

Reduction in Demand for Ivory in Singapore, but Transit Trade Vigilance Needed

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INTRODUCTION

Singapore, the small South-east Asian nation on the tip of the Malay Peninsula, was a major entrepôt for African raw ivory until it joined the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), effective 9 February 1987. An attempt to quantify the Singapore ivory trade in 1989 revealed that, from 1983 through 1987, over 536 tonnes (t) of ivory entered the country from various African nations, based on records maintained by Singapore Customs (Martin and Stiles, 2002). During this period, Singapore was infamous for being an important trade centre for legal and illegal ivory exports from Africa and a distribution point for ivory to other Asian destinations. It also had a significant domestic ivory retail trade.

In 1985, CITES Parties agreed an ivory export quota system which, among other things, allowed a one-off opportunity for ivory stocks held outside African Elephant range States to be registered with the CITES Secretariat by 1 December 1986. As a result, the CITES Secretariat reported in 1987 that 11 countries or territories (Belgium, Burundi, China, Germany, Hong Kong, Japan, Macau, Portugal, Singapore, Spain and the UK) had registered 700 501 kg of ivory pursuant to this policy. Although the CITES Secretariat had issued a Notification to the Parties on 23 July 1984 calling for a prohibition on all ivory trade with Singapore, and this appeal had remained in effect until the registration deadline, 270 474 kg of raw ivory (comprising 55 819 elephant tusks), plus another 26 757 kg of 1986 cut ivory pieces, was nonetheless registered in Singapore—some 42% of the total registered stock by weight (Anon., 1987; Milliken and Melville, 1989). This ivory was subsequently eligible for trade under the CITES export quota system and most was quickly released onto the international market and exported mainly to Hong Kong and Japan (Milliken, 1989; Milliken and Melville, 1989). Fortunately, Singapore's notoriety in the illicit ivory trade has waned in the intervening years.

Legal status of ivory in Singapore

Both African Elephants *Loxodonta africana* and Asian Elephants *Elephas maximus* are listed in Appendix I of CITES. International commercial trade in ivory has been banned under the Convention since 1990. However, domestic trade in ivory is permitted in Singapore under two conditions: i) if traders can prove that the ivory is pre-Convention; or ii) the ivory was acquired before elephants were listed as a protected species under Singapore's law, i.e., before 1990. Consequently, an undisclosed amount of pre-Convention worked ivory remains in Singapore. According to the Agri-Food and Veterinary Authority

(AVA)—Singapore's CITES Management Authority—the government has registered all retailers selling worked ivory and continues to conduct periodic checks to monitor the sale of this stock; however, a request by the authors for information on the registered stock was declined on the grounds that such information is confidential (AVA, *in litt.* to TRAFFIC, 22 October 2012).

As a Party to CITES, Singapore is obliged to implement and enforce the requirements of the Convention through its national legislation. To this end, the *Endangered Species (Import and Export) Act* was enacted in March 1989 under the administrative and enforcement authority of the AVA to support CITES implementation in Singapore. Under this Act—which lists all CITES species—the Singapore Government banned the sale of raw and carved ivory in the country, except for the registered ivory stock noted above.

Article 4 of the Act specifically prohibits, without a permit, the import, export, re-export, transport by sea, possession, sale or display of any scheduled species or specimen, with a fine of up to SGD5000 (USD4000) and up to a year in gaol for violations. In order to strengthen wildlife protection efforts, the *Endangered Species Act* was reviewed several times from 2000 to 2013, with the most notable revision regarding the strengthening of penalties coming into force on 1 March 2006; at this time, maximum penalties for the unauthorized import, export, re-export or introduction from the sea, of CITES-listed species were increased ten-fold (Singapore Attorney-General's Chambers, 2013). Any violation carries a maximum penalty of SGD50 000 (USD40 000) fine per scheduled species not exceeding an aggregated fine of SGD500 000 (USD410 000) and/or two years' imprisonment imposed for infractions. These penalties apply to any import, export or transshipment of ivory through Singapore without CITES permits.

Under the CITES National Legislation Project, all Parties to CITES have been categorized (1–3, with 1 being the best rating) based on the competency of their national legislation to implement and enforce CITES (CITES, 2012b). Singapore's CITES implementing legislation, the *Endangered Species Act*, is accorded Category 1 status as the legislation is “believed generally to meet the requirements for the implementation of CITES” (CITES, 2011).



