CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA

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Fourteenth meeting of the Conference of the Parties
The Hague (Netherlands), 3-15 June 2007

Interpretation and implementation of the Convention

Species trade and conservation issues

Elephants

MONITORING OF ILLEGAL TRADE IN IVORY AND OTHER ELEPHANT SPECIMENS

This document has been submitted by TRAFFIC.

Executive Summary

This summary is based upon the comprehensive assessment of the ETIS data by T. Milliken, R.W. Burn and L. Sangalakula found in CoP14 Doc. 53.2, Annex 1 and 2. For a more in depth account of the various analyses and the issues they raise, readers are advised to consult the more complete document. This submission from TRAFFIC satisfies all of the reporting requirements for ETIS as specified in Resolution Conf. 10.10 (Rev. CoP12) and constitutes the ETIS analysis for the fourteenth meeting of the Conference of the Parties to CITES (CoP14). Descriptions of the ETIS structure and database components were most recently presented in the ETIS submission to CoP13 (see CoP13 Doc. 29.2, Annex). TRAFFIC would like to acknowledge with gratitude the United Kingdom's Department of Environment, Food and Rural Affairs (DEFRA) for generously providing funding support for the operation and management of ETIS since CoP13, including the production of this report.

PART I: THE ETIS DATA

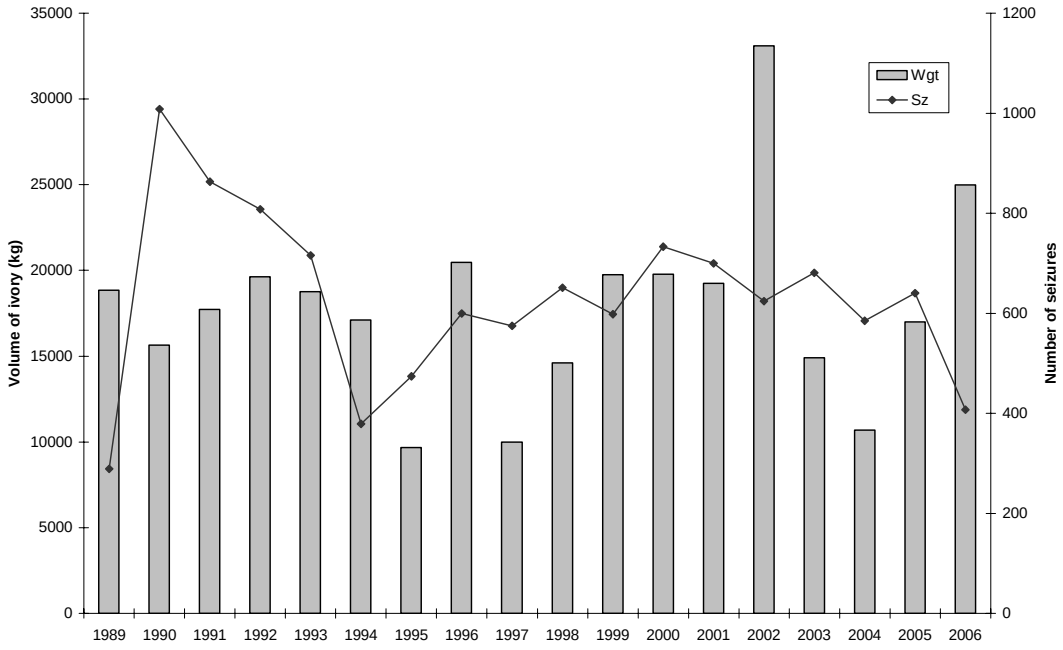
Number of records: ETIS comprises the world's largest collection of elephant product seizure records covering the period 1989 to the present. Data entry functions were temporarily suspended on 05 March 2007 in order to produce this analysis. At that date, ETIS comprised 12,378 elephant product seizure records, representing law enforcement actions in 82 countries or territories since 1989 (see CoP14 Doc. 53.2 Annex 2).

Data collection: In comparison to the ETIS analysis prepared for CoP13 in 2004, this analysis is based upon 2,952 more records of elephant product seizures. Representing better rates of reporting or data collection effort, the number of elephant product seizure cases entering ETIS now averages 92 cases per month. Verification of another 576 records remains pending, including 49 cases which the Lusaka Agreement Task Force (LATF) provided in a table in *Loxodonta africana* CoP14 Prop. 6 (Kenya and Mali). Finally, another 174 records of pending cases have been rejected following repeated, but unsuccessful, attempts over several years to verify the cases with government authorities in the relevant countries or territories, including 151 cases which had previously been submitted by the Born Free Foundation.

