prices for Malagasy Timber in China

Interviews revealed that *Dalbergia louvelii* (卢氏黑黄檀) and *Dalbergia greveana* (马达加斯加黄檀) were the two most popular timber species imported from Madagascar to China. *Diospyros mcphersonii* is the most popular ebony species, together with *Diospyros crassiflora* from other African countries.

The popularity of *Dalbergia louvelii* and *Diospyros mcphersonii* is largely due to their quality, scarcity, and relatively high cost. They are sought after by traditional furniture users and carving collectors who regard items made from these species as collectables and investments. Products made from *Dalbergia greveana* are coveted by the growing middle class, who seek items of traditional and cultural value with the expectation that they will increase in value over time.

The 2016 price range for the three Malagasy timber species most frequently traded is shown below (Table 1) based on data collated from surveys of e-commerce platforms and markets in Shanghai and Xianyou. Data have been verified with industry associations, including CTWPDA and local timber and furniture associations.

For finished products, price information was collected for three other non-Malagasy CITES Appendix-II species, namely *Dalbergia cochinchinensis* (交趾黄檀), *Dalbergia retuda* (微凹黄檀), *Dalbergia stevensonii* (伯利兹黄檀), for comparison with Malagasy *Dalbergia* spp. The sample size was 10 identical items for each furniture product. The size of items differed, but the study aimed to select samples of comparable scale.

As indicated in Table 2, *Dalbergia louvelii* furniture fetches the highest prices, closely followed by *Dalbergia cochinchinensis*, which has a long tradition of use in China and is well recognized by the general public and antiques collectors as one of the “three old rosewoods” (the other two are *Pterocarpus santalinus* 檀香紫檀 and *Dalbergia odorifera* 降香黄檀).

Changes in Market Preferences

According to market observations and stakeholder interviews by the project team, the Malagasy wood species *Dalbergia louvelii* has been used for at least two decades in China as a substitute for the highly-valued Indian Red Sandalwood *Pterocarpus santalinus*, owing to their similar dark colour, textural features, hardness and density. Initially, many furniture sellers would label products made with *Dalbergia louvelii* as *Pterocarpus santalinus*, thereby attracting top prices at retail, and raising the commodity prices of *Dalbergia louvelii*.

In recent years, the consumer’s understanding has improved, as has standardization in the market with the release of rosewood guidelines for the industry. As a result, prices for Malagasy rosewood have remained stable. In addition, new alternatives for Red Sandalwood have been found, taking advantage of the cheaper and more abundant *Pterocarpus* species imported from Zambia.

Species	Exporter price (t)	Wholesale price (t)	Retailers price (t)	Value Addition Rate
<i>Dalbergia louvelii</i> 卢氏黑黄檀	CNY100 000/USD14 758	CNY150 000–200 000/ USD22 136–29 515	CNY250 000/ USD36 895	250%
<i>Dalbergia greveana</i> 马达加斯加黄檀	CNY10 000/USD1475	CNY20 000/ USD2951	CNY30 000/ USD4427	300%
<i>Diospyros mcphersonii</i> 麦氏乌木	CNY20 000/USD 2951	CNY30 000/USD4427	CNY40 000/USD5903	200%

Table 1. The price range for the three most commonly traded Malagasy timber species in China. Rate: CNY/USD (1:0.14758) February 2017.

Product	<i>D. louvelii</i>	<i>D. greveana</i>	<i>D. cochinchinensis</i>	<i>D. retuda</i>	<i>D. stevensonii</i>
Double bed	CNY361 300/ USD53 320	CNY57 680/ USD8512	CNY298 250/ USD44 015	CNY108145/ USD15 960	N/A
Narrow table (1 m)	CNY27 520/ USD4061	CNY7400/ USD1092	CNY19 692/ USD2906	CNY23 000/ USD3394	CNY7646/ USD1128
Armchair	CNY45 000/ USD6641	CNY7600/ USD1122	CNY60 242/ USD8891	CNY28 793/ USD4249	CNY8186/ USD1208

Table 2. Average price of furniture manufactured from two Malagasy timber species (*D. louvelii*; *D greveana*) compared to three non-Malagasy *Dalbergia* species.

Malagasy ebonies have also been used as an alternative to rosewood to make traditional rosewood furniture. However, trials in the last ten years show that ebonies are not as durable as rosewoods in China's dry weather conditions, particularly for manufacturing large furniture pieces. Today they are still used to manufacture arts and crafts, musical instruments, and some furniture items designed to have an antique appearance, as the darker colour of the wood gives the appearance of age and the wood is also more durable.

Other *Dalbergia* spp., for example, a rosewood with the common name palisander (巴黎桑) or so-called "African Dalbergia" (非洲酸枝) are also used for low-end traditional furniture and modern furniture, as well as being made into panels for re-export. However, there is a lot more competition at this lower price point for Malagasy timber from West African *Pterocarpus* spp. and *Swartzia madagascariensis* (now *Bobgunnia madagascariensis*). According to three manufacturing stakeholders, the demand for such timber has been shrinking in the EU and the USA as a result of the global economic crises from 2008 onwards. This has affected China's export growth for timber products. Interviewees have also stated that importers in China will import timber only after an order has been placed, in order to avoid market risks.

Gap Analysis: Regulations and Law Enforcement of the Malagasy Timber Trade in China

Policy and governance gaps

A key policy of the Chinese central government in preventing the illegal timber trade has been the voluntary guidelines produced for Chinese businesses operating overseas which promote social and environmental standards in different industrial sectors. However, a legality verification system is yet to be developed. The Chinese Academy of Forestry has been assigned by the SFA to develop such a verification system for China, but more progress needs to be made. This deficiency hampers the ability of law enforcement agencies to identify and interdict illegal timber shipments.

China's HS Code for rosewood is defined by China's National Rosewood Standard (Chinese Academy of Forestry, 2010). However, analysis of import documents shows that non-rosewood HS codes are often used for rosewoods and *vice versa*, while the rosewood HS Code is occasionally used for non-rosewood cargoes when shipped from overseas sources. This confusion arises partly because of the use of different rosewood definitions and common names by various trade parties in the value chain. As a result, there are significant discrepancies in the data, and difficulties in ascertaining how much of the declared trade in other tropical wood species are in fact rosewoods of the genus *Dalbergia*.

Law Enforcement Gaps and Solutions

Awareness raising and law compliance of timber traders

China's CITES Management Authority (CITES-MA)—The Endangered Species Import & Export Management Office of State Forestry Administration (SFA)—issued



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***Dalbergia louvelii* on sale at a shop in Xianyou County, 2016.**

an official notification after CoP16 in 2013 (Anon, 2014; 2015a). This was distributed to all branch offices of the CITES-MA, China's General Administration of Customs, China Forestry Industry Association, and CTWPDA. The Chinese CITES MA issued official updates and notifications of CoP17 to Chinese enforcement agencies in March 2017 (<http://www.cites.org.cn/article/show.php?itemid=857>).

In order to fulfil China's international obligations, SFA and Customs (Anon, 2014; 2015a) jointly requested the relevant parties to undertake the following:



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Furniture made of Madagascan palisander, Shanghai, 2016.

- 1) strictly obey implementation of laws (mentioned earlier in the law section) relevant to the Category of Import & Export Commercial Wild Flora and Fauna Species.
- 2) in each Customs district, CITES-MA branches should provide assistance to the respective Customs authority to check suspicious cargo and verify the timber species being traded.
- 3) the supervision and examination of permits (licences) for wildlife imports and exports provides an opportunity to strengthen the management of permits (licences) for timber importers.
- 4) enhance communication and co-ordination between business enterprises and Customs.

Enforcement capacity at Chinese borders

Interviews have revealed that Chinese government agencies, including the SFA, the CITES-MA, China's Customs, and the armed police force, have systematic law enforcement procedures in place.

In August 2013, Guangdong Huangpu Customs announced a successful operation to combat timber smuggling, with the disruption of 12 gangs involved in smuggling high-grade timber and 48 arrests. Reportedly, 20 smuggling cases worth CNY3.16 billion or USD466 million were intercepted in total. The greatest volumes smuggled by species were *Dalbergia louvelii* and *Dalbergia cochinchinensis* (Tang, 2013).

In November 2013, Fuzhou Customs and the coastguard jointly seized 350 t of rosewood in Fujian's Putian waters, worth nearly 80 million yuan (USD11.8 million). This is reported to be the largest case of rosewood smuggling ever intercepted by Chinese Customs; 3394 logs were seized, including 225 logs of *Dalbergia louvelii* and 3169 logs of other *Dalbergia* spp. and *Diospyros* spp., totalling CNY73.514 million or USD10.850 million in value. In subsequent investigations, it was discovered that the logs had been smuggled directly from Madagascar to Fujian (Wu, 2014a). In 2013, 495 cases of illegal wildlife trade seizures, worth a total of CNY1.101 billion or USD162 million, were filed by Fuzhou Customs. This includes about 350 t of *Dalbergia louvelii*, 352.7 kg of ivory, and 32.7 kg of rhinoceros horn (Wu, 2014b).

