



**ILLEGAL TRADE IN IVORY AND**

**RHINO HORN:**

**AN ASSESSMENT TO IMPROVE**

**LAW ENFORCEMENT UNDER**

**THE WILDLIFE TRAPS PROJECT**

**By**  
**TOM MILLIKEN**

**A TRAFFIC REPORT**



**USAID**  
FROM THE AMERICAN PEOPLE



**TRAFFIC**  
the wildlife trade monitoring network

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**Front cover photograph:** Head portrait of a Black Rhinoceros *Diceros bicornis*, a Critically Endangered species, Swaziland, Africa.

**Photograph credit:** naturepl.com / Andy Rouse / WWF-Canon

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# Illegal Trade in Ivory and Rhino Horn: An Assessment Report to Improve Law Enforcement Under the Wildlife TRAPS Project

A TRAFFIC  
Report

Tom Milliken



Officials examine a large-scale ivory seizure made in Malaysia in December 2012. © TRAFFIC

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## Introduction

Both legal and illegal exploitation of wildlife has affected the status of the earth's biodiversity for millennia. Wildlife harvest has sustained many of the essential needs of human communities for food, clothing, medicine, utilitarian goods, building materials, adornment, entertainment, companionship and income for centuries, especially when conducted in a manner that ensured the continued survival of affected populations and their habitats. Increasingly in modern times, however, overharvest -- sometimes motivated by greed and vanity and often exacerbated by international trade -- has produced dire impacts on myriad wildlife species, especially when simultaneously occurring with habitat loss, pollution and other debilitating forces. Unprecedented biological or commercial extinction of many life forms is now a critical reality throughout the world, jeopardising the very foundations of biodiversity, clouding the future well being of humans and requiring unprecedented political will, social sacrifice and law enforcement action to stem further losses.

Progressively, through the advent of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in 1976, together with a host of national legislative and regulatory instruments and mechanisms, the global community has moved to address the threat to thousands of species of wildlife poised by unfettered trade. Still, illegal killing and trafficking of wildlife species remains a serious issue worldwide. Although the value of illegal wildlife trade remains uncertain, it has variously been estimated at between USD 5 - 20 billion per annum. These estimates suggest that wildlife crime is the fourth most lucrative type of transnational crime after illegal narcotics, humans and armaments.

Currently, two of the most prominent aspects of wildlife crime link the survival of Africa's elephants and rhinoceroses with the wildlife product appetites of Asian consumers. Pachyderms throughout Africa and Asia are under epic assault once again. Over the last few years, driven by new wealth and skyrocketing prices, resurgent trades have seen surging numbers of elephants and rhinos ruthlessly killed and illegal trafficking in contraband ivory and rhino horns to Asia soar to record levels not seen for at least two and a half decades.

Sadly, interventions under CITES and national-level conservation actions have been insufficient to prevent the recent extinction of pachyderm subspecies in the wild, such as the Northern White Rhino *Ceratotherium simum cottoni*, the Western Black Rhino *Diceros bicornis longipes* or the Asiatic mainland Javan Rhino *Rhinoceros sondaicus annamiticus*. Most other rhino populations are facing serious decline. Likewise, Central Africa's elephant populations have been decimated, with forest elephants in the Congo Basin reportedly declining by 76 percent since 2002. Serious elephant poaching is now occurring throughout Africa and even celebrated elephant strongholds are collapsing: for example, Tanzania's Selous Game Reserve has seen elephant numbers that once numbered over 100,000 in the mid-1970s, and reportedly still reached over 70,000 animals as recently as 2007, plummet to a paltry 13,000 animals in the last credible survey conducted in late 2013.

Throughout elephant and rhino range, the growing risk to these emblematic flagship species is palpable. Focused interventions and dedicated action are needed to prevent the threat of extinction of vulnerable populations in the face of intensive, ongoing poaching and illegal trade. The extensive involvement of transnational criminal networks, most with one foot in Africa and the other in Asia, presents a huge challenge. Successful wildlife trafficking of ivory and rhino horn increasingly relies upon the use of sophisticated technology and techniques for the movement, avoidance of detection, marketing of contraband and the laundering of monetary rewards of illicit trade. To address these issues, the global response needs to become equally professionalized. Organization and co-ordination along the entire trade chain from Africa to Asia must be reinvigorated so that rapid and comprehensive investigations and responsive actions are the norm, not the exception. The tactics to disrupt and apprehend the criminals who mastermind the destruction of biodiversity, and undermine the economies of developing nations in the process, need to be scaled up and forcefully implemented. The paradigm has to shift so that the risks of wildlife trafficking markedly outweigh the value of the monetary gains.

The USAID-funded Wildlife Trafficking, Response, Assessment and Priority Setting (Wildlife TRAPS) Project is an initiative that is designed to secure a transformation in the level of co-operation between an international community of stakeholders who are impacted by illegal wildlife trade between Africa

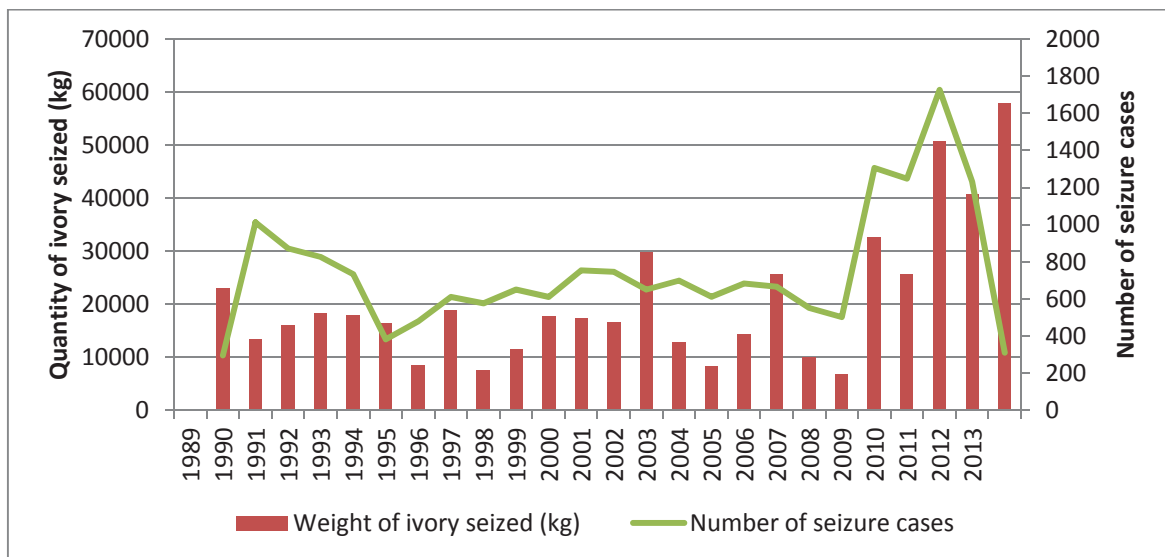
and Asia. The project is designed to increase understanding of the true character and scale of the response required, to set priorities, identify intervention points, and test non-traditional approaches with project partners. This assessment provides a detailed look at the trade trends impacting wild African elephant and rhino populations to help guide future interventions that will be implemented under the Wildlife TRAPS project. The following assessment examines volumes of ivory and rhino horn being trafficked, seizure information, methods of shipping and detection, known trade routes and the structure of criminal organizations involved, where possible. Importantly, the assessment translates the trade information provided into targeted recommendations in order to improve co-ordinated enforcement response between stakeholders in Africa and Asia.

## Illegal Trade in Elephant Ivory

This assessment report provides a detailed look at the illegal trade in ivory to help guide future programme development and interventions for tackling illegal wildlife trade between Africa and Asia. TRAFFIC's Elephant Trade Information System (ETIS), the world's largest collection of elephant product seizure records from 1989 to the present, is the primary source of data for this evaluation, which is further augmented with additional information and data on ivory trade dynamics from the CITES Monitoring the Illegal Killing of Elephants (MIKE) programme and market research and trade studies undertaken by various TRAFFIC regional offices and other sources.

As of 9 January 2014, there were 20,830 records in ETIS, of which 18,747 represented ivory seizures, whilst the remainder comprised non-ivory elephant products. Figure 1 shows the number of ivory seizure cases and the estimated weight of ivory seized (as raw, unadjusted data) in each year from 1989 to 2013. Even though the data for 2013 are very incomplete and represent only about 15% of the number of records normally reported in recent years, the three most recent years -- 2011, 2012 and 2013 -- represent the three years in which the highest quantity of ivory was seized and reported to ETIS over the last 25 years. It is worth noting that, because of inherent bias in the raw data, Figure 1 cannot be interpreted as a trend, nor is it suggestive of absolute trade quantities over time.

**Figure 1:** *Estimated weight of ivory and number of seizure cases by year, 1989 - 2013 (ETIS, 09 January 2014)*



## Trends in Illegal Ivory Trade, 1998-2012

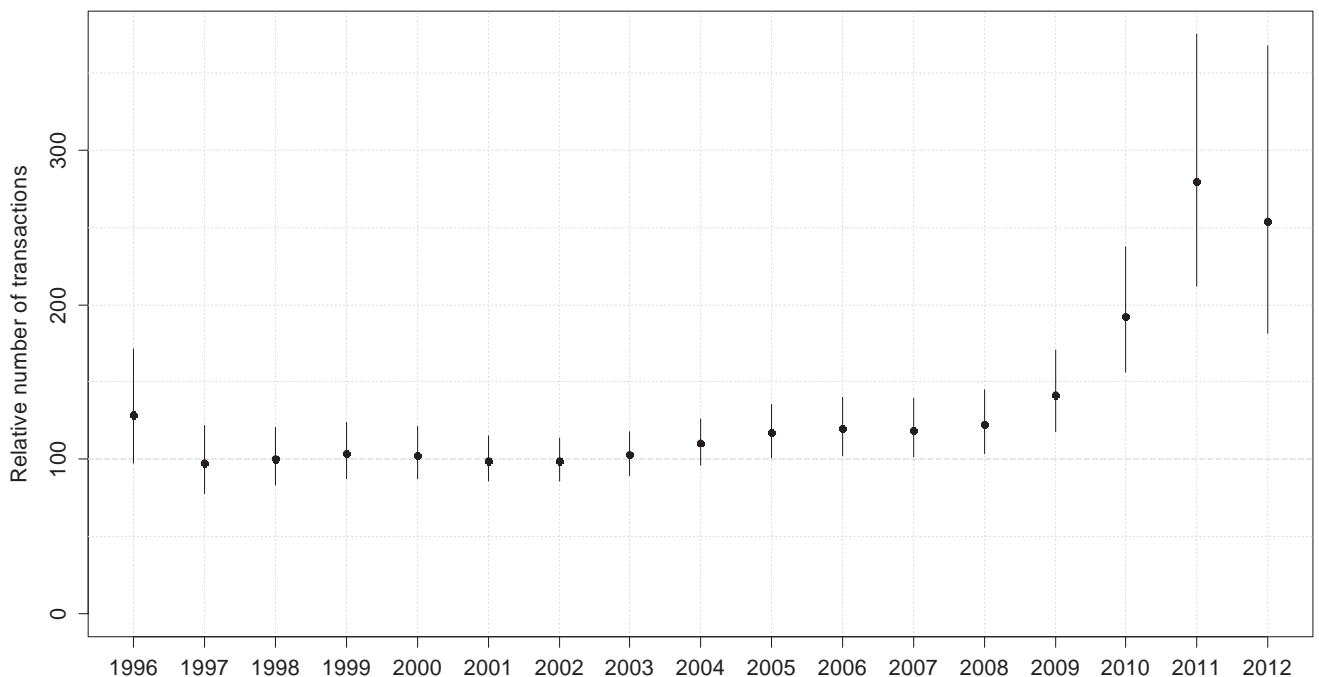
### Methods

A trend analysis was conducted in late 2013 to update the report covering the years 1996-2011 which had been presented at the 16th meeting of the CITES Conference of the Parties (CoP16) in Bangkok, Thailand in March 2013 (see Milliken *et al.*, 2012). These data comprised 2,437 more records than the CoP16 trend analysis. Using the methodology described in Underwood *et al.*, 2013, 14,070 separate raw or worked ivory seizure records from 72 countries or territories, covering the period 1996-2012, were analysed. This time period was selected as 1996 is the last full year in which all African Elephant populations were listed in CITES Appendix I; the year 2013 was data deficient and not included in the analysis. The data were: assessed according to ivory type, raw or worked, in three separate weight classes (less than 10 kg; between 10 kg and less than 100 kg; and greater or equal to 100 kg); adjusted for bias using a statistical estimation of relative “seizure rates” and “reporting rates” for each country for each year; and then smoothed to reduce anomalies not indicative of overall patterns. This analysis was presented at the IUCN-convened African Elephant Summit (Gaborone, Botswana; December 2013) (Anon., 2013).