Volume of ivory represented in the seizures database: Collectively, it is estimated that a total of over 322 tonnes of ivory has reportedly been seized throughout the world and reported to ETIS from 1989 onwards. Using a classic bar and line graph representation, Figure 1 depicts the volume of ivory seized and the number of cases upon which the data are based for each year since 1989. The number of seizures involving elephant ivory ranges from a low of 289 cases in 1989 to a high of 1,008 in 1990,

with a mean value of 630 cases each year. In the data, ivory volumes fluctuate between 9,668 kg in 1995 and 33,090 kg in 2002, with a mean value of 17,883 kg each year.

Figure 1: Estimated volume of ivory and number of seizure cases by year, *1989-2006 (ETIS 05 March 2007)*



PART II: AN ANALYSIS OF TRENDS IN IVORY SEIZURES IN THE ETIS DATA

Background: Resolution Conf. 10.10 (Rev. CoP12) calls for ETIS to measure "*levels and trends, and changes in levels and trends*" of illegal trade in ivory. This analysis aims to achieve that requirement by addressing the following question:

– *What is the trend in the illicit trade in ivory since 1989 to the present and how has it changed over time?*

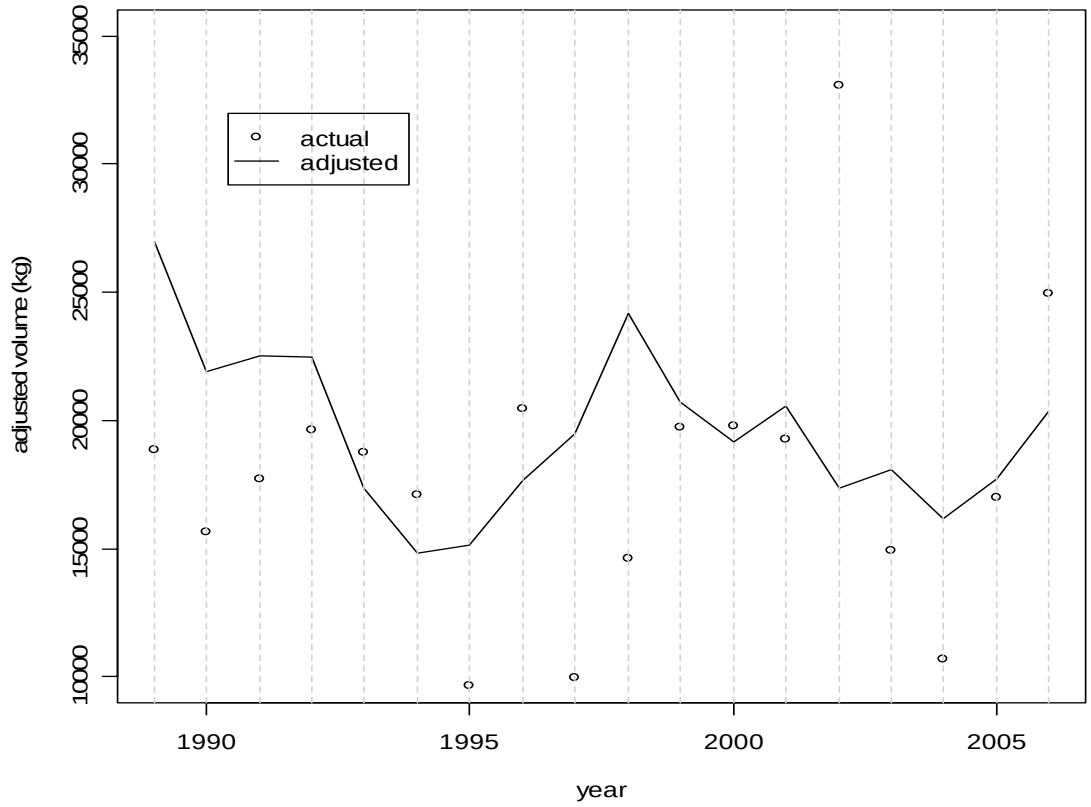
Conceptual framework: ETIS is not designed to determine absolute levels of illegal trade in elephant ivory. For a variety of reasons, it is simply not possible to know the exact number of, and details for, every single ivory seizure which has occurred in the world from 1989 onwards. Many seizures go unreported to ETIS and do not become part of the information base at hand. Over time, however, an increasing number of elephant product seizures have been made and reported to ETIS. These cases reveal not only where and in what quantities ivory was seized but, in 80% of the records, other information is provided, such as the origin and trade route of the ivory. Thus, countries which never report ivory seizures can be 'captured' and assessed in the context of seizure events that take place elsewhere in the world. Collectively these records form a time-based, country-specific information base, analogous to a 'window' through which it is possible to assess the scale, frequency and dynamics of illicit trade in elephant ivory. It needs to be recognized, however, that the 'view' through this window is inherently imperfect because of bias in the data, but it can be substantially improved if independent proxy measures are used to mitigate the factors which create bias. An integral part of the ETIS information system includes a series of subsidiary databases which track law enforcement effort, efficiency and rates of reporting. By using proxy measures to adjust the data, it becomes possible to produce trends that are believed to reflect, in a general manner, the relative trends in illicit trade in ivory that are actually occurring over the period of time under consideration.