In October 2015, Hong Kong Customs detected 7015 pieces suspected to be Malagasy rosewood logs, following inspection of incoming cargo from Tanzania. The total value of the seizure was about HKD40 million (USD5.15 million according to the average currency rate in February 2017) (Customs and Excise Department, 2015).

Nevertheless, there are law enforcement challenges in China related to timber, primarily due to a lack of capacity and technology tools such as identification materials for Malagasy timbers and other timber species, which limits the oversight that the government has on the timber sector. According to the interviews with China Customs, staff shortages, deficiencies in expertise, inadequacies in information and intelligence are the major constraints amongst China's law enforcement agencies. Factors contributing to gaps in expertise include lack of manuals and training in timber identification for enforcement staff. This situation is likely to be exacerbated by the

decision to list in CITES Appendix II at CoP17 an increased number of timber species, such as *Dalbergia* spp., together with wider international concerns about the legality and sustainability of the timber trade, especially for CITES Appendix-listed species.

CONCLUSIONS AND RECOMMENDATIONS

Chinese consumers have embraced the consumption of Malagasy rosewood and other tropical hardwoods, particularly during the 21st century. However, its popularity has apparently declined after 2013, when *Dalbergia* and *Diospyros* spp. were listed in CITES Appendix II. While declared imports of Malagasy timber have declined, the large-scale seizures of Malagasy timber would suggest that the trade has been driven underground following the CITES listings and export bans. It is quite likely that a much larger black market trade for Malagasy timber exists, with seizures only capturing a small percentage of the total illicit trade. The stockpiling of Malagasy timber in China and lower prices for tropical woods has also contributed to a decline in declared imports. As it is likely that imports could increase again when stockpiles are reduced, it is necessary to conduct a survey to find out the trade mechanism and volume of China-based tropical hardwood stockpiles in order to understand when demand is likely to increase again.

Although the volume of Malagasy hardwood timber imports is dwarfed by the sheer scale of all hardwood timber exported to China from across the world, current logging levels are destroying the remains of Madagascar's forests and ecosystems. While industrial growth and consumer demand have dramatically depleted timber resources in Madagascar and other countries, China has a responsibility to lead the shift towards sustainable use and responsible forest management in the source countries. Effective law enforcement, trade monitoring and proactively working with other governments towards a unified legality framework could render China as the driving force behind a shift towards legality and sustainability.

The Chinese government (including China Customs, State Forest Administration, Ministry of Foreign Affairs, Ministry of Finance) is urged to:

- provide financial and technical support to Madagascar to conduct the evaluation and research into standing stocks of precious timber in Madagascar and the identification of potentially traded species.
- promote the use of a robust and transparent timber legality verification system to make sure that the timber imported from Madagascar and other tropical countries is from a legal source.
- put a strong communications strategy in place to disseminate information on the criminal nature of consuming illegal timber, by highlighting the negative social, environmental and economic impact to the country of origin as well as the criminal activities which have resulted in deterrent penalties.
- revise urgently the National Rosewood Standard in accordance with CITES provisions, which will effectively regulate international commercial trade of CITES-listed species.
- provide technical and financial assistance to Madagascar to reinforce the fight against fraudulent activities in the precious timber trade.

- strengthen information-sharing with Malagasy and transit countries' law enforcement agencies to make sure that illegal shipments can be intercepted in time.
- strengthen bilateral and multilateral co-operation with Madagascar and East Africa in the framework of China-Africa co-operation such as the Forum on China-Africa Cooperation (FOCAC) to raise awareness among Chinese operators and consumers of the need to reject illegal precious timber originating from Madagascar.
- build the capacity of enforcement agencies along China's borders and in the main hubs of Madagascar's timber market on illegal timber detection, identification and confiscation.
- establish specialized units (comprising experts from forestry, botanical, wildlife trade, environmental conservation and timber industry sectors) of CITES within China's Customs agencies in all ports of entry for illegal timber, to provide the expertise required to identify specimens destined for illegal trade and to ensure that all Customs officers at the border have direct communications with relevant specialists on call.

The Government of Madagascar is urged to:

- request formally that China provides technical and financial assistance to strengthen the national initiatives on combating illegal harvest and trade of precious timber, and propose a collaboration MoU with relevant agencies in China, such as the State Forestry Administration.
- instruct its intelligence and investigative services and the financial intelligence service to collaborate with its counterparts in China to investigate the cases of illegal trade in precious timber that involves Chinese citizens, and the money-laundering resulting from trafficking.
- promote the use of forest management, investment and trade guidelines and other voluntary initiatives among the Chinese community in Madagascar to raise awareness of existing national regulations and the duty of foreign investors in Madagascar.

Additional recommendations for other stakeholders:

- conduct an in-depth timber trade analysis from Africa, especially Madagascar to other transit countries, with the intended final destination of China. This timber supply route study should capture the legal and illegal timber trade, including precious timber species, and recommend what each transit country should do to help interdict illegal timber trade.
- consider how consumer behaviour change approaches can be used to help understand and reduce the unsustainable demand for precious timber from Madagascar and elsewhere in Africa, and how consumers can help to ensure sustainable forest management and timber trade.
- consider the potential or active role of e-commerce in driving the trade of timber from Madagascar and other precious timber from Africa in particular, and develop recommendations to monitor, manage and control the trade to stop illegal timber products from being sold online.

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REFERENCES

- Anon. (2000). 中华人民共和国红木国家标准GB/T 18107-2000, State Forestry Administration, People's Republic of China.
- Anon. (2001). 中华人民共和国对外贸易经济合作部公告2001年第19号. Ministry of Foreign Trade, People's Republic of China.
- Anon. (2014). 国家濒危办关于濒危木材物种贸易管制的提示信息. CITES-MA, State Forestry Administration, People's Republic of China.
- Anon. (2015a). 马达加斯加对濒危木材的出口禁运政策依然有效 我国木材企业切勿从事相关进口业务. CITES-MA, State Forestry Administration, People's Republic of China.
- Anon. (2015b). 中国木材与木制品流通行业年鉴 *China Timber and Wood Products Distribution Industry Yearbook* 中国建材工业出版社
- Butler, Rhett A. (2014). Singapore intercepts massive illegal shipment of Madagascar rosewood. <https://news.mongabay.com/2014/06/singapore-intercepts-massive-illegal-shipment-of-madagascar-rosewood/>
- China Rosewood Committee (2015). *China Hongmu Industry Development Plan for 2015-2025*. China Rosewood Committee.
- Chinese Academy of Forestry (2010). State Forestry Administration 中华人民共和国红木国家标准
- Customs and Excise Department (2015). *Hong Kong Customs detects wood logs of suspected endangered species*. 12 October. http://www.customs.gov.hk/en/publication_press/press/index_id_1518.html
- EIA (2010). 马达加斯加珍贵木材全球贸易调查报告: 大叶紫檀乌木和黑黄檀. Environmental Investigation Agency, London.
- EIA (2014). *Routes of Extinction: The Corruption and Violence Destroying Siamese Rosewood in the Mekong*, Environmental Investigation Agency, London.
- EIA (2016). *The Hongmu Challenge: A Briefing for the 66th Meeting of the CITES Standing Committee*. Environmental Investigation Agency, London.
- FAO (2007). *State of the World's Forests 2007*. Food and Agriculture Organization of the United Nations, Rome.
- ITTO (International Tropical Timber Organization) (2011). *Annual Review and Assessment of the World Timber Situation*. ITTO: Yokohama, Japan.
- Maplesden, F. (in litt.). *The global hardwood furniture market, the legal market for rosewood species, and supply chain issues in China*. UN Office on Drugs and Crime, Vienna.
- Ratsimbazafy, C., Newton, D., and Ringuet S. (2016). *Timber Island: the rosewood and ebony trade of Madagascar*. TRAFFIC, Cambridge, UK. November 2016.
- SFA (2007). *Chinese Forestry Development Report 2007*. State Forestry Administration, People's Republic of China.
- Tang, Guijiang (2013). 广东“利斧”行动查获30亿元特大木材走私案. 中国新闻网. <http://www.chinanews.com/fz/2013/08-23/5201526.shtml>
- Wenbin, H., Xiufang, S. (2013). *Tropical hardwood flows in China: case studies of rosewood and okoumé*. Forest Trends Association, Washington DC, USA.
- Wu, Yadong (2014a). 全国海上偷运红木走私最大案主犯被移送起诉. (31 July 2014) 法制日报. <http://legal.people.com.cn/n/2014/0801/c188502-25380397.html>
- Wu, Yadong (2014b). 福州海关开展“绿风”行动打击农产品走私 (4 April 2014) 法制日报. <http://legal.people.com.cn/n/2014/0404/c188502-24830809.html>
- Yin, Yafang (2013). 马达加斯加黄檀属 (*Dalbergia* spp.) 和柿属 (*Diospyros* spp.) 材物种名录. Chinese Academy of Forestry.
- Zhang, K., Shen, W., and Gao, Y., (2017). Tracking the Mozambican tropical hardwood trade in China, TRAFFIC. Unpublished.