Almost two tonnes of illegal raw ivory tusks, in transit in Singapore from Africa, bound for Viet Nam, were intercepted by the Agri-Food and Veterinary Authority and Singapore Customs in January 2013.

AGRI-FOOD AND VETERINARY AUTHORITY, SINGAPORE

ETIS and Singapore

Monitoring the illegal trade in elephant products and the illegal killing of elephants was first mandated at the 10th meeting of the Conference of the Parties (CoP10) in 1997, when CITES Parties adopted *Resolution Conf. 10.10 on Trade in elephant specimens*. Through this mandate, the Elephant Trade Information System (ETIS) was created. ETIS is a comprehensive global information system that was developed as a tool to monitor the pattern and scale of illegal trade in ivory and other elephant specimens. The database holds numerous details regarding illegal ivory trade since 1998, including law enforcement records for seizures or confiscations of elephant ivory and other elephant specimens (CITES, 2013). ETIS is managed by TRAFFIC on behalf of CITES Parties. Comprehensive analyses of ETIS records have been provided to CITES CoPs as a formal agenda item since 2002. Currently, nearly 20 000 records of elephant product seizures have been recorded.

Analysis of ETIS data from 2009 and 2012 illustrates several important trends. Illicit trade in ivory has been increasing since 2007, with a much sharper increase since 2009 when the upward escalation began to surge (Milliken *et al.*, 2012). ETIS records show that this is primarily attributed to the rapidly increasing demand for ivory from China, where 83% of China’s ivory trade since 2006 has occurred over the last three years (Milliken *et al.*, 2012). Since ETIS reporting began, three of the five years with the greatest volumes of seized ivory occurred in 2009, 2010 and 2011 (CITES, 2012a). From 2009 through 2011, a record number of 34 large-scale ivory seizures have been documented in ETIS, resulting in the confiscation of nearly 60 t of ivory, though almost none of these seizures has resulted in successful investigations of the criminals behind these transactions (Milliken *et al.*,

2012). The frequency and scale of large ivory seizures (more than 800 kg seized at a single time) has increased in recent years and is what is driving the escalating trend. Such seizures are indicative of the presence of organized crime in the illicit trade in ivory.

ETIS analyses over the years have identified Singapore as a transit country through which consignments of illegal ivory flow. The 2012 ETIS report also notes that Singapore, among other countries, also possesses a domestic ivory trade. Since CITES *Resolution Conf. 10.10* was adopted in 1997, all countries, including Singapore, are compelled to report the details of elephant product seizures to the CITES Secretariat, or to TRAFFIC directly, for inclusion in ETIS. In July 2012 however, it was reported at the 62nd meeting of the CITES Standing Committee that Singapore’s participation in ETIS has been poor, with the government very rarely providing reports to ETIS.

Singapore and the illegal ivory trade

From 1989 through 2009, Singapore reported 13 ivory seizures, accounting for more than seven tonnes of illegal ivory (Milliken *et al.*, 2009). June 2002 saw Singapore making the largest single ivory seizure after the CITES ivory trade ban came into effect (Wasser *et al.*, 2008). Falsely declared as marble sculptures, a shipment from Malawi of over 7.1 t of ivory packed in wooden crates was seized by Singapore’s AVA, comprising 542 large tusks and 40 810 cylindrical name seals. This consignment was ostensibly destined for Japan. Investigations by AVA found that the shipping bill for the container listed a Singapore-based company, Delight Harvest, as involved in preparing documentation that facilitated the shipment. The shipping agent was later prosecuted

Year	Seizures	Trade route	Country/territory of seizure	Min/estimated weight (kg)
1996	13 800 name seals	SG–JP	JP	-
1997	352 kg of name seals	SG–JP	JP	352
1997	raw ivory, Kobe port, JP	SG–JP	JP	500
2000	132 ivory pieces, JP, via post	SG–JP	JP	500
2000	2 tonnes+ of raw ivory, TW, shipped from Douala (CM) in transit through SG	CM–SG–TW	TW	2000
2002	7 tonnes+ of ivory in wooden crates (comprising 542 large tusks + 40 810 name seals) seized in SG; falsely declared as marble sculptures	MW–SG–JP	SG	7100
2012	405 raw tusks concealed in shipment of plywood seized in Johor (MY), having passed through SG port. Exported or re-exported from KE	KE–SG–MY	MY	2974
2012	677 raw ivory pieces (19 kg) from Africa, seized from hand luggage in Hanoi, VN, plus 15 ivory bracelets, 90 pairs of chopsticks, and 10 necklaces.	Africa–SG–VN–	VN	19
2012	6 tonnes+ of ivory seized by MY Customs at Port Klang, arriving from TG, in transit to SG, bound for CN	TG–ES–MY– SG–CN		6034
2013	1099 pieces of raw ivory tusks declared as waste paper packed in 65 gunny sacks, seized SG by AVA and SG Customs	Africa–SG	SG	1800
2013	122 kg of ivory seized by authorities at Noi Bai airport, Hanoi, arriving from SG. Two arrests.	SG–VN	VN	122
	TOTAL			21 401