### The Transaction Index – assessing the frequency of illegal trade in ivory

The Transaction Index presented in Figure 2 is a relative measure of global illegal ivory trade activity over the last 17 years. In this representation, 1998, the year before the first one-off sale under CITES occurred, is set at 100 and serves as the baseline. The best estimate of the trade in each year is indicated by the bold dot, while the vertical lines depict 90% confidence limits. With the exception of the 2011 and 2012 results, the confidence limits remain reasonably tight and, even for 2010 and 2011, the degree of uncertainty is now considerably reduced from the previous estimate presented at CoP16 owing to the fact that the data for 2011 are now more complete, and there is an additional year to help “fix” these results more confidently. However, 2012 still represents a somewhat incomplete data set and, being the last year in this sequence, characteristically shows far more uncertainty in terms of its status.

**Figure 2: Estimate of illegal ivory trade activity, 1996 - 2012, showing 90% confidence intervals (ETIS Transaction Index, 14 October 2013)**



Overall, and as expected, the trend is remarkably consistent with the CoP16 results, with 2011 representing nearly three times as much illegal ivory trade as 1998, and 2010 almost twice as much

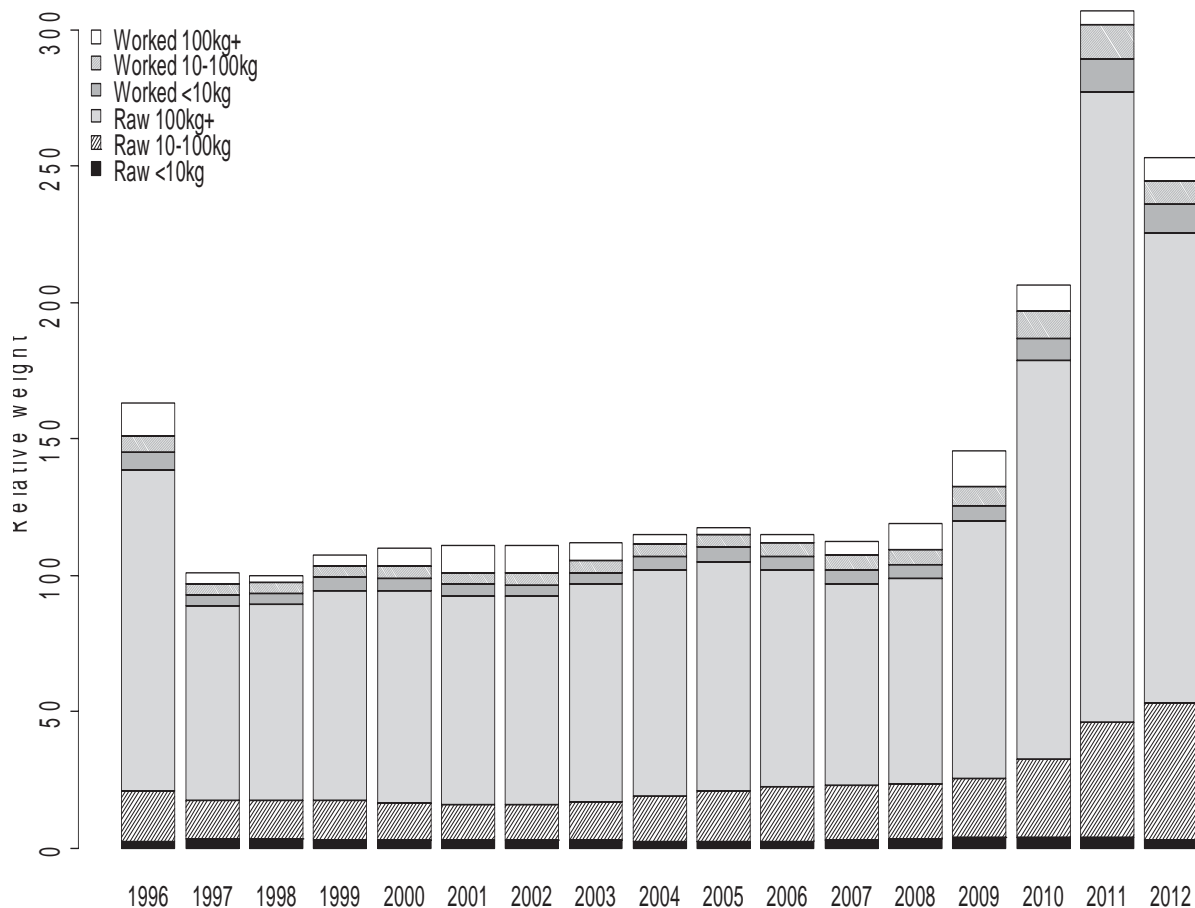


activity. Even though a slight decrease since 2011 is suggested, illegal ivory trade activity in 2012 is still two and a half times greater than 1998 levels. As the 90% confidence intervals for these last two years mostly overlap, it is reasoned that illegal ivory trade activity in 2012 has generally remained stable at an unacceptably high level. This interpretation is further buttressed by the fact that the 2012 data represent 30% fewer seizure records than 2011, but the mean Transaction Index value for 2012 is only 10% less than that for 2011. In the final analysis, illegal ivory trade activity has remained robust and highly problematic through 2012.

**The Weight Index – assessing the scale of illegal trade in ivory**

Figure 3 presents an estimate of the mean weight for all ivory classes by year with, again, 1998 set to 100 as the baseline. This figure represents relative (not absolute) values for the quantity of ivory being traded illegally so the pattern, more than the relative weights, is where the focus needs to be. Overall the Weight Index and the Transaction Index show very similar patterns. There is relative stability in the quantity of illegal ivory in trade from 1997 through 2007/2008, but thereafter a fairly sharp upward climb is seen, especially in 2011, the peak year. Although a drop of some degree is indicated in 2012, it needs to be appreciated that the confidence limits for the latter two years have considerable overlap (not depicted in the figure), indicating less certainty regarding the mean estimates. This suggests that the decrease in 2012 may not be significant and the trade actually remains fairly stable at a high level. The large raw ivory class contributes the most to the Weight Index, which is consistent with CITES CoP16 results whereby large-scale ivory seizures were noted as driving the upward ivory trade trend. The medium raw ivory weight class contributes the second greatest quantity of ivory to the Weight Index. In Figure 3, it can be seen that the quantity of illegal ivory in trade in 2011 is estimated to be nearly three times the level that was going into trade in 1998, whilst 2012 represents a value that is about two and a half times more.

**Figure 3: Mean estimate of the weight of illegal ivory trade combining all weight classes by ivory types, 1996 – 2012 (ETIS Weight Index, 14 October 2013)**





## Assessment of Large-Scale Ivory Seizures and Trade Routes

ETIS routinely tracks large-scale ivory seizures (in which 500 kg or more of raw or worked ivory in raw ivory equivalent terms<sup>1</sup> is seized at a single time) in the belief that they represent a kind of “early warning” indicator of the illicit ivory trade as a whole. Such seizures typically generate immediate media coverage and become known soon after they occur, allowing the raw data to be usefully tracked in real time without investment in comprehensive analysis involving statistical modelling. Further, the recently amended Resolution Conf. 10.10 (Rev. CoP16) now *“urges Parties to collect samples from large-scale ivory seizures (i.e. a seizure of 500 kg or more) that take place in their territories, and provide these to relevant forensic and other research institutions in support of enforcement and prosecutions”*. Finally, Decision 16.83 also calls for *“Parties involved in large-scale ivory seizures (i.e. 500 kg or more) should collect samples from the ivory seized within 90 days of the seizure and, if possible, from all large seizures from the past 24 months. They should submit the samples for analysis to begin immediately to appropriate forensic-analysis facilities capable of reliably determining the origin of the ivory samples, with the aim of addressing the entire crime chain”*. Although forensic examination involving ivory seizures of 500 kg or more is a relatively new requirement first agreed by the Parties in March 2013, its application should ultimately yield important information about the origin of the ivory seized and possibly its age. This should result in better understanding of elephant poaching patterns and trade routes for ivory trafficking within Africa. If effectively implemented, these requirements should enhance the efficacy of tracking large-scale ivory seizures as a crude “early warning” system under CITES.

As described in Milliken *et al.*, 2012, such seizures are also indicative of the presence of organized crime in the illicit ivory trade. Firstly, because they comprise anywhere from one-half tonne to over seven tonnes of ivory in a single consignment, they involve a far greater and sustained level of finance to undertake and the development of procurement networks from elephant poaching in protected areas to orchestrated thefts of government-held ivory stocks. Secondly, they entail a more sophisticated degree of planning, organization and intelligence to instigate, including investment in the development of local poaching and transport networks for sourcing sustained volumes of contraband ivory; the procurement of specialized equipment (such as shipping containers with hidden compartments), transport, storage and staging facilities; the creation of “dummy” companies and other forms of business fraud to mask the true identity of those involved; facilitation of networking and, as opportunistically required, corruption with political, regulatory or law enforcement authorities to prevent legal interventions; and utilization of money laundering, tax evasion and other forms of economic subterfuge to hide profits and other evidence of financial dealings. Thirdly, these criminal operations exhibit special knowledge and connections linking African source countries with Asian end-use markets so that illicit ivory readily moves into black markets or, whenever feasible, legally-sanctioned trade channels. It is believed that currently most of these transnational syndicates function as Asian-run, Africa-based operations. Thus, large-scale ivory seizures are the most important ivory trade crime to address.