Methodology: The methods for the trend analysis were basically the same as those previously used in the ETIS reports to past CITES CoPs. In this analysis, the year 2007 was excluded for being 'data deficient' and the trend addresses the years 1989-2006. Excluding seizures of non-ivory elephant products, 11,338 records reported by 82 countries or territories were assessed. Although direct measurements of

the causes of bias in the data are not available, a number of proxy variables were used as substitutes. The main sources of bias are variation in law enforcement effort and efficiency, variation in reporting rate, and uneven data collection. The proxy variables used as corrective measures include the Corruption Perception Index of Transparency International, the Law Enforcement Effort Ratio, the CITES Annual Report Ratio and the Data Collection Score of ETIS for each country in each year (see CoP13 Doc.29.2, Annex for descriptions of these databases).

Assessing the trend 1989-2006: The data were adjusted to reduce bias, allowing the underlying trend (the solid line) to become evident over the actual reported volumes of ivory seized (the circles) (Figure 5).

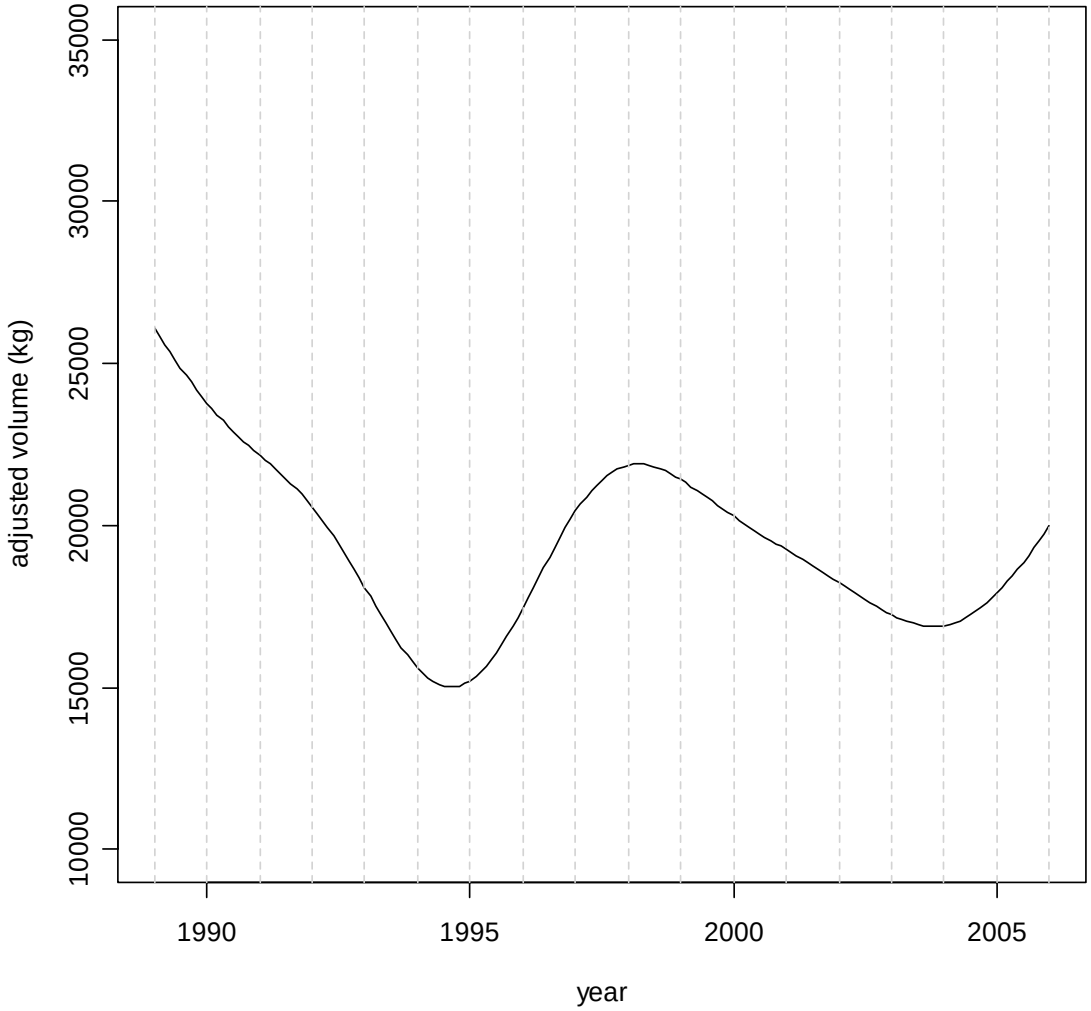
Figure 5: Adjusted trend 1989-2006 with actual volume of ivory in 'raw ivory equivalent' terms (ETIS 05 March 2007)