Table 1. Summary of seizures implicating Singapore. * grey text denotes the two significant seizures in Singapore. CM–Cameroon; CN–mainland China; ES–Spain; KE–Kenya; JP–Japan; MY–Malaysia; MW–Malawi; SG–Singapore; TG–Togo; TW–Taiwan; VN–Viet Nam

and fined SGD5000 (USD4000) under the *Endangered Species Act*, the highest penalty to be imposed under this legislation at the time. More recently, on 23 January 2013, 1099 pieces of raw ivory tusks, weighing close to two tonnes, were seized in Singapore by AVA and Singapore Customs. The consignment, declared as waste paper, had been shipped from Kenya and was reportedly destined for Viet Nam.

Although domestic seizures are few and far between, Singapore has been implicated as a transit country in a number of ivory seizures that have occurred elsewhere. In July 2011, a shipment by sea transited Singapore before arriving at the port of Pasir Gudang in Malaysia where it was seized by the Royal Malaysian Customs Department (Ganesh, 2011). The shipment of 405 raw tusks (2974 kg) had been exported from Kenya. In September 2012, it was reported that 19 kg of ivory from Africa had been seized from a woman outside Noi Bai International Airport, Hanoi, Viet Nam, who had arrived on a flight from Singapore. Another shipment, in December 2012, saw the largest ivory seizure in South-east Asia in a decade, when the Royal Malaysian Customs at Port Klang intercepted over six tonnes of ivory that originated from Togo. This consignment had been bound for China via Singapore's Pasir Panjang Port (Jayagobi Narayanan pers. comm. to K. Krishnasamy, October 2013).

On 6 August 2013, it was reported that Customs officers at Hanoi's Noi Bai International Airport had recently arrested two Vietnamese nationals attempting to import 122 kg of ivory; they had arrived on a flight from Singapore.

Table 1 highlights some of the ivory shipments that have passed through Singapore undetected, or that were seized en route to the country, or have been seized in the country since 1996 to date. There have been two notable seizures in Singapore, and another nine have occurred outside the country, including eight ivory shipments that passed through Singapore's ports, and one in 2000 that was sent by post from Singapore to Japan. These data indicate that the country has been implicated in a minimum of 21 t of illegal ivory over this 18-year period.

Contextualizing trade in Singapore's ports

Employing some 170 000 people with a contribution of seven percent to the country's gross domestic product, Singapore is one of the world's busiest ports. The volume of cargo moving through Singapore's major seaports has few rivals worldwide—vessel arrival tonnage was at a record 2.12 billion gross tonnes in 2011, while container traffic in 2011 totalled close to 30 million twenty-foot equivalent units (Anon, 2012; World Bank, 2013). The volume and frequency of goods transported in and out of the country makes detection of ivory through Singapore extremely challenging.

A spot check of Singapore's domestic ivory trade

In addition to its past role as an entrepôt, and more recently as a transit point, Singapore has also had a domestic demand for carved ivory. The Singapore

Government banned the domestic sale of ivory, raw or carved in 1989, except for stocks registered with the Primary Production Department (formerly the CITES Management Authority in Singapore—now AVA) prior to November 1986 (Martin and Stiles, 2002). Historically, there is no tradition of ivory carving in Singapore and carvers probably did not establish themselves there until well into the 20th century (Martin and Stiles, 2002). During surveys carried out in 1979, 30–50 ivory carvers were found in Singapore (Martin and Stiles, 2002), but during surveys carried out in 2000/2001 (Martin and Stiles, 2002), and by TRAFFIC in 2002 and 2012, no carvers were found. It is therefore highly likely that ivory carving in Singapore had come to an end in the early 1990s (Martin and Stiles, 2002).