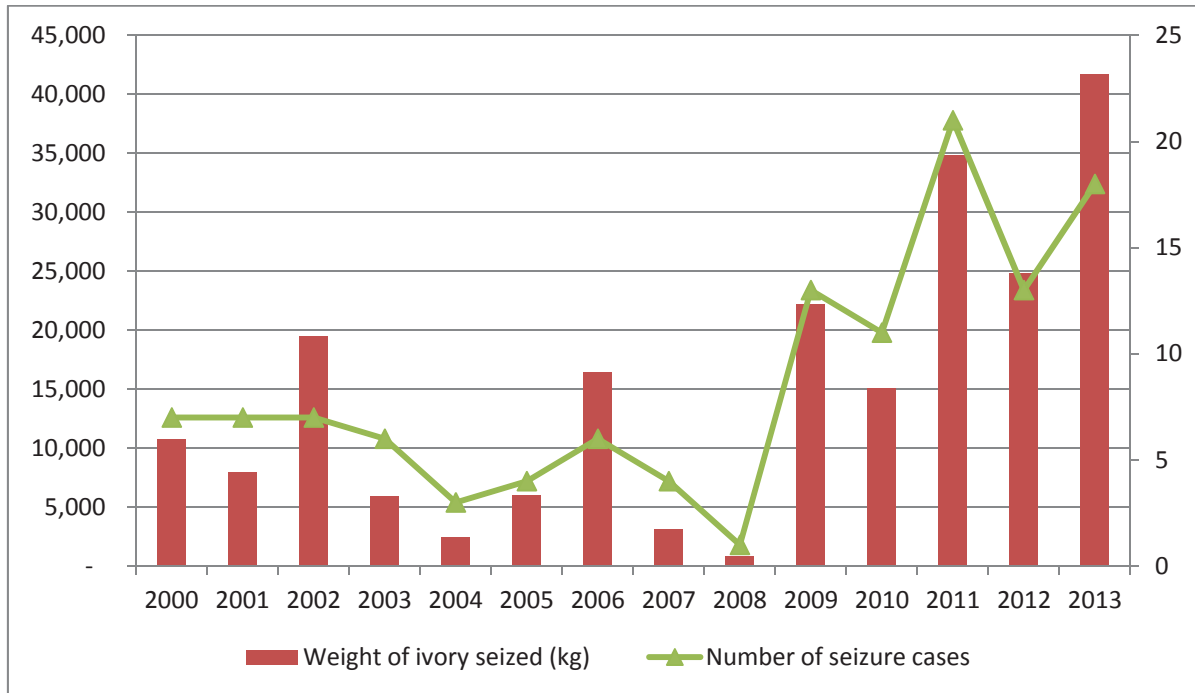
### **Number, size and frequency of occurrence**

The frequency of large-scale ivory seizures has increased greatly since 2000. Prior to 2009, an average of five and never more than seven such events occurred annually, but thereafter an average of 15, and as many as 21 large-scale ivory seizures, have taken place each year over the last five years, according to the ETIS data (Figure 4). The 18 seizures made in 2013 collectively constitute the greatest quantity of ivory derived from large-scale seizure events going back to 1989. Although 2013 was not included in the most recent trend analysis described above using bias adjusted data, ETIS has clearly established that the upward surge in the weight of ivory seized from 2009 through 2012 has been primarily driven by increased illegal activity in the large ivory weight class. For this reason, the raw data for 2013 is regarded with considerable alarm and is likely to be an indication that the illegal trade in ivory is continuing to increase further. (A more definitive assessment of this issue will be possible at a future time when the trends analysis is extended to include 2013, possibly in conjunction with the ETIS report that will be produced for consideration at the 65th meeting of the CITES Standing Committee in July 2014).

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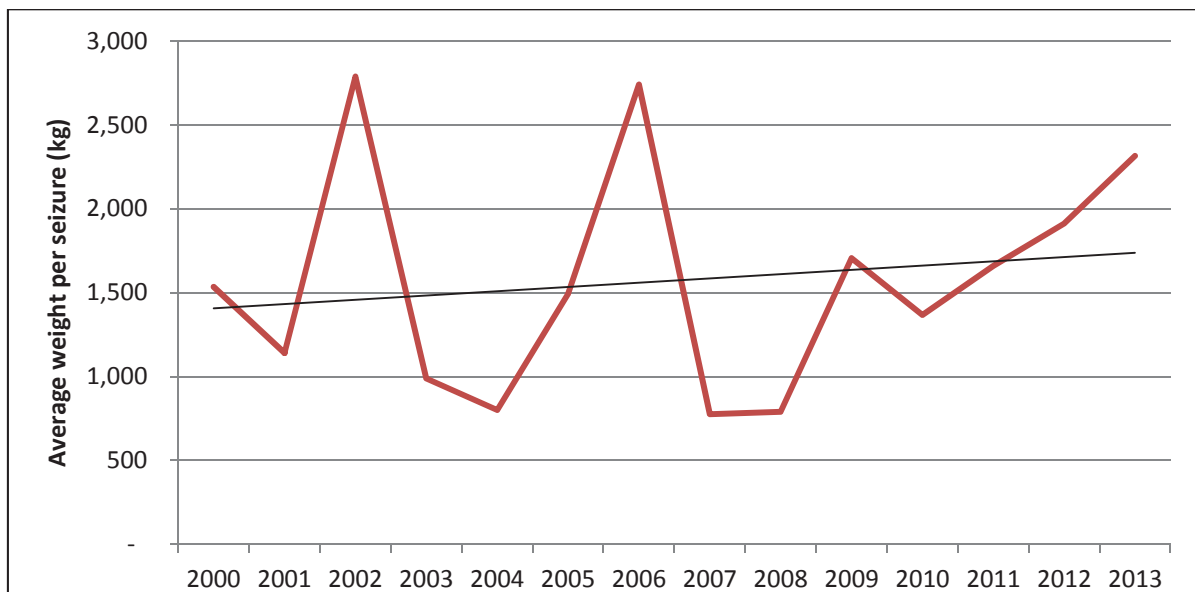
<sup>1</sup> Raw ivory equivalent values result from converting worked ivory products into raw ivory values to account for the loss of ivory during processing. This is done with respect to the ETIS data so that the weights of raw and worked ivory can be meaningfully combined for analytical purposes.

**Figure 4:** *Estimated weight and number of large-scale (>500 kg) ivory seizures by year, 2000 - 2013 (ETIS 09 January 2014)*



Over the last 14 years, these seizure cases have ranged from a low of just 500 kg, the minimum weight required for consideration as a large-scale ivory seizure, to 7,138 kg, the largest seizure ever recorded in ETIS which occurred in Singapore in 2002. Considering all large-scale ivory seizure data from 2000-2013, the mean weight per seizure is 1,747 kg although there is considerable variability between years in the data. Figure 5 indicates that the average weight of such seizures had been incrementally increasing over this entire period, and that from 2008 onwards the average weight of large-scale ivory seizures has been steadily growing.

**Figure 5:** *Mean weight of large-scale (>500 kg) ivory seizures by year, 2000 – 2013 (ETIS 09 January 2014)*

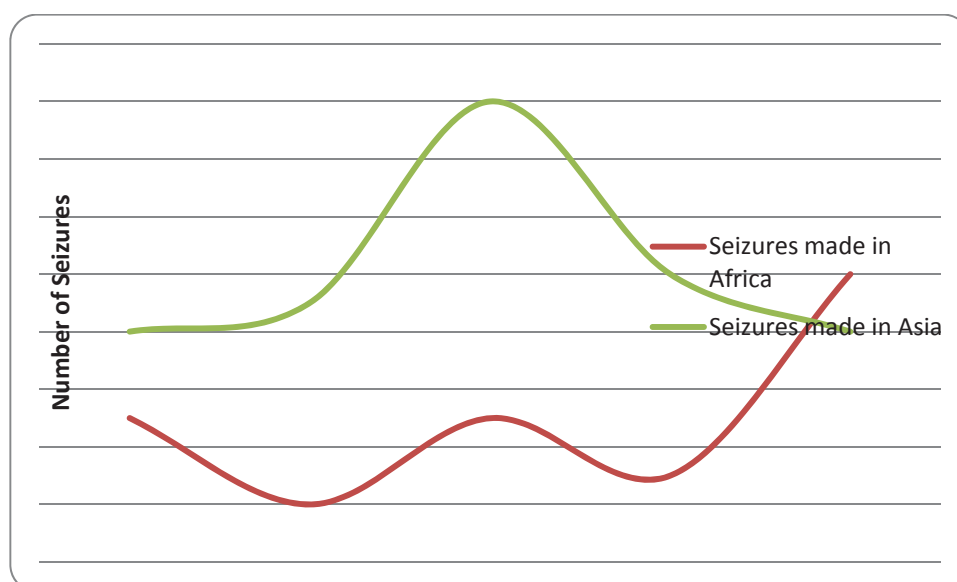


## Region of occurrence

Overall, of the 76 large-scale ivory seizures made and reported to ETIS since 2009, two-thirds have occurred in countries and territories in Asia whilst in transit or during illegal import, and only one-third were seized in Africa prior to exportation (Figure 6). Interestingly, such seizures did not occur in any other part of the world during this time period indicating that the fundamental ivory trade dynamic now lies between Africa and Asia. In 2001 and 2003, however, four such seizures occurred in Europe and one in the United States.

Africa's performance in making large-scale ivory seizures before they leave the continent has only substantially improved following CITES CoP16. In 2013, more large-scale seizures were made in Africa than in Asia, all of which occurred after CoP16, and 80% were made in either Kenya, Tanzania or Uganda, the three African countries that were subjected to the CITES Ivory Trade Action Plan process on the basis of the ETIS analysis to the 62nd meeting of the CITES Standing Committee. This strongly suggests that CITES oversight pressure has resulted in improved law enforcement effort in these countries, at least in the period immediately following CoP16.

**Figure 6:** Number of large-scale (>500 kg) ivory seizures made in Africa and Asia, 2009-2013 (ETIS 09 January 2014)



## Method of shipping

Since 2009, nearly two-thirds of the large ivory seizures by number, and three-quarters by weight, have transpired as containerized shipping through seaports (Table 1). This is not surprising as container shipping certainly represents the most cost-effective transport option for moving a commodity that is heavy like ivory and the risk of detection is, generally speaking, minimized. Indeed, container shipping presents a major challenge to effective law enforcement as only a small percentage (typically less than 5%) of the containers in trade are actually subjected to inspection of some description. For example, the port of Hong Kong processes over 19 million containers annually. Most African seaports lack expensive technical equipment such as cargo scanner machines that can scan containers. A further complication is that, in general, the focus of inspection in most countries is directed at import trade and surveillance of export traffic is comparatively ignored. Even though it is far more expensive than maritime shipping, occasionally illegal consignments of ivory are shipped as air freight, sometimes to move ivory internally within Africa to a seaport. Table 1 also shows other land-based seizures, almost all made within Africa and most representing law enforcement actions taken at holding sites, although a few cases have resulted from opportunistic road block inspections usually near cross-border points or on major roads moving into major cities or port areas.