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

The following section features a selection of seizures and prosecutions reported between October 2016 and March 2017. Sources are cited at the end of each country section. Readers are referred to the TRAFFIC website (www.traffic.org/media-reports/) for regular updates on cases reported from around the world.

ELEPHANTS

The African Elephant *Loxodonta africana* is listed in CITES Appendix I (except the populations of Botswana, Namibia, South Africa and Zimbabwe, which are included in Appendix II); the Asian Elephant *Elephas maximus* is listed in Appendix I.

AUSTRIA: In early November 2016, reports to the police of two people seen openly exchanging three elephant tusks and cash in a street in Vienna, led to a search by officials of two flats owned by the buyer, an Austrian national. Some 90 raw and worked elephant tusks (563 kg) concealed behind cupboards were seized.

Bundesministerium für Finanzen: <http://bit.ly/2pViHpm> (in German), 16 November 2016; *Die Presse:* <http://bit.ly/2pUVxQL> (in German), 16 November 2016

CHINA: On 1 November 2016, at Beijing's No. 4 Intermediate People's Court, a man from Shaanxi Province was sentenced to four years in gaol and fined CNY40 000 (USD5912) for illegally smuggling 52 ivory items (10 kg) from Cape Town, South Africa, to Beijing, in June 2014, in his shoes and in metal boxes in his luggage.

Global Times: www.globaltimes.cn/content/1015476.shtml, 2 November 2016

CONGO, REP. OF: On 27 October 2016, at Ouésso Court, Hamadou Abbo and accomplices Minda Xavier and Gonock Evouanga Edgard were each sentenced to five years in gaol for their role in the killing of elephants and the marketing of nine ivory tusks. Minda and Gonock were also ordered to pay the Department of Forestry CFA1 000 000 (USD740) for damages inflicted and a further sum of CFA500 000.

Save the Elephants: <http://bit.ly/2piGdRk>, 29 October 2016

HONG KONG SAR: On 28 March 2017, two people were fined HKD6000 (USD770) and HKD8000 (USD1000) respectively after carbon-14 forensic analysis, used for the first time as evidence in a wildlife crime in Hong Kong, proved that the ivory in a pair of chopsticks for sale in a licensed ivory outlet was obtained after 1990 and therefore illegally for sale.

TRAFFIC: <http://bit.ly/2pFEIfX>, 28 March 2017; <http://bit.ly/2ZounsWB>, 17 February 2017

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.

KENYA: On 21 December 2016, officials at the Port of Mombasa arrested a suspect following the seizure of 1.97 t of ivory that had been concealed in hollowed-out wooden blocks, declared as ceramics, in a shipment en route to Cambodia. Authorities in Singapore returned the consignment to Mombasa after Kenya, acting on intelligence, raised the alarm that it contained illegal cargo. Many of the 334 ivory pieces bore red ink marks reportedly consistent with them being police evidence exhibits.

On 24 February 2017, US national Donna Pontier was sentenced to a gaol term of five years or a fine of KES1 million (USD9600) after being stopped on 20 February at Jomo Kenyatta International Airport, Nairobi, en route to Uganda, in possession of an ivory bangle (10 g) without a permit. Pontier stated that she had received the piece as a gift nearly three decades earlier and had not been aware it was ivory. The judge ordered the return of the bangle to the Kenya Wildlife Service.

The Star: <http://bit.ly/2ZouhVIA>, 15 December 2016; <http://bit.ly/2pVfs1H>, 23 December 2016; <http://bit.ly/2pis7iX>, 24 February 2017; <http://ireut.rs/2hhoYfR>, 22 December 2016

MALAYSIA: On 1 January 2017, Customs officials at Kuala Lumpur International Airport seized 846 kg (254 tusks) of ivory that had been shipped from Kinshasa International Airport, Democratic Republic of Congo, via Ataturk Airport, Istanbul, Turkey, in 17 crates labelled as wood samples, and with documents bearing a false address. No arrests.

Free Malaysia Today: <http://bit.ly/2Zou6nMs>, 4 January 2017; *New Straits Times:* <http://bit.ly/2oNN2ZW>, 4 January 2017

SOUTH SUDAN: On 6 December 2016, at Juba International Airport, authorities seized 500 kg of ivory arriving from either Kenya or Ethiopia (reports vary) but originating from an unspecified neighbouring country, reportedly bound for Asia, via Cairo, Egypt. The ivory had been wrapped in sponge. Three arrests.

World Bulletin: <http://bit.ly/2gGbi9X>, 7 December 2016; *Pulse ng:* <http://bit.ly/2oNNyXS>, 7 December 2016

TANZANIA: On 3 March 2017, at Dodoma Resident Magistrates' Court, Boniface Matthew Mariango and his brothers Lucas Mariango and Abdallah Ally Chaoga were each sentenced to 12 years in gaol; they were arrested in Dar es Salaam in October 2015 while attempting to smuggle 118 elephant tusks (weight not reported). Mariango had been sought by the authorities for a year for allegedly running an ivory trafficking network that spanned Tanzania, Burundi, Zambia, and Mozambique.

BBC: <http://bbc.in/2o6VMf3>, 3 March 2017; *Daily News:* <http://bit.ly/2opNaMm>, 4 March 2017

UGANDA: On 17 February 2017, authorities seized 1.3 t (437 pieces) of ivory from a residence in a Kampala suburb; a Liberian and two Guinea-Bissau nationals planning to ship the items overseas were arrested. It was stated that the ivory had likely been imported as it bore markings unfamiliar to the authorities.

Beloit Daily News (Uganda): <http://bit.ly/2pV46L4>, 18 February 2017; <http://bit.ly/2oZ8Xh5>, 19 February 2017

UK: On 3 November 2016, at Portsmouth Magistrates' Court, Chao Xi of Portsmouth was sentenced to gaol for one year, suspended for two, for the illegal sale and export of elephant ivory from the UK. He was given a one-year community order with a requirement to do 150 hours unpaid work; a fine of GBP85 (USD106) and a victim surcharge of GBP85 was also imposed.

In October 2015, the National Wildlife Crime Unit became aware objects suspected to be ivory were being sold on an auction website as "bovine bone". Enquiries revealed that over a two-year period Xi sold 78 ivory items. A search of his home in February 2016 uncovered 43 ivory pieces.

UK National Wildlife Crime Unit: <http://bit.ly/2piHtnz>; *The News:* <http://bit.ly/2opL3Zh>, 7 November 2016

VIET NAM: Authorities at Cat Lai Port, Ho Chi Minh City, have seized seven large shipments of ivory over recent months, many involving the use of hollowed-out logs or wooden blocks as the method of concealment:

On 6 October 2016, 2052 kg of ivory arriving from Mozambique concealed in hollow wooden blocks; a week earlier, some 309 kg from Nigeria was seized at Noi Bai International Airport (see *TRAFFIC Bulletin* 28(2):75).

On 20 October 2016, 595 kg of elephant tusks (and 277 kg of pangolin scales) in two timber containers imported from Mozambique. The items had been stuck to timber blocks with glue or wax.

On 26 October, a tonne of ivory from containers that had arrived from Mozambique in September but were unclaimed; again concealed in hollow wooden blocks, covered by kaolin powder, glued and covered by soil.

On 26 October, 700 kg of ivory reportedly originating in Kenya's Mombasa port, via Malaysia's Tanjung port and en route to Cambodia.

On 24 November, 619 kg illegally shipped from Nigeria and sealed into timber boxes with wax; wooden, rather than metal nails had been used reportedly to give the impression of a block of wood and to bypass x-ray detection.

On 30 November, 537 kg of ivory from three hollowed-out blocks of timber arriving from Nigeria, bound for Cambodia.

On 1 December, 529 kg from Nigeria concealed in hollowed-out wooden logs.

<http://bit.ly/2fZLzLD>, 22 October 2016; <http://fxn.ws/2ez8Hxv>, 1 November 2016; <http://bit.ly/2opO7Eq> (in Vietnamese), 22 October 2016; L. Sangalaku, ETIS Database Manager, in litt. to *TRAFFIC*, 13 April 2017; <http://bit.ly/2piHw2H>, 20 November 2016; <http://bit.ly/2oSs2u> (in Vietnamese); Haiquan online: <http://bit.ly/2pFPT8w> (in Vietnamese), 26 October 2016; <http://bit.ly/2oYuBiB>; <http://bit.ly/2piPTM3>, 27 October 2016; <http://apne.ws/2o6TPiq>, 25 November 2016; *The Nation*: <http://bit.ly/2grrgH2>, 30 November 2016; <http://bit.ly/2pFv9L0>, 1 December 2016; <http://bit.ly/2oSBQcH>, 2 December 2016

FLORA

HONG KONG SAR: On 16 February 2017, 100 police and Customs officials were involved in the arrest of 11 people allegedly part of a cross-border syndicate involved in the illegal trade of Red Sandalwood *Pterocarpus santalinus* (CITES II) and electronic goods to mainland China. Three vehicles carrying 4.5 t of Red Sandalwood logs were intercepted in Ma On Shan.