As in previous analyses of the ETIS data, the trend line demonstrates a general decline in the volume of ivory seized between 1989 through 1995, and then progressively increases to peak in 1998. In a new development seen in this analysis over previous iterations of the trend analysis, the trend line falls somewhat erratically over the next six years from 1999 through 2004. From 2005 onwards, however, there is an upward thrust which is all the more remarkable considering that data for 2005 and 2006 are believed to represent somewhat incomplete datasets. As more seizure data are reported for these years, it is likely that the upward trend will become even sharper.

It is possible to remove the more extreme fluctuations of Figure 5 and depict a smoothed adjusted trend line for the illicit trade in ivory. As such, the trend shows a fairly similar result: a steady decline in the seizure of illicit ivory through 1995, followed by a sharp increase from 1996 through 1998. Thereafter, the trend demonstrates a gradual decline in ivory seizures to 2004, but this is again followed by resurgent upward movement from 2005 onwards.

Figure 6: Smoothed adjusted trend 1989-2006 with actual volume of ivory in 'raw ivory equivalent' terms (ETIS 05 March 2006)



The fact that illicit trade in ivory is once again increasing is serious cause for concern. It is especially worrying that the recent sharp increase takes place following the adoption of Decision 13.26 to address the world's unregulated domestic ivory markets, which in the ETIS analysis to CoP13 was identified as the principal causative factor behind illegal trade. The trend clearly suggests that Decision 13.26 is not having the desired impact and it needs to be more forcefully implemented if a decline in illicit trade in ivory is to be realized in the future.

PART III: THE SPATIAL ASPECTS OF THE ETIS DATA

Background: Resolution Conf. 10.10 (Rev. CoP12) calls for ETIS to establish "*an information base to support the making of decisions on appropriate management, protection and enforcement needs*". A spatial analysis of the ETIS data has been recognised as an adept means to identify those countries or territories where management, protection and enforcement needs in terms of illegal trade in ivory are likely to be the greatest. This effort will strive to answer the following questions:

– *Which countries or territories are playing leading roles in the illicit trade in ivory? and*

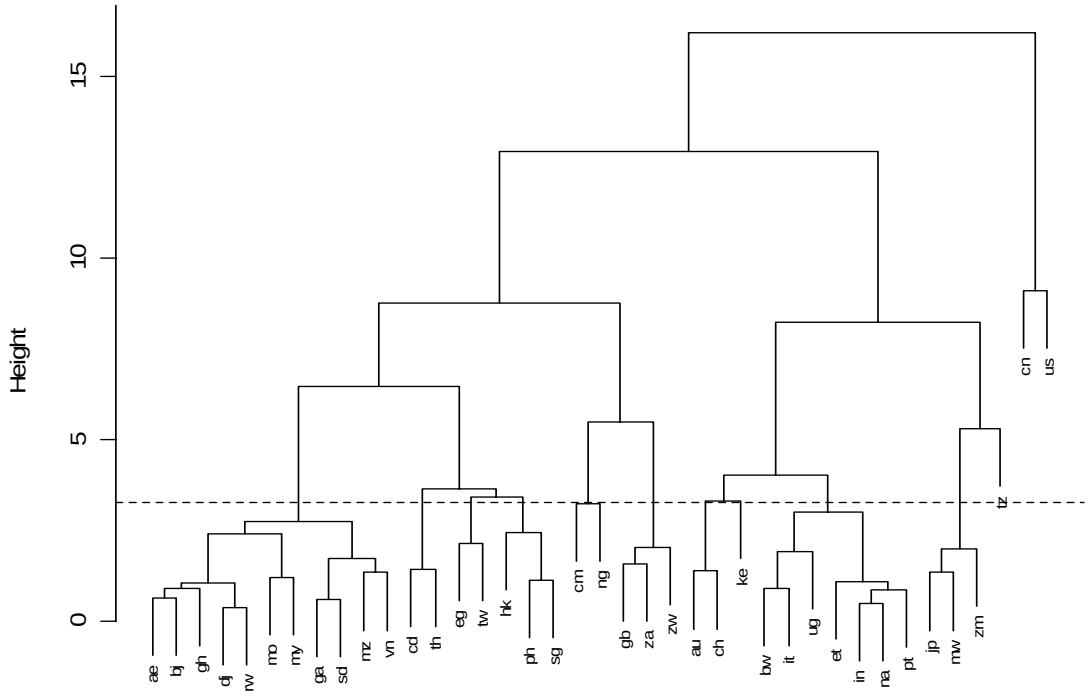
– *What are the characteristics of this involvement in illegal trade in ivory?*