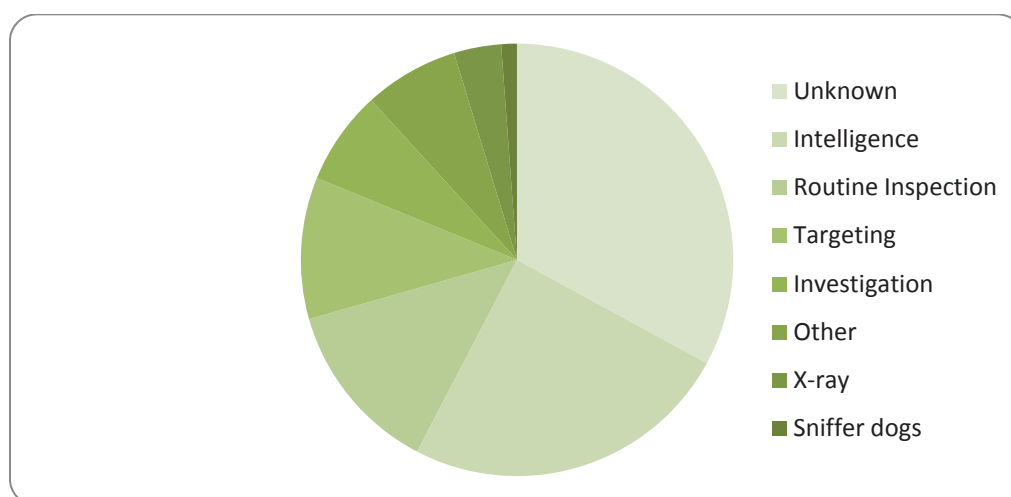
**Table 1: Number and estimated weight of large-scale (>500 kg) ivory seizures by year and mode of transport, 2009 - 2013 (ETIS, 09 January 2014)**

Year	Air		Sea		Land		Total	
	Number	Weight	Number	Weight	Number	Weight	Number	Weight
2009	3	2,364	7	15,915	3	3,898	13	22,177
2010	4	6,390	6	8,035	1	616	11	15,041
2011	3	3,808	16	27,939	2	3,084	21	34,831
2012	1	601	9	17,683	3	6565	13	24,849
2013	1	797	11	31,069	6	9,808	18	41,674
<b>Total</b>	<b>12</b>	<b>13,960</b>	<b>49</b>	<b>100,641</b>	<b>15</b>	<b>23,971</b>	<b>76</b>	<b>138,572</b>
<b>%</b>	<b>0.16</b>	<b>0.10</b>	<b>0.64</b>	<b>0.73</b>	<b>0.20</b>	<b>0.17</b>		

**Methods of detection**

Figure 7 indicates the reported method of detection behind the large-scale ivory seizures made over the last five years. In eight cases, more than one method was used to detect the contraband shipment, but for over one-third of the cases, the method of detection was not provided. Receiving and acting upon intelligence information is behind at least one-quarter of the seizures made, indicating the value of cultivating informant networks and sharing intelligence information in a timely manner. Random routine inspections (13%) are the next most important method of detection. Risk assessment through targeting (11%) and investigation (7%) transpires in about one-fifth of the seizures, whilst the use of X-rays (4%) and sniffer dogs (1%) are even more rarely employed when large-scale seizures are made. Other, undisclosed methods accounted for another 7% of the large-scale ivory seizures made, according to the ETIS data. In fact, many law enforcement agencies do not voluntarily disclose the methods of detection they use in order to safeguard their *modus operandi*, thus, these findings should be viewed as indicative of the situation.

**Figure 7: Reported method of detection of large-scale (>500 kg) ivory seizures, 2009-2013 (ETIS 09 January 2014)**



Concerning the situation in Africa, it is worth noting that most seizures in which the method of detection was given involved intelligence information, followed by investigations. None of the seizures were reported to have resulted from the use of X-ray equipment, which is believed to be mostly absent or limited in African seaports through which ivory is most commonly moving. The single seizure made using sniffer dogs occurred at Nairobi Airport in Kenya where an ongoing surveillance programme using canines is in effect. In fact, as large-scale ivory consignments infrequently are transported as air freight, sniffer dogs at airports are far more effective detecting smaller volumes of ivory found in check-in or carry-on luggage of airline passengers. So far in Africa,

sniffer dogs have not yet been employed to assess containerized shipping through seaports; attempts by TRAFFIC to trial a programme at a Mozambique seaport location using air suction technology and an off-site dog detection facility under the auspices of the Mechem (Pty) Ltd. (a South African company that pioneered this technique) never succeeded in gaining the necessary permissions for their deployment from Mozambiquan government authorities in spite of protracted efforts made over 2.5 years. The value of using sniffer dogs for illegal ivory detection in a seaport situation still needs to be tested.

### ***Status of investigations and judiciary proceedings***

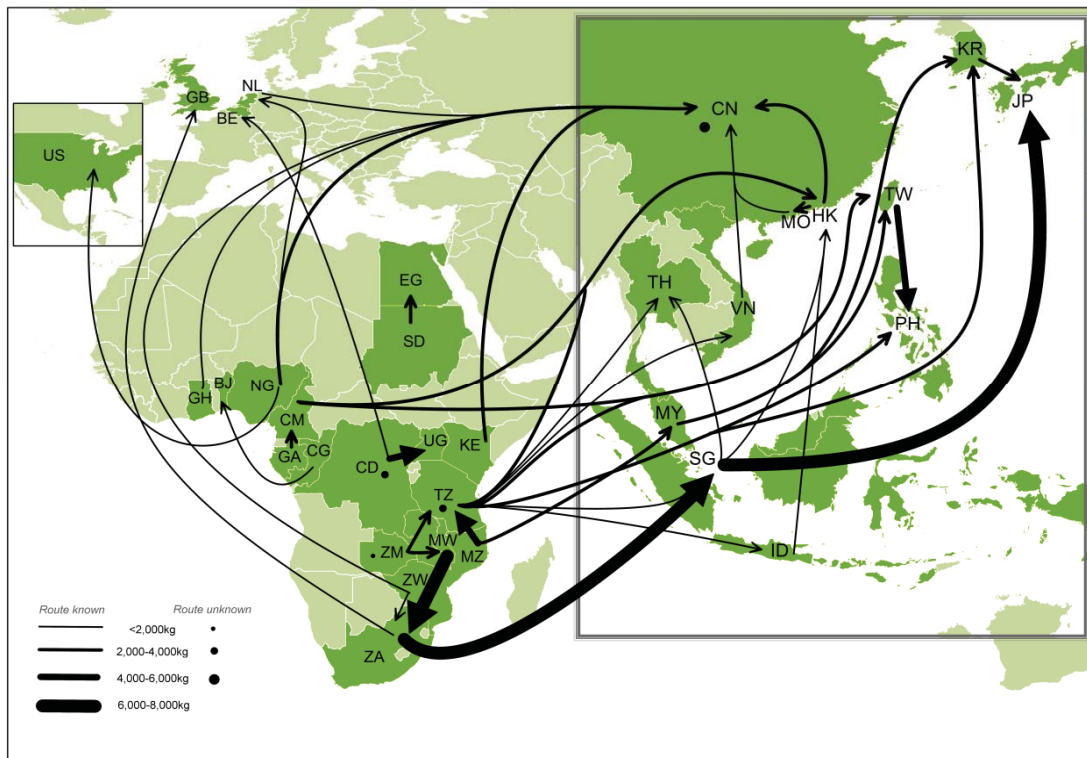
Generally speaking, most countries rarely provide follow-up information to ETIS on the status of investigations and court cases involving large-scale ivory seizures. It is believed, however, that until recently, very few large-scale ivory seizures resulted in successful investigations, arrests or convictions of the criminals behind these transactions. Looking at the data at hand, it is disappointing to note that only nine (12%) of the 76 cases reported to ETIS since 2009 indicated that suspects had been arrested and gave their nationalities: three cases in 2011, two in 2012 and four in 2013. Independently of ETIS reporting and using other sources of information, TRAFFIC has confirmed that Chinese authorities, following a comprehensive investigation, made arrests and successfully prosecuted individuals associated with four attempts to import large volumes of ivory into their country in 2011, resulting in prison sentences of from three to 15 years upon conviction. In 2013, Tanzania and Uganda arrested Chinese suspects in conjunction with two high-profile large-scale ivory seizure cases in those countries, but investigations and court trials are still in progress. In Kenya, a Kenyan national arrested in July 2013 in conjunction with the seizure of 444 pieces of ivory, weighing 3,287 kg and locally valued at USD1.93 million, was released in December 2013 on a USD1,200 bond, according to local news sources. Finally, in Uganda, a high court judge in Uganda ordered 2.9 tonnes of ivory, comprising 832 pieces, that had been impounded in October 2013 by the Ugandan Revenue Authority (URA), to be returned to a Congolese national for onward export, despite the cargo having entered the country fraudulently declared as coffee and export would be in contravention of CITES; the Uganda Wildlife Authority has resisted this directive and the ivory still remains in custody. These cases serve to highlight the fact that, throughout Africa, even when investigations result in arrests, judiciary proceedings often undermine effective prosecution and function as backdoor exit point for the individuals involved in serious ivory trade crime.

### ***Observed trade routes***

Although complete information is lacking, trade routes can still be examined on the basis of information provided in the ETIS records. Overall, it appears that the observed trade routes used for large movements of ivory have continually changed since the millennium. From 2000 through 2008 (Figure 8), there was considerable activity emanating from Atlantic Ocean seaports in Central and West Africa, particularly Douala (Cameroon), Lagos (Nigeria) and Accra (Ghana), and from Kinshasa (Democratic Republic of the Congo) to Belgium by air. Movements of ivory within Africa involved a great number of countries, and considerable trafficking between Sudan and Egypt, a major unregulated ivory market within Africa that is far removed from any elephant populations, was also evident. On Africa's east coast, Tanzania, Kenya and Mozambique also emerge in this period as exporters of ivory from the African continent. South Africa, however, is the most prominent country owing to one exceptional 7.1 tonne movement of ivory from Malawi through the port of Durban to Singapore, and then reportedly for onward shipment to Japan. Japan also seized ivory transiting from South Korea. Comparatively speaking, trade to China is more modest at this time, however, the final destination for about 40% of the seizures made during this period remains unknown. Interestingly, some of the ivory consignments going to China transited through Europe, probably owing to the fact that direct trade routes from Africa were far less developed at the time.

In the period 2009-2011 (Figure 9), there is a profound shift to the Indian Ocean ports of Dar es Salaam and Zanzibar in Tanzania, with most of the Tanzanian trade initially directed to Malaysia as the principal transit country, but some shipments also going to the Philippines, another transit country, whilst other consignments were sent directly to China. Trade out of Mombasa, Kenya also firmly develops during this period with multiple shipments being sent to Malaysia, Viet Nam, Cambodia and

**Figure 8: Trade routes for large-scale (>500kg) seizures of ivory, 2000 – 2008**  
(ETIS, 03 November 2013)



Note: The insert map of Asia is at a larger scale than the rest of the map; most trade from CG, CM, GH, KE, MZ, NG, TZ and ZA is by sea even if directional arrows cross landmasses.