In 2000/2001, Martin and Stiles reported finding 23 shops selling ivory, out of 158 shops surveyed (Martin and Stiles, 2002), with a total of 2700 pieces observed. Compared to the numerous shops selling ivory in Singapore in 1979, the numbers of retail outlets selling ivory had decreased considerably. In 2001/2002, TRAFFIC carried out a countrywide survey of ivory availability in Singapore's retail outlets (unpublished) and reported the results to the CITES Management Authority of Singapore. In 2012, TRAFFIC set out to update understanding of the ivory trade in Singapore's retail outlets to compare ivory availability with the survey conducted a decade earlier. This report documents the observations of trade in ivory in Singapore from these two surveys.

METHODS

For the 2012 market survey, data on a range of indicators on the scale and trends in ivory trade in Singapore were collected, including the price of ivory products, the number of retail outlets selling ivory items, and the number of ivory items seen for sale. In addition, the size and type of ivory product for sale was recorded and qualitative information about sources, age and demand for ivory was collected.

Researchers visited retail outlets in Singapore, largely in the central and south-east parts of the city, where, during a TRAFFIC study in 2002, ivory was frequently being offered for sale. The current survey assessed all the shops surveyed in 2002, excepting some in major hotels that had since closed or moved. In such cases, the immediate area was surveyed and any shops selling ivory were then recorded. The types of outlets visited included souvenir, jewellery, handicraft and antique shops, and art galleries. Vendors were interviewed regarding the age and origin of the ivory, their awareness of the international ban on the sale of elephant products, and how well it was selling, in order to assess turnover. Openly displayed ivory items were identified and counted as accurately as possible. In some instances, when there were large numbers of smaller items, such as rings or pendants kept in bowls, estimates of their numbers were made.

Items made of ivory substitutes, such as mammoth ivory, resins or bone, were also noted. The word "ivory" in this report always refers to extant elephant ivory unless

Type of outlet	Total no. surveyed	No. of outlets selling ivory
Antiques shop	23	9
Art gallery	2	0
Handicraft	8	1
Jewellery shop	54	8
Souvenir shop	13	1
Total	100	19

Table 2. Number and types of outlets surveyed and number selling ivory products.

Type of products	Quantity found	No. of outlets selling ivory
Jewellery	215	17
Ornaments	126	6
Snuff bottles	5	2
Carved tusks	2	1
Uncarved tusks	1	1
Uncarved seals	15	1
Others	1 (chess set)	1
Total	365	29

Table 3. Type of ivory products for sale and number of outlets selling specified products.

otherwise stated. The collected data were analysed and the counts, types and prices of ivory items are presented in tables following the system used in earlier ivory trade studies in Singapore to allow for comparisons of the indicators over time (Anon., 2002). The retail prices used are the asking prices without bargaining, and the exchange rate was SGD1.23=USD1.

RESULTS

In total, 100 retail outlets of various types were surveyed in 21 localities in Singapore that were thought to be representative of the overall ivory trade in Singapore. Outlets that had the greatest number of ivory products were found on Tanglin Road, Orchard Road and in Chinatown, a finding that is consistent with the survey conducted by Martin and Stiles (2002).

Outlets where ivory was typically found for sale included antique, handicraft, jewellery and souvenir shops (Table 2). Of the outlets surveyed, 19 (19%) had ivory for sale (Table 2), totalling 365 items (Table 3). Most consisted of various types of jewellery and small (<10 cm) to large (>30 cm) ornaments (Table 3; Table 5). Of the types of outlets surveyed, ivory products were most common in jewellery and antique shops.

Various types of ivory jewellery were for sale in 17 (17%) outlets surveyed, and a wide range of different types and sized ornaments (ranging from less than 10 cm in height to over 30 cm in height) were found in six (6%) outlets (Table 5).

Jewellery: Ivory jewellery was usually displayed openly in glass tables or cases, with rings and pendants often being stored in bowls. In most outlets, jewellery was

displayed openly, but in one, it was kept out of view and only brought out when interest in ivory was expressed by the researcher. Most vendors stated that the ivory originated from Africa and was carved in China or Japan. Of the jewellery for sale, pendants were observed in the greatest quantity, followed by bracelets, but necklaces were sold in the greatest number of outlets. Pendants varied in size from 5–10 cm in height, with a width of 3–5 cm, and a thickness of 1–2 cm. They were usually small carvings with holes carved through the piece to allow for stringing. Rings had a width no broader than 5 mm. Bracelets were often entwined with gold, contributing to a significant range in price (Table 6), whilst necklaces were usually made of threaded ivory beads with large pendants, at varying prices (Table 6).