South China Morning Post: <http://bit.ly/2oYvs5N>, 16 February 2017

INDIA: A selection of cases involving the seizure of Red Sanders (Red Sandalwood) *Pterocarpus santalinus* (CITES II):

On 3 November 2016, two tonnes seized at two locations in Kattigenahalli village, Karnataka, and on 4 January 2017, 1.5 t seized during a raid in the village. Three arrests. During the last two years, about 20 t of logs have been seized in Kattigenahalli, and several arrests, including two Chinese nationals.

On 7 January 2017, 4.7 t seized from a shed in Gowalkot, Chiplun, Ratnagiri district, Maharashtra State, reportedly the fourth such seizure in Chiplun in a fortnight: on 30/31 December 2016, 9 t were seized at three locations in Chiplun; some concealed in sofa seats destined for export.

On 13 January 2017, police seized nine tonnes of Red Sanders from two warehouses, including logs, powder, chips, beads and art pieces, reportedly the first time Red Sanders has been seized in the form of finished products.

On 24 January 2017, over 12 t awaiting export (destination not reported) at Jawaharlal Nehru Port, Maharashtra, at the air cargo terminal in Andheri (east) and at a warehouse in Kopar Khairane. Several arrests.

On 29 January 2017, 11 people, including an assistant forest beat officer and four protection watchers were arrested for their alleged role in the smuggling of 1.3 t of Red Sanders logs, seized at three places in Kadapa district. One of the suspects had previously worked in the Anti-Red Sanders Task Force in Tirupati.

On 18 February 2017, five tonnes of logs seized by officials at exit points in three locations in Chittoor and Kadapa districts; nine arrests.

On 28 February 2017, 20 t seized from a warehouse in Kancheepuram, Tamil Nadu; three arrests.

On 12 March 2017, 10 t seized from a lorry at the check-post at Kavarapattai on the Chennai-Kolkata Highway.

On 16 March 2017, seven tonnes (541 logs) seized from a warehouse in Tiruvallur, Tamil Nadu.

The Hindu: <http://bit.ly/2pFMTcb>, 5 November 2016; <http://bit.ly/2piCseQ>, 5 January 2017; <http://bit.ly/2o6WvNb>, 16 January 2017; <http://bit.ly/2ouqslM>, 31 January 2017; <http://bit.ly/2oNR9oX>, 1 February 2017; <http://bit.ly/2ouriyA>, 30 January 2017; www.thehindu.com/news/national/andhra-pradesh/193-red-sanders-logs-worth-%E2%82%B915-crore-seized/article17326636.e, 19 February 2017; <http://bit.ly/2ouhTHC>, 13 March 2017; <http://bit.ly/2oNPz6s>, 17 March 2017; *Times of India*: <http://bit.ly/2pFztdg>, 10 January 2017; *Daily News and Analysis (DNA)*: <http://bit.ly/2o6UNvj>, 3 January 2017; *Deccan Chronicle*: <http://bit.ly/2opxeKp>, 2 March 2017

MYANMAR: Between April and October 2016, Myanmar authorities seized over 27 000 t of illegal timber. In one case alone, 7000 t of logs were confiscated in Putao, Kachin, and 3000 t of illegally felled Teak *Tectona grandis* and other hardwoods were confiscated in Bago region; over 500 arrests.

On 18/19 March 2017, military personnel seized 950 t of logs that had been illegally logged near Mabane Township, Shan State, including Teak *Tectona grandis* (402 t), Burmese Rosewood *Dalbergia oliveri* (1 t) (CITES II), and Padauk *Pterocarpus macrocarpus* (1.5 t). Logging equipment, including saw mills, one crane and 13 vehicles were seized.

Global Times: <http://bit.ly/2piPhWp>, 31 October 2016; *Burma News International*: <http://bit.ly/2pFOgYA>, 22 March 2017

MARINE

AUSTRALIA: On 22 March 2017, it was reported that Wewei Zhou of Riverwood had been sentenced at Bankstown local court, Sydney, New South Wales (NSW), to a 12-month suspended gaol term for illegal possession of abalones. He was fined AUD3000 (USD2280) and directed to enter into a good behaviour bond for three years as an alternative to gaol. His vehicle was forfeited and he was ordered to pay the Department of Primary Industries' legal costs of AUD5280, plus AUD2070 for the Department's towing and vehicle storage costs. Zhou was caught in Ulladulla, NSW, with 741 Black-lip Abalones *Haliotis rubra*, including undersized specimens.

Narooma News: <http://bit.ly/2o7dkaL>, 22 March 2017

CHINA: On 31 October 2016, Customs in Pingxiang, Guangxi, intercepted a vehicle entering the country from Viet Nam with cargo declared as snail shells and which was found to contain a dismembered turtle, giant clams Tridacnidae (CITES II/1st class State protection) and Horned Helmet sea snails *Cassis cornuta* (2nd class State protection). Customs traced other vehicles that had entered the country that day with goods declared as snail shells and found similar items in four other vehicles, resulting in the total seizure of 17.5 t of giant clams/related products, 109 Hawksbill Turtle *Eretmochelys imbricata* (CITES I) bodies, 102 Hawksbill Turtle heads, and 1110 Horned Helmet sea snails.

Environmental Investigation Agency: <http://bit.ly/2nAotki>, 1 December 2016; <http://bit.ly/2oSTJlv>, 26 November 2016 [in Chinese]

COSTA RICA: On 6 February 2017, at Puntarenas Criminal Court, Hue Ju Tseng Chang of Taiwan was sentenced to six months in gaol for her involvement in the unloading of 652 shark fins, destined for sale abroad; she was fined CRC3 million (USD5450). The investigation began in 2011 when Tseng's Belize-flagged fishing boat at El Carmen de Puntarenas pier was found to be carrying 151 sharks [species not reported], their fins removed. Tseng was acquitted at the first trial in April 2014 but the San Ramon appeals court ordered a retrial. It is reported to be the first time that there has been a criminal conviction in Costa Rica for shark finning.

<http://bit.ly/2oYxlzD>, 11 February 2017

GREECE: On 3 February 2017, nine people were arrested in the Attica region for their part in the smuggling of juvenile European Eels *Anguilla anguilla* (CITES II), transported from Spain, France and Portugal, via Italy. From Greece, the shipments were sent by air to Hong Kong via Istanbul, Turkey (see also Spain and UK).

Kathimerini: <http://bit.ly/2oOImS6>, 7 February 2017

HONG KONG SAR: On 6 March 2017, it was reported that the authorities had seized 1280 kg of illegally-imported dried shark fins from four containers at Kwai Chung Custom-house Cargo Examination Compound that had arrived from India, Egypt, Kenya and Peru without permits. The fins derived from eight species, including CITES-II listed hammerheads *Sphyrna* sp. and Oceanic Whitetips *Carcharhinus longimanus*.

The Government of the Hong Kong Special Administrative Region press release: <http://bit.ly/2piDQq2>, 6 March 2017

NEW CALEDONIA: It was reported in March 2017 that authorities had seized several tonnes of sea cucumbers [species not reported] from ships illegally fishing in waters of the South Pacific French territory following a nine-month investigation. Fines were imposed on 55 vessels and five Vietnamese ship captains were gaoled.

Spiegel: <http://bit.ly/2nyHD6l> (in German), 11 March 2017

SOUTH AFRICA: On 17 October 2016, officials in Somerset West seized nearly 12 000 wet abalones or perlemoen *Haliotis midae* from two vehicles. Two arrests.

On 17 February 2017, authorities recovered over 23 000 wet and dry abalones from a

house in Durbanville, Western Cape, bringing to over 52 000 the number of specimens seized in a week. Twelve arrests, more expected; 8000 abalones were seized from a vehicle in Worcester on the same day; the driver fled.

On 22 February 2017, three men were arrested after abalones were seized from a vehicle in Cape Town; a subsequent raid on a warehouse in Parow uncovered an illegal abalone processing facility. In total, 12 295 dried abalones and 1222 pieces of wet shucked abalones were seized.

On 31 March 2017, at Khayelitsha Priority Court, two people were each fined R1 million (USD72 600) and sentenced to five years in gaol, of which three are suspended for five years, after being convicted of abalone smuggling.