**Figure 9: Trade routes for large-scale (>500kg) seizures of ivory, 2009 – 2011**  
(ETIS, 03 November 2013)

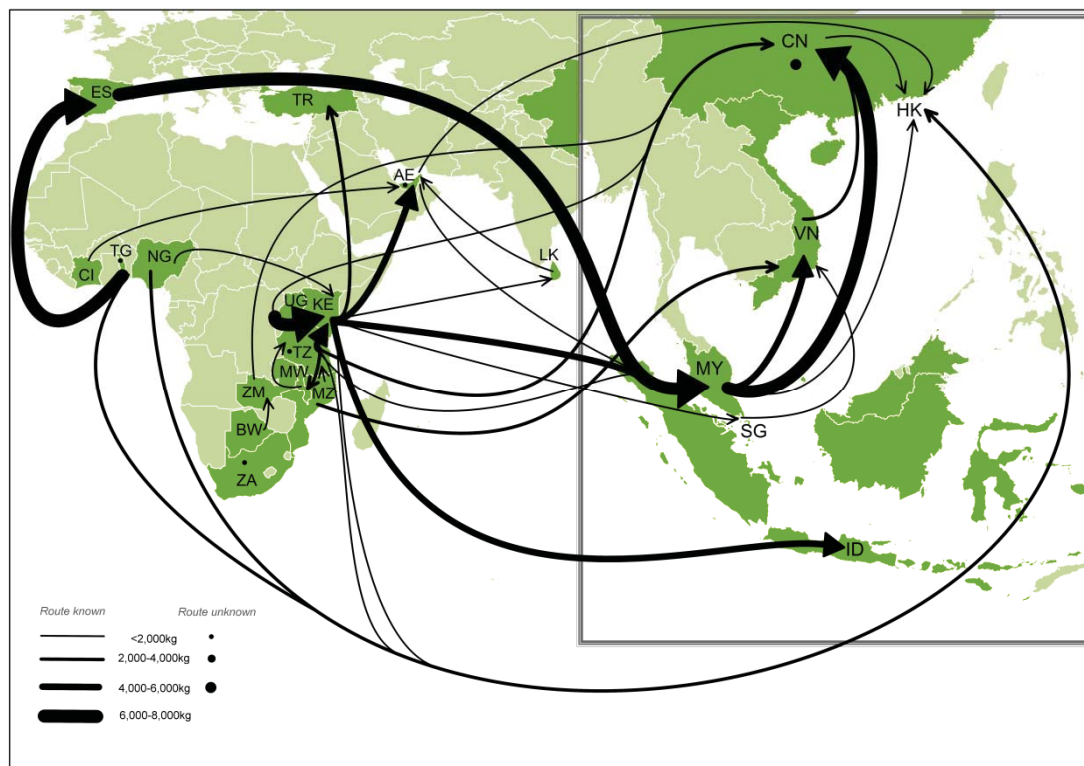


Note: The insert map of Asia is at a larger scale than the rest of the map; most trade from KE, NG, TZ and ZA is by sea even if directional arrows cross landmasses.



the United Arab Emirates as transit countries; these consignments would probably ultimately be destined for either Thailand or China. At the same time, direct trade from Kenya to the end-use markets in both Thailand and China is also a feature of the trade. There is also evidence of Cape Town, South Africa sending ivory to Malaysia. Indeed, Malaysia emerges as the world's paramount transit country during this period and from there most ivory is redirected to either Viet Nam or Hong Kong before moving on to China. For the most part, ivory trade from West and Central Africa has greatly diminished, whilst East and Southern Africa countries actively emerge in the trade with a variety of internal ivory movements. In terms of end-use markets, Japan drops out completely from any further involvement in large-scale ivory seizures, and is replaced by China which reigns supreme as the largest end-use market. There is also a lesser, secondary but nonetheless important flow of ivory into Thailand, another end-use market. The cross-border trade between China and Viet Nam, in particular, surges during this period.

**Figure 10: Trade routes for large-scale (>500kg) seizures of ivory, 2012 – 2013**  
(ETIS, 03 November 2013)



*Note: The insert map of Asia is at a larger scale than the rest of the map; most trade from CI, KE, MZ, NG, TG, TZ and ZA is by sea even if directional arrows cross landmasses.*

In the most recent period 2012-2013 (Figure 10), Tanzania is still heavily involved in the trade, but Kenya's port of Mombasa becomes the leading conduit through which major flows of ivory repeatedly exit Africa (a development that coincides with a Presidential election in that country). Malaysia continues to be the major transit country in Asia, with the onward traffic going directly to China or, on some occasions, to China via Viet Nam. This reflects the situation seen in the previous time period but with less intensity. On the other hand, new transit countries, especially Indonesia and Sri Lanka, emerge, possibly being used in the trade as alternatives to Malaysia. At the same time, trade through the Middle East, which started to develop in the period 2009-2011, increases further, with the United Arab Emirates playing the leading role. Hong Kong also continues to function as an important transit point for ivory moving into China, which remains the indisputable major end-use destination. Within Africa, the criminal syndicates responsible for this illegal trade also appear to be adapting with exploratory shifts to new countries, notably Togo and Côte d'Ivoire, and increased activity in Mozambique as exit points within Africa. Further, experimentation with new trade routes has linked distant Spain and Turkey into the equation as possible transit countries, a development designed to mask the fact that shipments originated in Africa. Various countries in East and Southern Africa are continuing to be very active in terms of internal ivory movements, and are likely to reflect shifts in poaching patterns as reports of major elephant depletions in key Central African locations continue to

be documented. For example, a recent modeling exercise suggested that there could have been a greater than 60% decline in elephant numbers across Central Africa in the last 10 years (Maisels *et al.*, 2013). If so, patterns of illegal trade are likely to be shifting to places with more elephants, especially East and Southern Africa.

## Summary Conclusions

- Using bias adjusted data of ivory seizures, illegal trade activity and the weight of ivory seized reached their highest levels in at least 18 years in 2011, and this general pattern remained remarkably stable through 2012. The level of illegal trade in ivory presents a grave threat to elephant conservation.
- Preliminary indicators suggest that even higher levels of illicit trade may be reached in 2013. Although incomplete, 2013 raw data on large-scale ivory seizures (i.e. 500 kg or more) already represent the greatest quantity of ivory confiscated in over 25 years for this type of ivory transaction. The frequency and scale of large ivory movements has increased significantly since 2000 and have been driving the upward trend in illicit ivory trade in recent years. Because large-scale ivory transactions represent the presence of organized transnational crime syndicates in the trade, they constitute the most important ivory trade crime to address.
- Based on ETIS data, containerized shipping through African seaports accounts for nearly two-thirds of the large-scale ivory seizures by number and three-quarters by weight since 2009. The principal method of detection has been acting upon intelligence information, indicating the value of cultivating informant networks at the national level and sharing intelligence information more broadly. Unfortunately, the use of intelligence information is rarely augmented by risk assessment, the use of scanners, X-rays or sniffer dogs within Africa, whilst Asia performs somewhat better with the availability of technical equipment, but not sniffer dogs.
- In the period 2009-2011, observed trade routes shifted away from West and Central Africa seaports to East Africa, particularly Tanzania and Kenya, as the primary exit points for illicit ivory leaving the Africa continent. Malaysia, Viet Nam and Hong Kong serve as the key transit countries, whilst most ivory is destined for China, although Thailand is also a destination. Over the last two years, 2012 and 2013, observed large-scale movements of ivory appear to be going through a dynamic period of adaptation, including the emergence of new countries, such as Togo and Côte d'Ivoire in West Africa as exit points for ivory, and Indonesia, Spain, Sri Lanka, Turkey and United Arab Emirates as transit countries.
- Available data suggest that very few large-scale ivory seizures result in successful investigations or arrests (only 9 out of 76 cases reported to ETIS indicated that suspects had been arrested), but even then judicial failure results in almost no convictions of the criminals behind these transactions.

## Assessment Recommendations

- The ivory trade focus of Wildlife TRAPS should primarily be directed at large-scale ivory seizure events.
- Attention in Africa should be focused upon key seaports (for example, initially, Mombasa, Dar es Salaam, Zanzibar) and address shortfalls in training, technology and the use of law enforcement tools (for example, sniffer dogs, risk assessment, informer networks). Central Africa should not be ignored, however, as it remains a hotspot for illegal sourcing of ivory and transit shipments out of Central and West African ports. Furthermore, emphasis should be placed on improving our collective understanding of overland transit routes between Central Africa and East Africa.
- Focus should be made to improve leadership over the investigative process between regions and facilitate the advancement and use of existing mandated structures to improve international collaborations such as the International Consortium on Combating Wildlife Crime (ICWC).

- Monitoring of judiciary performance is critical if arrests are to result in convictions and deterrent sentencing as currently the courts are undermining any advances in terms of better investigations and arrests.

Although common trade routes are highlighted, the Wildlife TRAPS Project needs to address critical gaps in information along the trade chain including how criminal operations are collecting, consolidating and shipping ivory between regions as well as processing and marketing to consumers. Additionally, analysis of court proceedings related to arrests made for poaching, trafficking and selling illegal ivory products can provide insight into the trade structure. A recommendation could be to compile a comprehensive database of court cases and priority government's follow through with trails and sentencing.



## Illegal Trade in Rhino Horn

CITES Resolution Conf. 9.14 (Rev. CoP15) on the *Conservation of and trade in African and Asian Rhinoceroses* mandates IUCN/SSC's African Rhino Specialist Group (AfRSG), Asian Rhino Specialist Group (AsRSG) and TRAFFIC to produce a comprehensive report to each meeting of the Conference of the Parties "on the national and continental conservation status of African and Asian rhinoceros species, trade in specimens of rhinoceros, stocks of specimens of rhinoceros and stock management, incidents of illegal killing of rhinoceroses, enforcement issues, and conservation actions and management strategies, with an evaluation of their effectiveness" and "measures by implicated states to end illegal use and consumption of rhino parts and derivatives". Delivery of this tri-annual output serves to put TRAFFIC in a leadership role in terms of tracking illegal trade in rhino horn and helping to guide CITES decision making and interventions addressing the range of critical contemporary rhino trade issues under the Convention.

Over the past 50 years, Africa's rhinos have faced two catastrophic crises. From the 1960s through the early 1990s, relentless poaching of rhinos was rampant, producing a steady supply of rhino horn for traditional medicine markets in Asia and dagger (*jambiya*) handle production in Yemen. The advent of CITES in 1975 had little immediate impact disrupting Africa's rhino horn trade. Initially, all three Asian rhino species and Africa's Northern White Rhino were listed in Appendix I of the Convention, which banned all international trade in live animals and their parts and derivatives for commercial purposes, but the Black Rhino was placed in Appendix II which allowed conditional trade under permit and the Southern White Rhino was not listed at all. Two years later, this "split listing" status ended and both the Black Rhino and the Southern White Rhino were transferred to Appendix I, resulting in all rhino species being in Appendix I from 1977 to 1994. During this period, only Japan decisively halted importation of rhino horn upon its accession to CITES in late 1980, but elsewhere in Asia and in Yemen illegal trade continued to thrive. The net result of decades of hunting pressure was that Africa's Black Rhino population plummeted from an estimated 100,000 animals in 1960 to a catastrophic low of only 2,410 animals in the early 1990s. Likewise the Northern White Rhino was reduced to a handful of animals in a single population in the Democratic Republic of the Congo. The only positive scenario unfolded for the Southern White Rhino, which were almost exclusively under the custodianship of South Africa where better protection existed; this subspecies made a persistent and remarkable recovery from near extinction at the beginning of the 20th century to become the most numerous rhino species in the world.