Ornaments: Four shops sold large numbers of ornaments (ranging from 10–60 pieces), which vendors claimed were imported from China 20 to 30 years ago. Ornaments were usually kept in glass cases or found in shop window displays. In several instances, large ivory pieces were no longer for sale. Small ornaments (<10 cm in height) were often carvings of Chinese characters, children, animals of the Chinese zodiac, elephants or Buddhas. Medium- and large-sized ornaments were often intricate carvings of ivory, for example the famous Canton balls—ivory carved into large spheres. Other large or medium-sized ornaments consisted of carvings of Chinese goddesses or saints.

Other products: Carved and uncarved tusks, snuff bottles, name seals and other ivory products were found in very small quantities (Table 3). Name seals were sold as cylindrical blocks, approximately 6–10 cm in length and 1.5–3 cm in diameter, usually bundled together with elastic bands and kept in glass cabinets. No name seals with hallmarks were observed for sale.

Table 6 presents the range of prices asked for various items throughout Singapore. These varied significantly and were dependent on the size, craftsmanship involved, and incorporation of gold or gemstones.

All vendors reported that they were selling old stocks of worked ivory, and claimed the ivory was from the “pre-Convention ban”. Vendors reported that ivory was no longer popular in Singapore and that their stocks were old and difficult to sell. One vendor claimed an ivory ornament to be “fake ivory” when it was in fact real ivory, and only one shop had labelled products as “ivory”.

Most outlets claimed to have only small supplies of ivory and sold more jade—advertised as Burmese—and bone products (claimed to be fish, camel or cow). One retailer was also selling a snuff bottle made from the ivory casque of the Helmeted Hornbill *Buceros vigil* (the only hornbill species with ivory). Another vendor was observed to be selling fake ivory made from resin.

Singapore has no indigenous or working elephants, and there are no known ivory carvers in Singapore. According to the vendors that were interviewed, all the ivory was imported from China or, in one case, Japan, 20 to 30 years earlier, and there is apparently no new ivory entering the local market.

DISCUSSION

Many of the shops found to be selling ivory in the 2002 survey no longer stocked ivory. While six hotel shops were found with ivory in 2002, none was found in the recent survey. Consistent with results from surveys carried out by TRAFFIC in 2002, this survey similarly found that all the ivory being sold in Singapore was allegedly acquired before the international ivory trade ban. When interviewed, vendors reported poor sales of ivory products, with little demand from either Singaporeans or tourists, claiming that ivory sales have declined. Vendors stated that the two main factors responsible for this decline were decreased demand and the 1989 CITES ivory trade ban. The sale of ivory products was occasionally discreet. One vendor claimed to keep an unknown quantity of ivory out of public view until an interest in ivory was expressed; this behaviour perhaps reflects an awareness of the stigma associated with ivory following numerous anti-ivory campaigns designed to make buying ivory ethically unacceptable. In general, these results suggest that most of the ivory observed during this study was accumulated unsold stock that had been obtained before the international ivory trade ban.

The number of surveyed retail outlets openly selling ivory products decreased from 55% in 2002 (Anon., 2002) to 19% in 2012. In addition, the variety of ivory products observed decreased significantly in the same period. In 2002, 18 different types of products were observed, including chopsticks, letter holders and picture frames, compared to seven product types found in 2012. As in 2002, ivory products were most common in jewellery and antique shops, which comprised the majority of shops surveyed. It is worth noting that the 2002 survey found that just over 50% of the souvenir shops surveyed were selling ivory products, whereas in 2012 just one souvenir shop was found with ivory products. This finding seems to confirm vendors' reports that ivory is not popular amongst tourists visiting Singapore.

The quantity of different products observed has also decreased significantly: in 2002, a total of 8121 ivory products was observed for sale, compared to 365 in 2012. This represents an almost 95% reduction in the number of products found for sale during the two studies. On average, the prices of ivory products are higher now than they were in 2002, perhaps to compensate for the infrequency of sales.