News24: <http://bit.ly/2oNQ5RG>, 18 October 2016; Facebook: <http://bit.ly/2oSUS2Q>, 18 February 2017; Eyewitness News: <http://bit.ly/2o77mGW>, 18 February 2017; Times Live: <http://bit.ly/2o7ha3R>, 22 February 2017; The Citizen: <http://bit.ly/2pVntE5>, 4 April 2017

SPAIN: In February 2017, authorities dismantled an international criminal network involved in the smuggling of over 10 t of juvenile European Eels *Anguilla anguilla* (CITES II) from the EU to Asia. The investigation, co-ordinated by Europol and Eurojust, and with the participation of authorities in Portugal, Italy, France, Greece and the UK, resulted in the arrest of eight people (see also Greece and UK). The operation was initiated by the Spanish Guardia Civil's Environmental Protection Service SEPRONA after investigators discovered a company had been purchasing eels from a number of countries. Once the eels were introduced into the legal market, the company would deliver them to Greece using false documentation; the eels were subsequently exported illegally to Asia as "fresh fish".

EUROPOL press release: <http://bit.ly/2o6V3KG>, 8 March 2017; Guardia Civil press release: <http://bit.ly/2oujKfv>, 8 March 2017

UK: On 15 February 2017, Border Force officials at Heathrow Airport seized a consignment of some 600 000 (200 kg) live juvenile European Eels *Anguilla anguilla* (CITES II) that had arrived from Spain for export to Hong Kong, concealed under a consignment of chilled fish. A man was subsequently arrested in Chessington and bailed until August. The eels were returned to Spain.

The Standard: <http://bit.ly/2mTL059>, 3 March 2017; Get West London: <http://bit.ly/2piVv8K>, 3 March 2017

PANGOLINS

All eight species of pangolins have been transferred from CITES Appendix II to Appendix I, effective 2 January 2017

CAMEROON: In December 2016, Customs officials at Yaoundé-Nsimalen Airport seized 670 kg of pangolin scales concealed in meat packets, destined for Malaysia. It is reported that there have been regular seizures of between three and five kilogrammes of pangolin scales and meat hidden in small containers.

In January 2017, two Chinese nationals were arrested in Douala with five tonnes of pangolin scales destined for export.

EIA: <http://bit.ly/2pYg1bN>, 20 January 2017

CHINA: On 10 December 2016, at Shanghai port, Customs officials seized three tonnes of pangolin scales, reportedly the largest amount ever seized in China, concealed in a container arriving from Nigeria, via Singapore, and registered as carrying *Afzelia xylocarpa* timber. Three arrests; one suspect confessed to smuggling pangolin scales from Africa to China since 2015.

GlobalTimes: <http://bit.ly/2oYCKAil>, 27 December 2016; <http://bit.ly/2hdiBu8>, 21 December 2016; South China Morning Post: <http://bit.ly/2o73q9j>, 28 December 2016

INDONESIA: In early November 2016, police in Jambi, Sumatra, confiscated 2.5 t of pangolin meat and 279 kg of pangolin scales from a warehouse in Kilangan village, Batanghari District; three arrests. The meat was reportedly destined for sale in China, Malaysia, Singapore and Taiwan, and the scales bound for China.

Antara News: <http://bit.ly/2oYzPxY>, 10 November 2016

THAILAND: In December 2016, Customs officials at Suvarnabhumi Airport, Bangkok, seized 2.9 t of pangolin scales from two shipments in transit from the Democratic Republic of Congo to Lao PDR. On 4 December, they uncovered 34 packages containing 1700 kg of pangolin scales arriving from Kinshasa, bound for Vientiane via Turkey and Thailand. On 23 December, another shipment of 24 packages (1200 kg) of pangolin scales travelling the same route was seized at the airport.

On 14 February 2017, 1066 kg of pangolin scales packed into 22 containers were seized at the airport, again bound for Vientiane. The shipment was labelled as "fish maw" and had arrived from Lubumbashi, Democratic Republic of Congo, via Nairobi.

Bangkok Post: <http://bit.ly/2kntSWQ>, 2 February 2017; ASEAN-WEN: <http://bit.ly/2oYtQca>

UGANDA: On 9 January 2017, it was reported that authorities had arrested suspects allegedly responsible for the seizure in Tanzania of six tonnes of pangolin scales. One Ugandan, one Malian and eight Tanzanian nationals were due to be deported to Tanzania following a multi-nation operation. Part of the confiscated stock has been traced to West Africa, D.R. Congo and Uganda, from where it was smuggled to Tanzania by buses shuttling between Kampala and Dar es Salaam via the Mutukula border.

New Vision: <http://bit.ly/2piF5NC>, 9 January 2017

VIET NAM: On 20 October 2016, at Cat Lai Port, Ho Chi Minh City, 277 kg of pangolin scales were seized in an ivory consignment (see Elephants).

On 24 February 2017, Customs at Noi Bai International Airport found four packages (322 kg) of pangolin scales arriving from Nigeria, declared as stationery. On 3 March 2017, 357 kg of pangolin scales from Cameroon were seized at the airport.

L. Sangalaku, ETIS Database Manager, in litt. to TRAFFIC, 13 April 2017; Haiquan online: <http://bit.ly/2pFJ2sC>, 28 February 2017; <http://bit.ly/2pVnis5>, 3 March 2017

REPTILES

CROATIA: In November 2016, Customs officials in Osijek, near the border with Bosnia and Herzegovina, foiled an attempt to smuggle 635 Hermann's Tortoises *Testudo hermanni* (CITES II) and 80 pond turtles *Mauremys rivulata* in what has been reported as the largest single seizure of live animals in the country. The reptiles were being shipped by lorry from Bosnia and Herzegovina to Hungary, declared as table salt. Two citizens of Bosnia and Herzegovina were arrested.

ABC News: <http://abcn.ws/2opLZN8>;
Radio Osijek: <http://bit.ly/2oYqQgg>

SENEGAL: On 28 March 2017, at the District Court of Dakar, Mbacké Thiam and Ibrahima Sacko were sentenced to four months' gaol and fined CFA2 million (USD3275) damages to the Ministry of Environment and Sustainable Development. The penalties relate to a seizure of reptile skins on 14 March from a house in Guédiawaye that had been converted to a processing laboratory. Included were skins of 91 Nile Crocodiles *Crocodylus niloticus* (CITES I); 354 African Rock Pythons *Python sebae* (CITES II) and 110 Nile Monitors *Varanus niloticus* (CITES II) originating in Senegal and Mali and being used by Dakar leatherworkers for the manufacture of luxury items for sale to Europe and Asia.

Ndarinfo: <http://bit.ly/2pVih2K>, 15 March 2017; AllAfrica: <http://bit.ly/2oT3wyp>, 29 March 2017

TAIWAN: On 13 March 2017, Customs officials confiscated 15 live turtles (one Ploughshare Tortoise *Astrochelys yniphora* (CITES I)—native to Madagascar and one of the rarest land tortoises in the world, with an estimated wild population possibly as low as 400 (IUCN)—and 14 Painted Terrapins *Batagur borneoensis* (CITES II). The reptiles had been placed inside sports shoes contained in parcels arriving on a flight from Malaysia; they were subsequently sent to a wildlife centre in northern Taiwan.

Taiwan News: <http://bit.ly/2opY1pG>, 13 March 2017; IUCN Red List: <http://bit.ly/2oO4sps>. Viewed 10 April 2017

RHINOCEROSSES

All species of Rhinocerotidae are listed in CITES Appendix I except the South African and Swaziland populations of *Ceratotherium simum simum*, which are listed in Appendix II.

CAMBODIA: On 1 November 2016, officials at Phnom Penh International Airport seized 35 kg of rhinoceros horn from the luggage of a Chinese national and suspected to have been smuggled from Johannesburg via Singapore.

Cambodia Daily: <http://bit.ly/2oO4ihx>, 3 November 2016

HONG KONG SAR: On 8 March 2017, at Hong Kong International Airport, one person arriving from Maputo, Mozambique, via Addis Ababa, Ethiopia, was arrested with seven kilogrammes of rhinoceros horns wrapped in aluminium foil and tape and concealed in luggage.

On 22 March 2017, Customs officers at the airport seized 12 pieces of suspected rhinoceros horn (6.6 kg) from two express air parcels arriving from Namibia declared as coffee.

The Government of the Hong Kong Special Administrative Region press releases: <http://bit.ly/2oNZfOe>, 8 March 2017; <http://bit.ly/2nwcens>, 24 March 2017

MOZAMBIQUE: On 30 October 2016, authorities at Maputo International Airport seized eight rhinoceros horns (8.8 kg) from a suitcase belonging to a Vietnamese national travelling to Viet Nam, and who is being sought by police.

AllAfrica: <http://bit.ly/2piY0YG>, 1 November 2016

SOUTH AFRICA: On 23 November 2016, at O.R. Tambo International Airport, 18 rhinoceros horns (43 kg) were found in the luggage of a Chinese national, in transit from Namibia to Hong Kong.

Times Live: <http://bit.ly/2o785YJ>, 24 November 2016

THAILAND: On 10 March 2017, it was reported that 21 rhinoceros horns (50 kg) had been seized at Bangkok's Suvarnabhumi International Airport from luggage sent from Ethiopia. Two Thai women, travelling from Viet Nam and Cambodia, who came to collect the horns, reportedly fled when the bags were examined. On 27 March, one of them surrendered to police claiming that she had been unaware of the bags' contents; a public prosecutor has been implicated in the case, which is under investigation.