Rhino poaching essentially came to a halt in the early 1990s when concerted international action, especially the United States' threat of bi-lateral Pelly Amendment sanctions against the four key consumers at the time -- Yemen, South Korea, Taiwan and mainland China -- resulted in decisive political moves to end national rhino horn consumption. The landmark 1993 designation of rhino horn as a prohibited substance in the traditional medicine pharmacopeia of the three Asian nations and territories still stands today, and was buttressed by concerted efforts to promote acceptable substitutes for the commodity in traditional medicines to good effect by both government and TCM industry groups. Although some residual trade inevitably continued, in most countries such activity was confined to using up existing stocks rather than the acquisition of additional rhino horns. Likewise, political pressure and a major economic downturn in Yemen essentially ended that country's rhino horn market as a serious threat to rhino conservation. With all major markets dormant, the knock-on benefit of these collective efforts was a protracted period of cautious recovery for Africa's rhinos, a condition that lasted for more than a decade into the mid-2000s.

A second major rhino crisis essentially hit Africa in 2008 with a resurgence of rhino horn trade to Viet Nam. That year poaching losses in South Africa hit 83 rhinos, a major increase over the previous year's total of only 13 animals. Since then, poaching attrition has escalated every year to reach 1,004 rhinos in 2013, a shocking development that drives the focus of the international community at the present time and threatens to reverse the country's long record of rhino conservation achievement. Whilst South Africa has been and remains the epicenter of rhino killing in Africa, first Zimbabwe and now Kenya are also battling to save their rhino, as are a number of lesser rhino range States. In the meantime, new markets and uses of rhino horn seem to be proliferating in Viet Nam and possibly elsewhere in Asia. The survival of African rhinos is once again in the balance.

## Rhino Numbers in Range States

Over 98% of all of Africa's remaining rhinos are found in just four range States: South Africa, Namibia, Kenya and Zimbabwe. These four nations collectively have 25,008 out of the estimated 25,510 rhino found in the 12 countries that still have wild populations and were recognized as rhino range States in 2012 by the AfRSG. The future status of rhinos in Angola, Mozambique, Malawi and even Tanzania remains in doubt, particularly in light of 2013 poaching data (see next section). The overall continental trend for both Black and White Rhino species is still increasing, but the rate of increase has slowed markedly and the AfRSG cautions that deaths could begin to exceed births as early as next year if current poaching rates continue to increase as they have done in South Africa over the last two years.

**Table 2: Estimated White and Black Rhino numbers by subspecies and countries as at 31 December 2012, (IUCN/SSC AfRSG data, updated 13 October 2013)**

Countries, Subspecies, and Range	White Rhino				Black Rhino				
	<i>C. s. cottoni</i>	<i>C. s. simum</i>	Total	Trend	<i>D. b. bicornis</i>	<i>D. b. michaeli</i>	<i>D. b. minor</i>	Total	Trend
	(northern)	(southern)			(south-western)	(eastern)	(southern-central)		
Angola					1			1	
Botswana		185	185	Up			9	9	Up
Kenya	4	390	394	Up		631		631	Up
Malawi							26	26	Up
Mozambique		1	1	Down					
Namibia		524	524	Up	1,750			1,750	Up
South Africa		18,933	18,933	Up	208	68	1,792	2,068	Stable
Swaziland		84	84	Stable			18	18	Up
Tanzania						100	27	127	Up?
Uganda		14	14	Up					
Zambia		10	10	Up			27	27	Stable
Zimbabwe		284	284	Down			424	424	Down
<b>2012 Total</b>	<b>4</b>	<b>20,425</b>	<b>20,429</b>	<b>Up</b>	<b>1,959</b>	<b>799</b>	<b>2,323</b>	<b>5,081</b>	<b>Up</b>
<b>2010 Total</b>	<b>4</b>	<b>20,160</b>	<b>20,164</b>		<b>1,920</b>	<b>740</b>	<b>2,220</b>	<b>4,880</b>	

The top four key rhino range States are highlighted.

## Annual Number of Rhino Lost to Poaching

From 1993 for about 15 years, the degree of background rhino poaching remained at exceptionally low levels and gave rise to a period of steady increase in rhino numbers throughout Africa, especially those populations that were managed to maximize growth rates. For example, from 2002 through 2005, an average of 56 rhino each year were illegally killed across Africa -- roughly one rhino per week. Whilst that figure marginally climbed to average 61 rhino per year in 2006 and 2007, when a poaching decline in Kenya was offset by a major increase in Zimbabwe, overall impressive population growth was still noted. In 2008, however, Africa's rhino losses suddenly surged to reach 262 animals, with nearly two-thirds killed in Zimbabwe, a country experiencing serious economic turmoil and a chaotic land reform process. Apart from a slight downturn in poaching losses the following year (owing to the fact that most of Zimbabwe's rhino populations mostly remained in private conservancies offering better protection), levels of illegal killing have sharply escalated ever since to reach successive "record highs" globally: 745 rhino in 2012 and then 1,090 rhino in 2013.

Currently, three rhino are being illegally killed every single day and the overarching concern is that the situation has still not bottomed out yet. Three of the top four rhino range States are seriously affected at the present time. The current annual detected poaching rate in South Africa has now reached nearly 5% and some private rhino owners are beginning to divest of rhino on their properties because they represent a high-risk asset that potentially attracts poaching and could easily be lost through sudden catastrophic events. South Africa's unbroken record of nearly a century of steady growth in rhino numbers has been effectively halted and is projected to decline in the near future. Likewise, both Black and White Rhino numbers in Zimbabwe have already declined by 24% and 19%, respectively, between 2007 and 2011 (Emslie *et al.*, 2012), although the situation has now stabilized and numbers are beginning to increase slowly once again. On the other hand, Kenya's annual poaching rate has recently reached nearly 6% and could result in the beginning of population decline as early as this year. So far, of the top four rhino range States, only Namibia is a bright spot and has essentially remained unscathed by Africa's current poaching crisis sweeping Africa.

**Table 3: Detected number of rhinos illegally killed, 2006 – 2013 (IUCN/SSC African Rhino Specialist Group and TRAFFIC data, 13 March 2014)**

Country	2006	2007	2008	2009	2010	2011	2012	2013	Total	2013 poaching as % of 2012 pop estimates
Botswana	0	0	0	0	0	0	2	0	2	0.00%
DR Congo	0	0	2	2	Believed to have gone extinct in the wild.				4	
Kenya	3	1	6	21	22	25	30	59	167	5.76%
Malawi	0	0	0	0	0	0	2	2	4	7.69%
Mozambique	0	9	5	15	16	10	12	?	67	?
Namibia	0	0	0	2	2	0	1	5	10	0.02%
South Africa	36	13	83	122	333	448	668	1,004	2,707	4.78%
Swaziland	0	0	0	0	0	2	0	0	2	0.00%
Tanzania	0	0	2	0	1	0	2	?	5	1.57%
Uganda	0	0	0	0	0	0	0	0	0	0.00%
Zambia	0	1	0	0	0	0	0	0	1	0.00%
Zimbabwe	21	38	164	39	52	35	29	20	398	2.82%
<b>Total</b>	<b>60</b>	<b>62</b>	<b>262</b>	<b>201</b>	<b>426</b>	<b>520</b>	<b>746</b>	<b>1,090</b>	<b>3,367</b>	
<b>Number poached/day</b>	<b>0.16</b>	<b>0.17</b>	<b>0.72</b>	<b>0.55</b>	<b>1.17</b>	<b>1.42</b>	<b>2.04</b>	<b>2.99</b>		

Tanzania is also a country of concern. Black Rhino population numbers in the Selous Game Reserve have increased in recent years due to conservation efforts, but with the recent elephant census that documented unprecedented elephant losses from poaching and the lowest population count ever, it is unlikely that few, if any, rhino have survived the attrition. Rhino populations in Malawi are also at risk, as well as any remaining animals in Mozambique and Angola.

## Rhino Horn Trade

### *Numbers of rhino horn in illegal trade*

TRAFFIC has been estimating the number of rhino horns going into illegal trade since 2000 using data on the number of rhino horns lost to poaching, stolen from natural rhino deaths, thefts from government stockpiles and other sources, illegal private sector sales and the re-direction of legally sport-hunted trophies; such data are then offset by other data on the number of rhino horns seized, confiscated or recovered in the field. There has been a steady increase in the number of horns going into illegal trade. Commencing at CITES CoP14 (The Hague, Netherlands, June 2007), TRAFFIC



tabled a report on illegal trade in rhino horn that indicated that the number of rhino horns illegally leaving the African continent for Asia has increased in the period 2000-2005 to average 64 horns each year (Milledge, 2007). The IUCN/TRAFFIC report to CITES CoP15 (Doha, Qatar, March 2010), covering the period 2006-September 2009, documented exponential growth in illegal rhino horn trade, estimating that an average of 360 rhino horns was reaching Asia each year (Milliken *et al.*, 2009). The IUCN/TRAFFIC report to CITES CoP16 (Bangkok, Thailand, March 2013), estimated that over the period 2009 - September 2012 a three-fold increase occurred with 1,083 horns each year moving into illegal trade (Emslie *et al.*, 2012). Already data for 2013 indicate that the number of horns leaving Africa will now be exceeding 2,000 rhino horns each year and that recoveries of horn in the field have declined. There is little doubt that the illegal supply of rhino horn out of Africa has greatly increased with the current trade over 30 times greater than what was observed in the year 2000.

### **Key countries of concern**

Before the recent expansion of illegal rhino killing to Kenya, rhino poaching centred upon southern Africa as the major source of horns in trade, whilst the principal end-use market has been and continues to be Viet Nam. Following recommendations in the TRAFFIC/IUCN rhino report to CoP15, the Parties adopted Decision 15.71 calling for the CITES Secretariat to “*examine the implementation of Resolution Conf. 9.14 (Rev. CoP15) in those range States where illegal killing of rhinoceros poses a significant threat to populations of rhinoceros, particularly Zimbabwe and South Africa*” and to “*examine progress with regards to curtailing illegal trade in rhinoceros parts and derivatives by implicated States, particularly Viet Nam.*” At CITES CoP16, the TRAFFIC/IUCN rhino report recommended that the CITES oversight process be expanded to include Mozambique, which functions as a major conduit for illegal rhino horns moving out of Africa, and China, a potential developing end-use market for rhino horn. The CITES Parties responded by adopting Decisions 16.87 and 16.88 which brought Mozambique in the oversight process under the Convention, but did not specifically include China.

### **Characteristics of rhino crime organization**

Illegal trade in rhinoceros horn continues to be one of the most structured criminal activities currently faced by CITES. There are clear indications that organized criminal groups, typically led by African-based Asian nationals, are directly involved in the procurement and illegal movement of rhino horn out of Africa to markets in Asia, especially Viet Nam. It is also established that, whilst these Asian-led groups promote, support and benefit from rhino poaching operations throughout the continent, the illegal hunting itself is mostly done by local or regional African poachers operating in loosely structured and frequently changing groups of shooters and trackers. Apart from major involvement in legal sport hunting operations in the period 2005 through 2010, Asian operatives in Africa do not engage in the illegal hunting themselves.