CONCLUSIONS

Overall results from this survey portray a positive picture. Changes in the way vendors stock and display ivory, possibly in conjunction with the CITES trade ban, appears to have brought a corresponding decrease to the scale of Singapore's ivory market. In the decade since TRAFFIC's 2002 survey, the reduced availability of ivory products observed on sale and the decrease in the number of outlets that sell ivory suggests a decline in the domestic ivory trade. This trade, perhaps residual, is of a

Jewellery	Quantity found	No. of outlets selling ivory
Pendants	74	3
Necklaces	26	5
Rings	36	4
Bracelets	49	3
Brooches	30	2
Total	215	17

Table 4. Type and quantity of jewellery surveyed, and number of outlets selling various products.

Size	Quantity found	No. of outlets selling ivory
Small (<10 cm)	52	4
Medium (<15cm–30 cm)	36	5
Large >30 cm)	38	4
Total	126	13

Table 5. Number of different sized ornaments for sale, and number of outlets selling various sized products.

Product	Price range (SGD)	Price range (approx USD)
Rings	45–80	35–65
Pendants	20–300	15–245
Brooches	20–120	15–95
Necklaces	75–300	60–245
Bracelets	85–780	70–635
Uncarved tusk	3500	2845
Carved tusk	12 000–15 000	9755–12 195
Small ornaments	50–650	40–530
Medium ornaments	250–15 700	200–12 765
Large ornaments	1000–95 000	815–77 235
Others: chess set	30 000	23 500
Snuff bottles	100–350	80–285
Name seals	40–45	30–35

Table 6. Price range of retail ivory items in Singapore.

minor scale, relative to the ivory trades recently observed elsewhere in the region such as in Thailand, Viet Nam and Lao PDR (see Stiles, 2008; Stiles, 2009; Nijman and Shepherd, 2012).

This is an important finding considering the fact that 75% of Singapore's 5.3 million people are ethnic Chinese (Index Mundi, 2013). Demand for ivory in mainland China is currently driving the illegal trade in ivory (Milliken *et al.*, 2012), but Singapore's Chinese community seems to be decisively moving away from ivory consumption based on the findings of this study. It is worth noting that the median age of Singapore's population—33.5 years—is only marginally lower than China's median age of 35.9 years, indicating a fairly similar age structure. This suggests that a generational shift in ivory consumption habits has already occurred in Singapore, providing hope that major demand reduction is also possible in China.

That said, more transparency in the management of existing worked ivory stockpiles would allow for

a clearer judgement on the scale of domestic trade in Singapore. At the recently concluded CITES meeting of the Conference of the Parties in Bangkok, in March 2013, all Parties were mandated to declare ivory stocks to the CITES Secretariat each year by 28 February, indicating the number of pieces and weight per type of ivory (raw or worked) (CITES, 2013). Consequently, Singapore will be obliged to provide information on its registered worked ivory stockpiles in the future.

Perhaps the greater challenge facing Singapore, given its excellent port facilities, is to address the problem of ivory transiting through the country. As highlighted in Table 1, as well as in the 2009 and 2012 ETIS reports, Singapore remains an important transit country for high volume consignments of illicit ivory between Africa and Asia, or within Asia. Indeed, the 2013 seizure of 1800 kg of ivory is evidence that Singapore is still being used as a transshipment point in the illicit ivory trade chain. The enormous volume of goods moving through ports in Singapore makes it extremely difficult to intercept illegal shipments. Only through intelligence-led investigations, the profiling and targeting of certain kinds of cargo and other international co-operative efforts, will the illicit ivory trade be significantly reduced. For a variety of reasons, authorities in most countries typically fail to apply the level of scrutiny to goods passing through their territory in transit, as they do to direct imports, unwittingly creating opportunities for the movement of illicit goods without detection.

While the global ivory trade can sometimes appear random and be challenging to fathom owing to constantly changing routes, seizures to date have already provided a basis for basic analysis in trade patterns of illegal shipments. To increase the effectiveness of law enforcement efforts, authorities should focus attention on shipments originating from key ivory export countries in Africa and establish direct co-operative links with these countries. Authorities must also remain cognizant of the fact that contraband ivory has been hidden amongst shipments of a wide range of commercial commodities, and should therefore pay attention to certain declared commodities (Milliken *et al.*, 2009).