Fox News: <http://fxn.ws/2mnsdRf>, 14 March 2017; <http://reut.rs/2pG4yhj>; BBC: <http://bbc.in/2oYVvtj>, 14 March 2017; Bangkok Post: <http://bit.ly/2pGlsME>, 28 March 2017; <http://bit.ly/2pVUDmN>, 29 March 2017

VIET NAM: On 29 December 2016, authorities at Noi Bai International Airport, Hanoi, seized nine (50 kg) rhinoceros horns (one over seven kg) and ten rhinoceros horn fragments from a suitcase that had arrived on a cargo plane from Nairobi, Kenya. The luggage lacked a registered sender or recipient.

On 14 March 2017, authorities at the airport seized more than 100 kg of rhinoceros horn from two suitcases arriving on a flight from Nairobi. Officials were not able to trace the contraband back to any traveller.

VN Express: <http://bit.ly/2pGY98h>, 30 December 2016; TRAFFIC: <http://bit.ly/2pGhdQW>; Yahoo News: <https://yhoo.it/2pGBetw>, 14 March 2017

OTHER SEIZURES

CAMBODIA: On 16 December 2016, officials at Kandal dry port, Phnom Penh, seized 1.3 t of ivory and animal parts hidden in a timber shipment from Mozambique, destined for China, together with 10 Cheetah *Acinonyx jubatus* (CITES I) skulls, 137 kg of pangolin *Manis scales* (CITES II (CITES I from 2 January 2017)) and 82 kg of animal bones. The shipping company on the manifest was the same as one involved in a seizure in Viet Nam in October in which nearly a tonne of ivory was discovered (see Viet Nam). The chief suspect is a Vietnamese national, a known smuggler, who remains at large.

The Nation: <http://bit.ly/2oTCmY9>; The Phnom Penh Post: <http://bit.ly/2o7AT3q>, 22 December 2016; <http://bit.ly/2o7AT3q>, 23 December 2016

CAMEROON: On 24 March 2017, a Ghanaian man allegedly part of an international parrot smuggling network, was arrested in Nkoabang,

Yaoundé, after attempting to export illegally 300 Grey Parrots *Psittacus erithacus* (CITES I). Another member of the network was recently arrested in Ghana with 100 Grey Parrots smuggled from Nsimalen International Airport via Abidjan.

Camer.be: <http://bit.ly/2pVV6FF>

CHINA: In October 2016, Sichuan police seized two tonnes of dismembered wild animals in Mianyang in its largest operation relating to wildlife poaching. Six arrests. Seizures included Asiatic Black Bear *Ursus thibetanus* (CITES I) heads, owls and products made from the scales of pangolins *Manis* (CITES II (CITES I from 2 January 2017)) and alligators. The suspect reportedly received wildlife products from suppliers all over the country which he sold in Sichuan; he admitted working with three bear slaughterhouse owners and two others who served as go-betweens for the business.

On 2 March 2017, police on patrol in the Pearl River Delta in Huizhou City, Guangdong Province, seized 138 skulls of Helmeted Hornbills *Rhinoplax vigil* (CITES I) from vessels near Sanmen Island. The beaks had been taped and stored in boxes. Two arrests.

South China Morning Post: <http://bit.ly/2oTl38j>, 4 January 2017; China News: <http://bit.ly/2pGZCeN> [in Chinese], 5 March 2017

On 31 March 2017, authorities in Lhasa, Tibet Autonomous Region, announced that in late 2016 they had seized the skins of 20 Snow Leopards *Uncia uncia* (CITES I) and two Tigers *Panthera tigris* (CITES I), plus two sets of Tibetan Antelope *Pantholops hodgsonii* (CITES I) horns, as well as Leopard *Panthera pardus* (CITES I) bones and meat, and bear (CITES I/II) paws and teeth. A man was arrested in February in connection with the seizure. According to Customs, it is the largest haul of animal parts seized in recent years.

Xinhuanet: <http://bit.ly/2oOkzww>, 31 March 2017

GUINEA: On 18 February 2017, a Guinean national was arrested for his alleged role in the illegal trade in apes and other wildlife, bringing to an end a five-year investigation by the authorities. The suspect was convicted in absentia to five years in gaol in July 2016 but went on the run; he was arrested at his home and is being held in Conakry central prison; other family members were reportedly active in trafficking over a 30-year period involving five countries and had paid as many as 100 poachers to capture Chimpanzees *Pan troglodytes* (CITES I); warrants have been issued for their arrests. The suspect confirmed to police that he had received fraudulently issued CITES permits that facilitated the illegal export of many species, including 130 Chimpanzees and 10 Gorillas *Gorilla* (CITES I), which were illegally exported to China, declared as specimens that had been "bred in captivity".

BBC: <http://bbc.in/2pGlfus>, 9 March 2017

INDONESIA: In October 2016, 34 Slow Lorises *Nycticebus javanicus* (CITES I) were rescued in Bandung, West Java, after being offered for sale on social media. Three suspected hunters and two dealers were arrested and the animals placed in the care of the International Animal Rescue Centre (IAR) in Java.

Merdeka.com: <http://bit.ly/2ouQSDL>, 18 October 2016 [in Indonesian]; Daily Mail: <http://dailym.ai/2pGsrVJ>, 23 October 2016

JORDAN: In October 2016, authorities announced the seizure of 7000 dead birds in the largest illegal hunting violation ever recorded in the Kingdom. Rangers seized from one hunter 6800 Blackcaps *Sylvia atricapilla*, 40 Eurasian Golden Orioles *Oriolus oriolus* and 45 Laughing Doves *Spilopelia senegalensis*. The birds had been frozen and packaged, reportedly either for export to a Gulf country or for sale to restaurants. It is illegal in Jordan to hunt wild birds without a licence and in areas and at times where and when hunting is not permitted.

BirdLife International Middle East: <http://bit.ly/2pGdSBz>, 1 November 2016

RUSSIA: On 1 February 2017, at a court in Primorsky, Evgeniy Romanov was fined the equivalent of USD 155 000 to reimburse damage to the environment caused by his killing of rare birds and other animals, including six Amur Tigers *Panthera tigris altaica* (CITES I) and 34 Himalayan Black Bears *Ursus thibetanus* (CITES I). In 2012, police found in a refrigerated container on his premises in Nakhodka, the Tiger and Black Bear parts, as well as parts of 12 Brown Bears *U. arctos* (CITES II), five Steller's Sea Eagles *Haliaeetus pelagicus* (CITES II), a Black Vulture *Aegypius monachus* (CITES II) and other wildlife. This is reportedly the largest fine ever imposed on a poacher in the Primorsky region for damage to the environment.

The Siberian Times: <http://bit.ly/2kYbCXo>, 2 February 2017

SOUTH AFRICA: Two Chinese nationals have been deported after being found guilty of the unlawful possession of rhinoceros horn (CITES I), ivory (CITES I) and abalones *Haliotis midae*. The men had left a bag holding the items and their passports in a backpack after dining at a restaurant in Hout Bay on 29 January. They were arrested the following day when they went to collect their parcel at a police station where the parcel had been handed in for safekeeping. The duo entered a plea bargain and each received a five-year gaol term, suspended for five years, and were ordered to pay R35 000 (USD 2700), half of which will be go into the Western Cape Nature Conservation Board (WCNCB) and the rest to the Criminal Asset Recovery Account (CARA).

Times Live: <http://bit.ly/2oZ7fwq>, 31 January 2017; The Citizen: <http://bit.ly/2pj8U0P>, 3 February 2017

UK: On 16 January 2017, at Exeter Crown Court, Daniel Stocks of Newton Abbot was gaoled for six months for illegally selling taxidermy specimens over the internet. A Veiled Chameleon *Chamaeleo calyptratus* (CITES II), imported without a licence from the USA and seized at Heathrow by Border Force officials, led to a search of Stocks's premises, where they found a stuffed African White-backed Vulture *Gyps africanus* (CITES II), macaque (CITES II) heads and skulls, and framed monkey tails and paws (CITES I/II). The investigation revealed that Stocks had also traded illegally in ivory (CITES I) items, hornbills (CITES I/II), Leopard Cats *Prionailurus bengalensis* (CITES II), Langur monkeys *Semnopithecus* sp. (CITES I) and Green Monkeys *Chlorocebus sabaeus* (CITES II).

National Crime Agency: <http://bit.ly/2pGKEIZ>, 17 January 2017

Report by Boyd T.C. Leupen, Lalita Gomez and Chris R. Shepherd

INTRODUCTION

The serow is an elusive creature that is highly sought after for its meat and parts. Belonging to a mammalian group known as the goat-antelopes, the serow is a bovid species with long legs, pointed ears, a long and coarse-haired coat with a mane of longer, stiff hair on the neck, a relatively bushy tail and short, slightly curved horns with ringed corrugations. Serow taxonomy has been subject to much debate and change over the past few



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RECENT OBSERVATIONS OF THE ILLEGAL TRADE IN SEROWS IN LAO PDR

decades and has yet to be completely resolved. Presently the IUCN Red List of Threatened Species recognizes six species, all within Asia: the Japanese Serow *Capricornis crispus*, Formosan Serow *C. swinhoei*, Sumatran Serow *C. sumatraensis*, Chinese Serow *C. milneedwardsii*, Red Serow *C. rubidus* and Himalayan Serow *C. thar*.