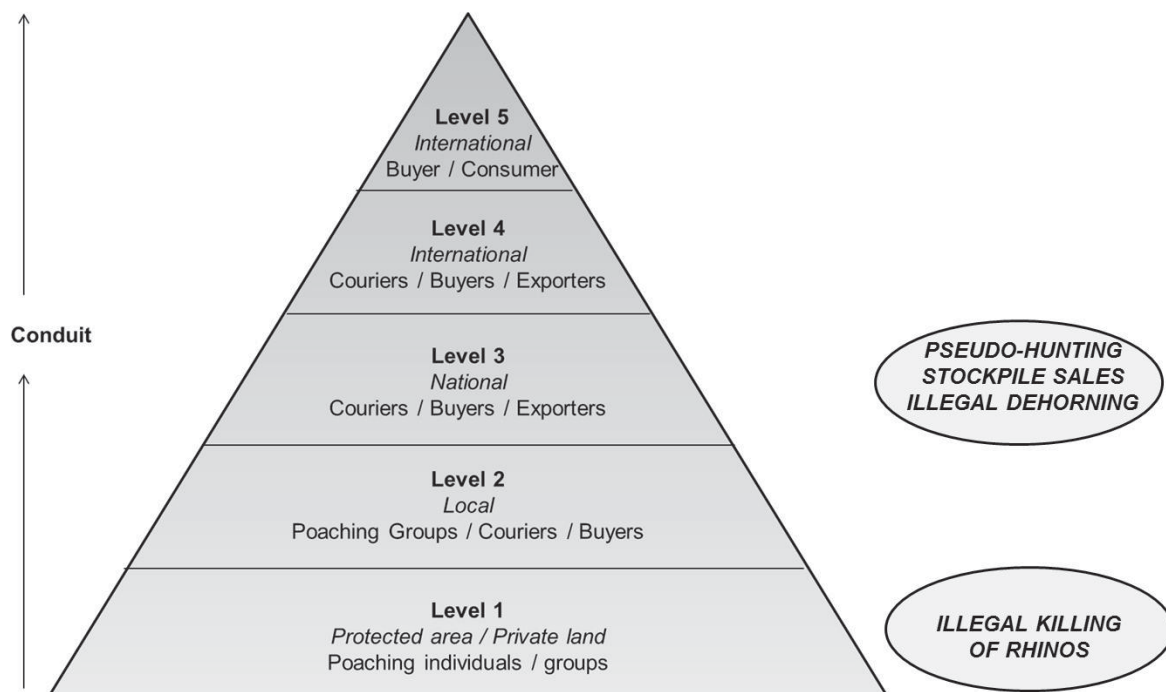
The National Wildlife Crime Reaction Unit (NWCURU) in South Africa is employing a five-level pyramid structure with which to assess how rhino horn trade syndicates operate (Figure 28). The schematic structure attempts to capture the entire trade chain that extends from the poacher at a local level in African range States to an end-use buyer at distant international locations. It can be described as follows:

- At Level 1, the base of the pyramid, lie the individuals and *ad hoc* gangs who poach rhinos. The players in this category generally function as the expendable “foot soldiers” who risk their lives to illegally hunt rhino, but earn the least in terms of the value of the rhino horn. Poverty is a motivating factor and many such poachers opportunistically are recruited from within local African communities surrounding protected areas or private game ranches that have free ranging rhinos, including cross-border situations such as the increasing number of Mozambican nationals poaching in Kruger National Park.
- Level 2 represents players who are better organized and includes those poachers who operate in better structured, mobile associations or gangs consisting of trackers and shooters that may move considerable distances to poach rhino in loosely organized situations, including across borders of neighbouring countries. Also at Level 2 is the subset of more sophisticated poaching gangs that are believed to come from within game ranching

communities and include criminalized professional hunters, veterinarians and other game industry operators, who generally target rhino on other private sector properties. These groups may also simultaneously function as low ranking buyers or local couriers obtaining horns from illegal private sector activities, including dehornings.

- Level 3 middlemen buyers, exporters and couriers sit at the end of national or regional trade chains, are typically nationals of the African countries they operate in, and work through local and regional networks that procure horns through various channels, including pseudo-hunting, thefts, illegal private sector dehornings or unregistered stock sales. Such procurement can be direct or through Level 2 players. These players generally sell their contraband on to those in Level 4, and sometimes illegally move rhino horns across international boundaries within Africa but not on to end-use buyers in foreign destinations.
- It is the Level 4 operatives who are responsible for illegally exporting rhino horns out of Africa to Asian destinations. The dealers at this level are most often African-based, Asian operatives with permanent or long-term resident status within key countries such as South Africa. They typically are linked to networks of collaborators, including corrupt players within the private sector and government. These players are well financed and regularly move within African and between Africa and Asia setting up deals. A subset of players within Level 4 are the individuals who physically move the horns out of Africa as couriers and are either recruited locally or in end-use countries in the context of a particular deal. Although they operate at Level 4, couriers also function as expendable “foot soldiers” who are readily replaceable if detected by law enforcement.
- Level 5 buyers and consumers sit at the end of these trade chains and are residents of foreign countries and generally lie beyond the reach of African law enforcement. Level 5 players control the delivery of the rhino horns into end-use markets and often foster corrupt relationships with government regulators to prevent disruption of the trade at ports of entry.

**Figure 11: Levels of organized crime involved in rhino horn trade**



### Seizures

Since 2009, TRAFFIC has documented a total of 148 rhino horn seizure cases in 21 countries around the world. A little over one-third of the cases provide weight and less than a quarter of the seizure

records give both number of horns or pieces and weights. For the greatest number of cases, only the number of horns or horn pieces that are seized are reported. With few exceptions (the trade in India is noted), most seizure records relate to African rhino, but generally fail to identify which species. In South Africa, the country from which the greatest number of rhino horns for illegal trade derive, about 95.5% of the rhino lost to poaching are White Rhino (Milliken & Shaw, 2012). In estimating horn weights or number of pieces, TRAFFIC uses a modified version of Pienaar *et al.*, 1991, whose metamorphic study found that the mean total horn weight for White Rhino was 5.88 kg or 2.94 kg per horn, and 2.65 kg or 1.33 kg per horn for Black Rhino. Based on the assumption that 90% of the rhino horns in illegal trade represent White Rhinos, an average horn weight of 2.78 kg is used in this report to estimate weights of rhino horns seized when such information is absent. For the Indian data, which certainly represents horns from the Greater One-horned Rhino, 0.96 kg per horn is used. In at least one instance, where rhino horn cups were seized, an estimate of 1 kg is used.

**Table 4: Estimated number of rhino horns and total weight seized, 2009 - March 2014**  
(TRAFFIC data, 27 March 2014)

Year	Number of Seizure Cases	Reported number of rhino horns or pieces of horn <sup>1</sup>	Reported weight (kg) of rhino horns <sup>1</sup>	Estimated number of horns <sup>2</sup>	Estimated horn weight (kg) <sup>2</sup>
2009	16	44	54.03	51	138.91
2010	44	120	85.8	130	373.1
2011	31	76	104.82	84	207.83
2012	26	137	76.17	149	403.83
2013	25	167	137.51	167	346.01
2014	6	35	44.1	35	91.36
<b>Total</b>	<b>148</b>	<b>579</b>	<b>502.43</b>	<b>616</b>	<b>1,561.04</b>

1 Many cases only report number of rhino horns/pieces or the weight but not both variables.

2 The basis for estimating missing variables and arriving at these figures is described in the text above.

Using these variables, TRAFFIC estimates that a minimum of 616 rhino horns, weighing approximately 1,561 kg, have been seized throughout the world over the last five years and three months (Table 4). It is acknowledged that these data remain incomplete in all years and are frequently being augmented as new information becomes available. Although 2013 represents the year in which the largest number of rhino horns were seized, a greater quantity of rhino horn by weight is estimated to have been seized in 2012. However, it is not possible to establish illegal trade trends by using seizure data unless bias adjustment is made to correct for differences in law enforcement effort and rates of reporting (Underwood *et al.*, 2013); for rhino horn trade, a method for doing this has yet to be perfected and Table 4 should not be interpreted as indicating trends in the illegal trade.

**Figure 12: The average quantity of rhino horn (kg) per seizure by year, 2009-March 2014**

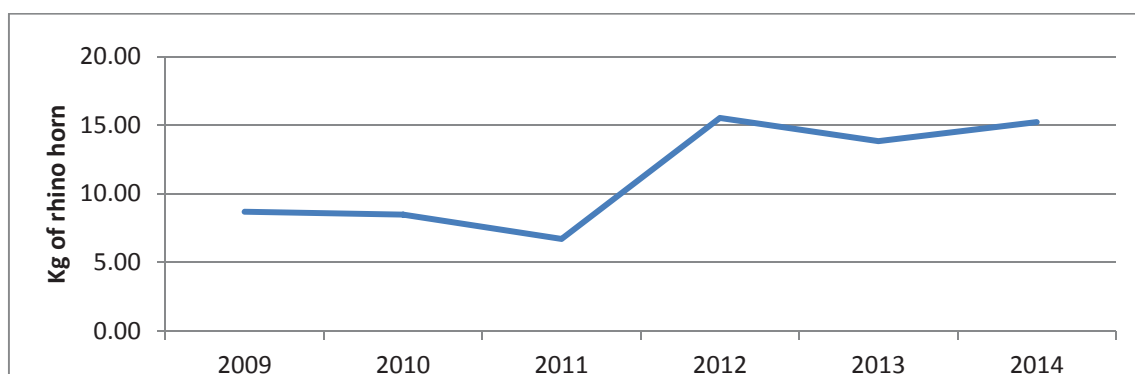


Figure 12 suggests that larger consignments of rhino horn have been seized over the last three years when compared with the period 2009 through 2011. The number of rhino horns now averages five

horns per seizure as opposed to three horns in the earlier period. This is not surprising given the greater number of rhino being poached each year. Likewise, it is not surprising that South Africa has made more rhino horn seizures than any other country (Table 5). Add in second and third-ranked China and Viet Nam, the two major consumer States for contraband rhino horns, and these three nations account for nearly 70% of all seizure cases in the data.

**Table 5: Number of rhino horn seizures by country and mode of transport, 2009 - March 2014 (TRAFFIC data, 19 March 2014)**

Country	Land	Air	Sea	Mail	Total	Country	Land	Air	Sea	Mail	Total
<b>Rhino Range States</b>						<b>Non-range States</b>					
India	7				7	Belgium	1				1
Kenya	1	3	1		5	Czech Republic	1	2			3
Mozambique	2	2	1		5	Germany	1				1
Namibia		1			1	Ireland		1			1
South Africa	42	11			53	Netherlands	1				1
Zambia	1				1	Slovakia		1			1
Zimbabwe	5				5	United Kingdom		1			1
<b>Subtotal</b>	<b>58</b>	<b>17</b>	<b>2</b>	<b>0</b>	<b>77</b>	United States	1				1
						<b>Subtotal</b>	<b>5</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>10</b>
<b>Asian Transit/Consumer States</b>											
China	14	17		1	32	<b>Grand Total</b>	<b>82</b>	<b>60</b>	<b>5</b>	<b>1</b>	<b>148</b>
Hong Kong		2	2		4						
Philippines			1		1						
Singapore		1			1						
Thailand		7			7						
Viet Nam	5	11			16						
<b>Subtotal</b>	<b>19</b>	<b>38</b>	<b>3</b>	<b>1</b>	<b>61</b>						

For range States, three-quarters of all rhino horn seizures have occurred in the field (i.e. protected areas, game ranches or surrounding areas) in association with a rhino poaching incident or during the course of subsequent investigative or law enforcement action before the horns are exported abroad. Airports rank second (22%) in terms of seizure location prominence, with most seizures occurring as Level 3 and 4 couriers attempt to move rhino horns regionally within Africa or internationally to Asian destinations. Thus, airport law enforcement protocols for detecting and seizing rhino horns are extremely important in key countries along important trade chains. Unlike the situation for elephant ivory, seaports are rarely used as conduits for moving rhino horn unless they are part of an illegal ivory consignment (as was the case for both the Kenya and Mozambique instances noted in Table 5).