Efforts to improve and integrate data collection require greater participation from all of the States along the international trade chain in order for decision-making to be better informed. A fundamental aspect to this is the lack of information on the size of ivory stockpiles held in the custody of CITES Parties and their relative contribution to the illegal ivory supply chain. This remains an important gap in the current understanding of the dynamics of the chain, which has now been achieved through mandatory inventories being undertaken annually, and declaration to the CITES Secretariat of all ivory stockpiles (CITES, 2013). This marks an important step forward in addressing the global ivory trade, especially within countries like Singapore that possess a domestic ivory trade.

Results from this survey highlight a decline in the domestic ivory market in Singapore, a positive indication of demand reduction in a country that was once one of the most significant ivory trading entrepôts in the world. It is essential that Singapore maintains and increases vigilance to reduce further the risk of illegal ivory moving through its airports and seaports.

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REFERENCES

- Anon. (1987). Ivory stockpiles. *TRAFFIC Bulletin* 9(1):5.
- Anon. (2002). *The Availability of Ivory in Retail Outlets in Singapore—A Report submitted to the CITES Management Authority of Singapore*. TRAFFIC Southeast Asia, Malaysia.
- Anon. (2012). Singapore remains world's busiest port. *MySin Chew* (Malaysia), 20 March.
- CITES (2011). Nineteenth Meeting of the Plants Committee, Geneva (Switzerland), 18 April, PC19 Doc.6.2.
- CITES (2012a). Interpretation and Implementation of the Convention. Species Trade and Conservation—Elephants. 62nd meeting of the Standing Committee, Geneva (Switzerland), 23 July, SC62 Doc. 46.1.
- CITES (2012b). Notification to the Parties Concerning National Laws for Implementation of the Convention, Geneva (Switzerland), 18 April, No. 2012/036.
- CITES (2013). *Resolution Conf. 10.10 (Rev. CoP16): Trade in elephant specimens*. 16th meeting of the Conference of the Parties, Bangkok (Thailand), 3–14 March 2013.
- Ganesh, S. (2011). 1,069 elephant tusks seized in two months. *News Straits Times* (Malaysia), 2 September.
- Index Mundi (2013). Singapore Demographics Profile 2013, 29 August 2013. www.indexmundi.com/singapore/demographics_profile.html.
- Martin, E. and Stiles, D. (2002). *The South and South East Asian Ivory Markets*. Save the Elephants, London, UK.
- Milliken, T., Burn, R.W., and Sangalaku, L. (2009). *The Elephant Trade Information System (ETIS) and the Illicit Trade in Ivory: A Report to the 15th meeting of the Conference of the Parties*. CoP15 Doc. 44.1, Annex 1. CITES, Gland, Switzerland.
- Milliken, T., Burn, R.W., Underwood, F.M., and Sangalaku, L. (2012). *The Elephant Trade Information System (ETIS) and the Illicit Trade in Ivory: a Report to the 16th meeting of the Conference of the Parties*. CoP16 Doc. 53.2.2 (Rev. 1), CITES. Gland, Switzerland.
- Milliken, T. (1989). The Japanese ivory trade: tradition, CITES and the elusive search for sustainable utilization. In: *The Ivory Trade and the Future of the African Elephant*. Ivory Trade Review Group. Oxford, UK.
- Milliken, T. and Melville, D. (1989). *The Hong Kong Ivory Trade*, TRAFFIC Japan, Tokyo.
- Nijman, V. and Shepherd, C.R. (2012). The role of Lao PDR in the ivory trade. *TRAFFIC Bulletin* 24(1):35–40.
- Singapore Attorney-General's Chambers (2013). <http://statutes.agc.gov.sg/aol/search/display/view.w3p;page=0;query=CompId%3A62b6c294-e87c-48a8-a22b-99f1e30d916f;rec=0>.
- Stiles, D. (2008). *An Assessment of the Illegal Ivory Trade in Viet Nam*. TRAFFIC Southeast Asia, Malaysia.
- Stiles, D. (2009). *The Elephant and Ivory Trade in Thailand*. TRAFFIC Southeast Asia, Malaysia.
- Wasser, S.K., Clark, W.J., Drori, O., Kisamo, E.S., Mailand, C., Mtayoba, B. and Stephens, M. (2008). Combating the illegal trade in African Elephant ivory with DNA forensics. *Conservation Biology* 22:1065–1072.
- World Bank (2013). Container port traffic (TEU: 20 foot equivalent units). <http://data.worldbank.org/indicator/IS.SHP.GOOD.TU>. Viewed on 1 October.

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