The Japanese Serow (endemic to Japan) and the Formosan Serow (found only in Taiwan) are both classified as Least Concern on the IUCN Red List of Threatened Species (Chiang and Pei, 2008; Tokida, 2008) and have been fairly well studied. In contrast, very little is known of the four remaining species, especially those from South-east Asia. Based on the IUCN Red List assessment, the Sumatran Serow, which is classified as Vulnerable, is considered to be in significant decline across its range (Duckworth *et al.*, 2008a). The Chinese Serow, Red Serow and Himalayan Serow are listed as Near Threatened and also believed to be in decline (Duckworth and MacKinnon, 2008; Duckworth *et al.*, 2008; Duckworth and Than Zaw, 2008), yet surprisingly little attention is given to their plight in the region, or to their current status and conservation needs.

The Chinese Serow is still considered to be relatively widespread in Lao PDR (Duckworth *et al.*, 2008b). Yet in the last decade, the country has emerged as a major hub in the illegal international wildlife trade, which may be attributed to weak environmental laws, poor enforcement and the high levels of corruption that have persisted over the years with little improvement (Martin, 1992; Nooren and Claridge, 2001; Anon., 2015; EIA, 2015; Gomez *et al.*, 2016; Krishnasamy *et al.*, 2016). This trade has been considered for some time now to be the leading threat to numerous species in Lao PDR, with records indicating depletion of taxa as diverse as cats, deer, pangolins, birds, snakes, turtles and even insects across the country (Nooren and Claridge, 2001; Phanthayong, 2008). According to Nooren and Claridge (2001), domestic demand for wildlife in Lao PDR, whether for subsistence, traditional medicine or trade, is high and

increasingly unsustainable, as evidenced by the rarity of species despite the availability of forest habitat.

Serows in South-east Asia are threatened by widespread poaching and illegal trade. Almost everywhere they occur, they are reportedly hunted for their meat and their parts which are used in traditional medicines (Duckworth *et al.*, 2008a; Duckworth *et al.*, 2008b; Duckworth and Than Zaw, 2008). Serow parts have consistently been observed during surveys of wildlife trade in markets and restaurants undertaken across South-east Asia (see: Martin, 1992; Shepherd, 2001; Shepherd and Krishnasamy, 2014). The same has been observed in Lao PDR where serow parts were commonly found in trade in both rural and urban markets (Duckworth *et al.*, 1999). Bones, feet, blood, teeth, innards and other body parts are widely used in local traditional medicine production, while the horns are coveted as trophies. There are also records of cross-border trade in serow parts from Lao PDR to China, Thailand and Viet Nam (Duckworth *et al.*, 1999).



Fig. 1. The distribution of Chinese Serow *Capricornis milneedwardsii*.

Source: IUCN Red List of Threatened Species (<http://maps.iucnredlist.org/map.html?id=3814>)

This study was undertaken to shed light on the trade and its potential impacts on the remaining wild Chinese Serow populations in Lao PDR, and to make some recommendations for further action to ensure this species is not lost from that country.

CONSERVATION STATUS AND LEGISLATION

The Chinese Serow is the only naturally occurring species of serow in Lao PDR. The species is also native to Cambodia, China, Myanmar, Thailand and Viet Nam (Fig. 1) (Duckworth *et al.*, 2008b). It is currently classified as Near Threatened on the IUCN Red List of Threatened Species, but is nonetheless believed to be in significant overall decline (Duckworth *et al.*, 2008b).

While the Chinese Serow is thought to be widespread, especially in the country's eastern, central and southern mountain ranges where there are relatively large tracts of suitable habitat (Duckworth *et al.*, 2008b, J.W. Duckworth *in litt.*, 2017), little precise information on the conservation status of serow in Lao PDR is available. This lack of data complicates conservation measures, as it has for many other large ungulates in the region (Shepherd and Krishnasamy, 2014), which are thought to be in rapid decline due to over-exploitation to supply markets with meat, antlers, horns and other body parts (Steinmetz, 2010).

In Lao PDR, the Chinese Serow is nationally protected under the *Lao Wildlife and Aquatic Law 2007*. It is listed in the Prohibition category, under which species are defined as “rare, near extinct, high value and (...) of special importance in the development of social-economic, environmental, educational, scientific research”. The unlicensed extraction and/or possession of any animal (or its parts) listed in the Prohibition category is strictly forbidden and could result in a fine of at least LAK400 000 (Lao Kip) (approximately USD24.00) and/or a prison sentence of three months to five years. Lao PDR has been party to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) since May 2004. The Chinese Serow is currently listed in CITES Appendix I, which means that international commercial trade in wild-sourced specimens is prohibited.

METHODS

Market surveys of the open availability of serow items and products were carried out in various locations in the country on three different occasions in 2016 (between 18 and 28 April, 19 and 22 July and 6 and 20 December respectively) in order to provide a snapshot of the trade in serow. The first two surveys took place in Lao's central and northern regions; the third was carried out in the country's southern provinces (Fig. 2). The locations were selected on the basis of previous research into the country's wildlife trade during which outlets offering traditional medicine and fresh meat for sale were visited (Martin, 1992; Nooren and Claridge, 2001; Nijman and Shepherd, 2012; EIA, 2015). These two types of retailer were chosen for their likelihood of having serow items

for sale. Restaurants were omitted from the surveys due to time constraints. Surveyed venues were visited opportunistically, meaning that no predetermined list of venues was used during the surveys. These venues consisted almost exclusively of local markets. In these markets, each individual traditional medicine and fresh meat retailer was considered a “shop”, as were roadside stalls, vendors at bus stations and at tourist attractions such as caves and waterfalls. In some locations, such as Boten Specific Economic Zone and Golden Triangle Special Economic Zone, tourist-oriented traditional medicine and trophy boutiques were surveyed. Only those shops that were found to have serow products for sale are specifically mentioned in this paper.

The wild meat trade in Lao PDR is known to be largely seasonal (Nooren and Claridge, 2001). Although a year-round activity, hunting usually increases during the dry season (Johnson, 2005; Johnson *et al.*, 2010), which runs from November until the end of April. This study's two most intensive surveys took place during that period, suggesting that the wild meat quantities recorded are representative of the annual peak in the country's wild meat trade. Serow items were categorized as ointments (small bottles and large bottles), horns, frontlets (serow plates consisting of a piece of skull with fur and two horns still attached—these horns were considered part of the plate and were not separately counted as horns), skin pieces, skeletal items (bones, joints, jaws and skulls), meat and body parts (manes, hooves, scalps and ears). In cases where large numbers of a particular item were found (this was mostly the case with bottled ointments), exact quantities could not be determined and estimates were made. Horn fragments, which were found in several locations, were counted as full horns because their



Fig. 2. Survey locations for serow study.

size made it impossible for more than one fragment to originate from a single horn. Information regarding the price and use of the serow products was collected directly from the vendors where possible. Prices were quoted in Lao Kip (LAK) or US Dollar (USD). In the case of the former, a conversion rate of USD1=LAK7963.24 was used (<https://www.oanda.com/currency/converter/>, viewed on 12 January 2017).

RESULTS

Serow items were seen in 59 shops, with a combined total of 1015 individual items recorded (Table 1). Most comprised bottled ointments (approximately 740 bottles of varying sizes). These ointments were confirmed on several occasions to be derived from serow. In some cases the vendor was asked to point out the animal that was used to prepare these ointments in a photographic field guide. Other items observed in relatively large quantities included horns (134), gallbladders (claimed to be from serow) (56) and frontlets (28). Serow items observed were predominantly ingredients for traditional medicine and as such, most items were found in medicine shops (in 50 out of 59 cases). Several frontlets and horns were found in jewellery shops (in seven cases). Serow meat was observed for sale on only two occasions. All items recorded (excluding the ointments) would have been derived from a minimum of 150 serows.

DISCUSSION AND CONCLUSION

Serow items are among the most commonly encountered wildlife-based traditional medicine products in Lao PDR. During household surveys carried out in Luang Namtha province in 2002–2003, 90% of respondents (n=10) stated that serow was the most frequently used animal in traditional medicine production (Johnson *et al.*, 2003), a fact attributable to the depletion of other large mammals

Item type	Quantity	No. of shops
Ointment (small bottle)	630 (approx.)	36
Ointment (large bottle)	110 (approx.)	10
Horns	134	25
Gallbladders	56	12
Skin pieces	34*	6
Frontlets	28	13
Skeletal items (bones, joints, jaws and skulls)	13	9
Miscellaneous (manes, hooves, scalps and ears)	8	5
Meat	2	2
TOTAL	1015	59

Table 1. Serow items (per item group) reported during surveys carried out in Lao PDR in April, July and December 2016. *of which 25 pieces were likely to belong to a single specimen. These pieces were observed in a box, were cut into uniform sizes and appeared to involve the same pelt.