For transit and destination countries in Asia, the detection of rhino horn most typically occurs at airports (62%) and it is important to consider the development of preemptive strategies for the detection and interdiction of rhino horns along frequently used airline routes (Table 5). Some countries, such as Thailand and Singapore, whose international airports function as major transport hubs between Africa and the largest end-use market in Viet Nam are regular pathways as they offer direct flights from South Africa, Kenya and Ethiopia, or indirect flights from Dubai, Abu Dhabi or Doha. Direct flights also link these three African countries with China (particularly Beijing, Guangzhou) and have been used to transport illegal rhino horns. Both Viet Nam and China continue to make rhino horn seizures at its major airports, but only China appears to be targeting particular airlines (for example, Kenya Airways, Ethiopian Airlines, Emirates, Etihad Airways and Qatar Airways). Hong Kong and Philippines have also made rhino horn seizures in the context of large-scale ivory seizures but, for the most part, the transport of high-value, low weight rhino horns to Asia is based upon air travel.



Elsewhere in Europe and North America, small numbers of airport seizures occur and targeted investigations or opportunistic events on land result in other seizures. The Czech Republic in particular has made seizures of over three dozen rhino horns transiting through the country en route to Viet Nam or South-East Asia from suspected pseudo-hunts in South Africa.

**Table 6: Number of rhino horn seizures by country of destination, 2009 - March 2014**  
(TRAFFIC data, 19 March 2014)

Country of destination	Number of seizure cases	Estimated number of horns seized	Estimated weight of rhino horns seized	% of total weight of horns seized
Viet Nam	34	228	573.88	36.76
China	46	191	470.85	30.16
Thailand	4	19	34.94	2.23
Malaysia	2	7	19.46	1.25
Lao PDR	1	5	15.3	0.98
Nepal	1	1	0.75	0.05
<b>Subtotal</b>	<b>88</b>	<b>451</b>	<b>1,115.18</b>	<b>71.44</b>
<b>Unknown</b>	<b>60</b>	<b>165</b>	<b>445.86</b>	<b>28.56</b>
<b>Grand Total</b>	<b>148</b>	<b>616</b>	<b>1,561.04</b>	

Table 6 presents the relative importance of end-use destinations for rhino horn but, because so many seizures occur without knowing or determining the final markets, these results are indicative and not conclusive. Although China shows better law enforcement having made a greater number of rhino horn seizures, a significantly greater number of horns have been directed to Viet Nam. In fact, Viet Nam is noted as the world's largest consumer of rhino horns at the present time, although the market in China is believed to be growing. The rhino horns noted as going to Thailand, Malaysia or Lao PDR are probably in reality destined for either Viet Nam or China. Likewise, Indian horns moving into Nepal are also most likely for onward movement into China probably via Tibet.

### Arrests

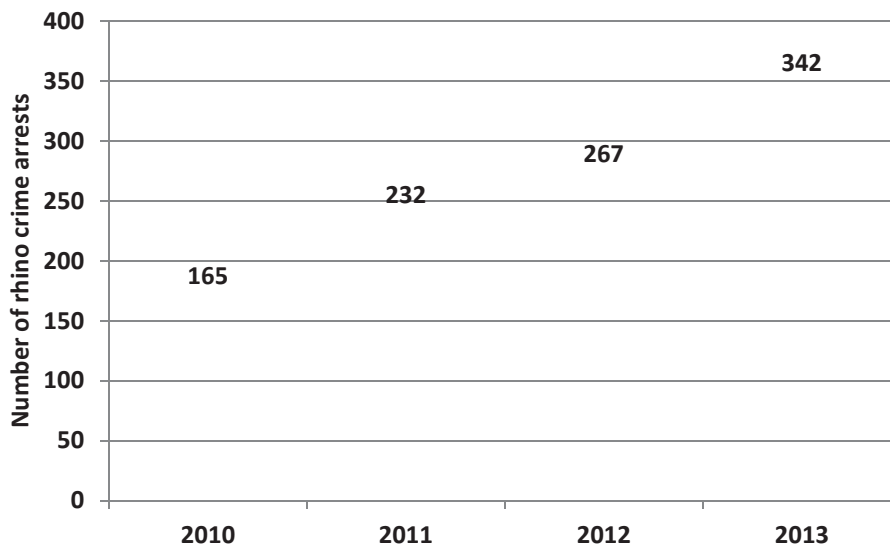
From the mid-2000s through May 2012, TRAFFIC tracked 64 rhino horn seizure cases in South Africa that yielded 186 rhino horns. Over one-third of these seizures occurred in Gauteng province, with at least 12 seizures at O.R. Tambo International Airport involving individuals attempting to export 56 rhino horns out of the country illegally. During this period, the role of South Africa's major airport was undisputed as a significant trade route. More recently, however, the criminal syndicates behind the trade seem to avoid O.R. Tambo and there is growing evidence that rhino horn smuggling out of neighbouring Mozambique has substantially increased.

Anti-poaching in the field and law enforcement along the rhino horn trade chain is critical if rhino poaching and illegal trade in rhino products is to be curbed. South Africa's record is laudable in the sense that a steadily increasing number of individuals have annually been detected and arrested through a range of law enforcement actions (Figure 12). The rate of successful arrests has doubled between 2010 and 2013 and currently nearly one arrest for rhino crime is occurring each day in the country.

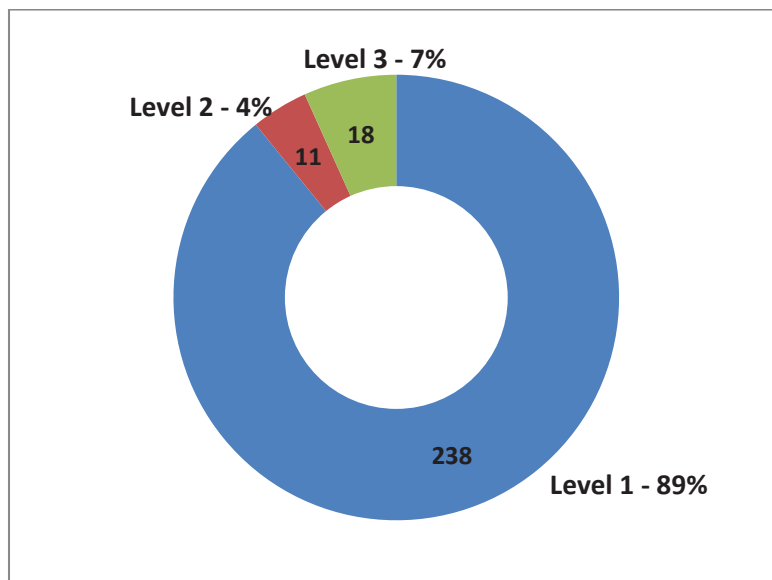
But the critical question is whether or not high-value arrests are occurring? The 2012 data on arrests have been broken down into where the individuals rank in terms of the five levels described in Figure 11 above. As can be seen in Figure 13, the vast majority of the arrests concern poachers at the lowest level of the pyramid structure and the evidence suggests that the very large number of arrests has really made no difference whatsoever in the rate of poaching that continues to increase. There clearly is a vast, ever-ready, number of potential poachers to fill this role. Further up the trade chain, only 11 receivers or couriers in Level 2 and 18 couriers or buyers in Level 3 were arrested in 2012,

but no arrests occurred at the critical linkage that connects South Africa with Asia in Level 4 or with respect to end-use market dealers in Level 5. The challenge of identifying those who are directing the crime, not just the endless parade of “foot soldiers” killing the rhinos and acting as local couriers for the contraband horn, remains an acute one.

**Figure 12:** *Number of individuals arrested for rhino crime in South Africa, 2010 – 2013 (Data from Department of Environmental Affairs)*



**Figure 13:** *Number of arrests in South Africa at different levels, 2012 (Data from DEA)*



## Summary Conclusions

- Rhino poaching has continued to escalate since 2006 and reached record levels in 2013 when an average of three rhinos were illegally killed every single day. Current poaching rates have effectively stalled further growth in rhino numbers at the continental level and some experts are concerned that two key rhino populations, South Africa and Kenya, could commence population decline within the next one or two years if conditions on the ground do not improve. Zimbabwe's

rhinos have already experienced significant decline although the last two years shows some promise of recovery. Africa's rhinos face an ongoing crisis.

- Illegal trade in rhino horn has also reached the highest levels since the early 1990s and last year nearly 2,000 rhino horns are estimated to have gone into illegal trade. Comparatively speaking, the illegal supply of rhino horn out of Africa is now over 30 times greater than what was observed in the early 2000s.
- The rhino horn trade is currently being driven by resurgent demand in Viet Nam, a country that previously (in the 1970s, 1980s and 1990s) was not part of trade. China is also emerging as a key consuming country.
- Rhino horn trade is one of the most heavily criminalized facets of the global wildlife trade with African-based Asian syndicates responsible for moving large volumes of rhino horn to end-use markets in Asia. With almost no high-value arrests within the leadership of these transnational criminal organizations, so far law enforcement within Africa has met with little success in dealing with rhino crime.
- Most rhino horn is illegally transported by air using specially-recruited couriers who typically carry the contraband in carry-on or check-in luggage. International airports in Johannesburg, Maputo, Nairobi and Addis Ababa in Africa, and Dubai, Doha and Abu Dhabi in the Middle East are frequently involved in the movement of rhino horn between Africa and Asia, especially the international airports in Beijing, Guangzhou, Hong Kong, Bangkok and Singapore. Viet Nam, the principal destination, does not have any direct air linkages with Africa and relies on transit countries to serve as intermediaries along the trade chain.
- Occasionally rhino horn is moved through containerized shipping by sea, but always in the context of being part of a larger illegal consignment of elephant ivory.
- The Czech Republic has been implicated in the illegal trade as there was a marked increase in legal hunting permits from South Africa to Czech nationals in 2011 with several subsequent rhino horn seizures made in the Czech Republic en route to South-East Asia and Vietnam in the past 3 years.

## Assessment Recommendations

- The rhino trade focus of Wildlife TRAPS, at least in the first instance, should primarily be directed at the detection and interdiction of rhino coming out of South Africa, Mozambique and Kenya as these countries are experiencing the greatest losses or serving as conduit to move rhino horns abroad.
- Attention in Africa should be focused upon key international airport hubs, for example, Nairobi (Kenya), Addis Ababa (Ethiopia), Maputo, Nampula and Pemba (Mozambique), Dar es Salaam (Tanzania) and Entebbe (Uganda) and address shortfalls in training, technology and the use of law enforcement tools (for example, sniffer dogs, risk assessment, informer networks).
- Engage a new variety of stakeholders to employ more sophisticated law enforcement techniques to target individuals and the networks in which they operate at higher levels. Significant sums of money are being earmarked for ground level anti-poaching efforts, which is equally important, however, greater emphasis should be placed on training specialized intelligence units focusing on disrupting the organized crime networks, by identifying key individuals and financial flows.
- Monitoring of judiciary performance is critical if arrests are to result in convictions and deterrent sentencing as currently the courts are undermining any advances in terms of better investigations and arrests.

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

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