PHOTOGRAPHS: B.T.C. LEUPEN

Pieces of serow skin, bone and jaw, Pakse market (left); serow frontlet, bones and horns for sale, Thongnamy (right), December 2016.

such as Sambar Deer *Rusa unicolor* (Duckworth, *in litt.*, 2017) and several species of wild cattle. The current study's surveys only confirm this; serow was the only species of which items were found at nearly every traditional medicine shop surveyed. In particular, ointments purporting to contain serow were widely observed, often near containers of other serow body parts. These potions are used to heal bone fractures and can be bought for an average price of LAK15 000 (USD1.78) per small bottle. The fact that the items recorded are estimated to originate from at least 150 serows may be considered a worrying finding. It nonetheless remains unclear when these serows were poached (in the case of most medicinal serow items this may have been years ago). As a result, it is difficult to determine the potential conservation impact of the medicinal trade on this species. However, the rate at which comparably sized mammals have seen severe population declines and/or local extinctions/extirpations in Lao PDR and the fact that monitoring efforts are largely absent, are cause for concern. Therefore, increased research into the exploitation of serows for traditional medicine (including inquiries into the turnover rates of serow-based traditional medicine items) seems highly necessary in order to guide future conservation and enforcement efforts. Such research would have to start with interviews with vendors, poachers and consumers.

Serow meat was observed in only two instances, suggesting that serow poaching might play only a relatively limited role in Lao PDR's wild meat trade. However, there are at least three reasons why such a conclusion should not be too hastily drawn. First, the diversity of species encountered during the surveys suggests that poaching for meat in Lao PDR is largely indiscriminate, with hunters harvesting whatever animals they encounter, rather than targeting a specific species. This poses a direct threat to serow which is likely to increase as other species become scarcer. Second, wild meat observations are often coincidental (especially in cases where it is offered on the side of the road). Fresh meat is offered for sale as soon as it becomes available to the vendor, which may be at various times of the day. Because it is perishable, it is sold as fast as possible. Observations should therefore be considered snapshots and not representative of the true extent of the trade. Third, restaurants were omitted from this study's surveys, making it impossible to determine the

levels of serow meat that are traded through this channel. In order to gain a better understanding of the serow meat trade and consumption patterns in Lao PDR, further research is highly recommended. Such research should include interviews with vendors, poachers and consumers and more extensive and frequent surveys of fresh meat markets, roadside stalls and, importantly, restaurants.

Enforcement efforts are currently weak in Lao PDR, allowing the open trade of (inter-) nationally protected species, including the Chinese Serow, to continue unhindered. This was underscored by the abundance and open availability of illegal serow products found in the country's traditional medicine shops. Vendors are generally aware of the illegality of the trade, but do not seem to fear prosecution. When asked about the illegal wildlife trade, a local policeman in the Savannakhet area stated that this is not a priority for local law enforcement, in part because the trade provides nutrition and/or income for the rural population. In the case of serow, hunting and trade is illegal, and therefore should be made a law enforcement priority. Increased enforcement is all the more important because the depletion of other large mammals appears to leave Laotian serows particularly vulnerable.

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REFERENCES

- Anon. (2015). *Wildlife seizures in 2014 highlighting Lao PDR's role in trafficking*. <http://www.traffic.org/home/2015/1/6/wildlife-seizures-in-2014-highlight-lao-pdrs-role-in-traffic.html>. Viewed 4 July 2016.
- Anon. (2016). Application of Article XIII In the Lao People's Democratic Republic. SC67 Doc. 12.1. CITES Sixty-seventh meeting of the Standing Committee Johannesburg (South Africa), 23 September 2016 (<https://cites.org/sites/default/files/eng/com/sc/67/E-SC67-12-01.pdf>).
- Chiang, P.J. and Pei, K. J.-C. (2008). *Capricornis swinhoei*. *The IUCN Red List of Threatened Species* 2008: e.T3810A10096148. <http://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T3810A10096148.en>. Viewed 6 January 2017.
- Duckworth, J.W. and MacKinnon, J. (2008). *Capricornis thar*. *The IUCN Red List of Threatened Species* 2008: <http://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T3816A10096556.en>. Viewed 6 January 2017.
- Duckworth, J.W., Salter, R.E. and Khounbolin, K. (Eds) (1999). *Wildlife in Lao PDR: 1999 status report*. Vientiane: IUCN-The World Conservation Union/Wildlife Conservation Society/Centre for Protected Areas and Watershed Management. Vientiane, Lao PDR.
- Duckworth, J.W., Steinmetz, R. and MacKinnon, J. (2008a). *Capricornis sumatraensis*. *The IUCN Red List of Threatened Species* 2008:e.T3812A10099434. <http://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T3812A10099434.en>. Viewed January 2017.
- Duckworth, J.W., Steinmetz, R. and Pattanavibool, A. (2008b). *Capricornis milneedwardsii*. *The IUCN Red List of Threatened Species* 2008:e.T3814A10101852. <http://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T3814A10101852.en>. Viewed 6 January 2017.
- Duckworth, J.W. and Than Zaw (2008). *Capricornis rubidus*. *The IUCN Red List of Threatened Species* 2008: e.T3815A10102774. <http://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T3815A10102774.en>. Viewed 6 January 2017.
- EIA (2015). *Sin City: Illegal wildlife trade in Laos's Golden Triangle Special Economic Zone*. March 2015. <https://eia-international.org/wp-content/uploads/EIA-Sin-City-FINAL-med-res.pdf>. Viewed 4 July 2016.
- Gomez, L., Leupen, B.T.C. and Heinrich, S. (2016). *Observations of the illegal pangolin trade in Lao PDR*. TRAFFIC, Southeast Asia Regional Office, Petaling Jaya, Selangor, Malaysia.
- Johnson, A., Singh, S., Dongdala, M. and Vongsa, O. (2003). *Wildlife hunting and use in the Nam Ha National Protected Area: Implications for rural livelihoods and biodiversity conservation*. December 2003. Wildlife Conservation Society, Vientiane, Lao PDR.
- Johnson, A., Singh, A. and Duongdala, M. (2005). Wildlife hunting and use: results of a survey. In: Glendinning, A., Clayton, D., Dubois, M., Fernandez, M. and Nilsson, S. (Eds). *Improving the livelihoods in the uplands of the Lao PDR: a source book*. National Agriculture and Forestry Research Institute, National Agriculture and Forestry Extension Service, National University of Laos, Vientiane, Lao PDR. Pp.178–184.
- Johnson, A., Krahn, J. and Seateun, S. (2010). *Finding the linkages between wildlife management and household food consumption in the uplands of Lao People's Democratic Republic: a case study from the Nam Et-Phou Louey national protected area*. Wildlife Conservation Society, Vientiane, Lao PDR.
- Krishnasamy, K., Leupen, B.T.C. and Or, O.C. (2016). *Observations of the Helmeted Hornbill trade in Lao PDR*. TRAFFIC, Southeast Asia Regional Office, Petaling Jaya, Selangor, Malaysia.
- Martin, E.B. (1992). The trade and uses of wildlife products in Laos. *TRAFFIC Bulletin* 13(1):23–28.
- Nijman, V. and Shepherd, C.R. (2012). The role of Lao PDR in the ivory trade. *TRAFFIC Bulletin* 24(1):35–40.
- Nooren, H. and Claridge, G. (2001). *Wildlife trade in Laos: the end of the game*. Netherlands Committee for IUCN, Amsterdam.
- Phanthavong, B. (2008). Pangolin conservation in Lao PDR. In: Pantel S. and Chin, S.Y. (Eds). *Proceedings of the workshop on trade and conservation of pangolins native to South and Southeast Asia, 30 June-2 July 2008, Singapore Zoo, Singapore*. TRAFFIC Southeast Asia, Petaling Jaya, Selangor, Malaysia. Pp.56–58.
- Shepherd, C.R. (2001). Observations on wildlife trade at Golden Rock, Myanmar. *TRAFFIC Bulletin* 19(1):7–10.
- Shepherd, C.R. and Krishnasamy, K. (2014). Observations of illegal trade in Sumatran Serows in Malaysia. *TRAFFIC Bulletin* 26(2):81–84.
- Steinmetz, R., Chutipong, W., Seuaturien, N., Chirngsaard, E. and Khaengkhetkarn, M. (2010). Population recovery patterns of Southeast Asian ungulates after poaching. *Biological Conservation* 143:42–51.
- Tokida, K. (2008). *Capricornis crispus*. *The IUCN Red List of Threatened Species* 2008: e.T3811A10097895. <http://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T3811A10097895.en>. Viewed 6 January 2017.

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