Methodology: The spatial analysis is based upon agglomerative hierarchical cluster analysis that results in the establishment of well-defined groups (or clusters) of countries or territories. The characteristics of these groups in terms of numbers of seizures, volumes of ivory seized and other key factors can then be described in order to understand the underlying ivory trade dynamics. This method of analysis serves to

isolate those countries that, according to the ETIS data, account for the largest proportion of the illegal trade in ivory since 1989, while countries and territories of lesser importance are screened out of the analysis. In this manner, cluster analysis eliminates a considerable portion of the 'background noise' to sharpen the focus on those countries or territories that are unquestionably playing the most important roles in the illicit trade in ivory.

The 11,331 ivory seizure records made by 82 countries or territories between 1989 and 2006 collectively implicated 164 countries or territories around the world in the illicit trade in ivory. To distinguish between historical and relatively recent patterns of trade, the ETIS data were divided into two periods: 1989-1997 and 1998-2006. The period 1998-2006 is of primary interest because these years most directly reflect trade dynamics that are contemporary and would be most responsive to mitigating measures and interventions at the present time. An initial subjective screening of the data and a preliminary cluster analysis reduced the number of countries under consideration from 164 to 39. The data for these countries were adjusted to remove bias and then subjected to cluster analysis to produce a dendrogram (Figure 9).

Figure 9: The cluster analysis



Key: AE-United Arab Emirates; BJ-Benin; GH-Ghana; DJ-Djibouti; RW-Rwanda; MO-Macao; MY-Malaysia; GA-Gabon; SD-Sudan; MZ-Mozambique; VN-Vietnam; CD-Democratic Republic of the Congo; TH-Thailand; EG-Egypt; TW-Taiwan; HK-Hong Kong; PH-Philippines; SG-Singapore; CM-Cameroon; NG-Nigeria; GB-United Kingdom; ZA-South Africa; ZW-Zimbabwe; AU-Australia; CH-Switzerland; KE-Kenya; BW-Botswana; IT-Italy; UG-Uganda; ET-Ethiopia; IN-India; NA-Namibia; PT-Portugal; JP-Japan; MW-Malawi; ZM-Zambia; TZ-Tanzania; CN-China; US-United States

In this figure, the 'height' axis, which ranges from 0 to 15, represents a relative measure of dissimilarity between clusters. The degree of vertical separation between various clusters along this axis is indicative of their differences. Cluster groupings can be obtained by 'cutting' a horizontal line at any point across the figure. In this analysis, a 'cut' (represented by the dashed line in Figure 9) was made at approximately 3.5 units, resulting in the formation of 13 clusters whose underlying characteristics could be assessed effectively. Table 3 presents summary aggregated statistics for the 13 groups arranged according to their 'mean market score' that derives from the *Domestic Ivory Market Database* in ETIS.

Table 3: Summary statistics for the 13 groups of the cluster analysis (1998-2006)

		Measure of Frequency	***Measure of Scale***	***Measure of Period of Activity***	***Measures of Law Enforcement Effort Efficiency and Rates of Reporting***		***Measure of Internal Ivory Trade***
Group	**Countries**	**Mean no. of seizures[1]**	**Mean weight (kg)[2]**	**Percentage of weight in recent period[3]**	**Mean CPI[4]**	**Mean LE/reporting ratio[5]**	**Mean market score[6]**
1	CD, TH	144	9,412	0.65	2.6	0.13	16.0
2	CM, NG	223	11,039	0.73	1.8	0.05	14.8
3	CN	729	39,375	0.91	3.4	0.58	12.0
4	EG, TW	70	7,036	0.55	4.5	0.57	11.2
5	HK, PH, SG	79	11,858	0.69	6.7	0.21	9.0
6	GB, ZA, ZW	401	5,808	0.46	5.4	0.44	8.8
7	AE, BJ, DJ, GA, GH, MO, MY, MZ, RW, SD, VN	41	2,823	0.84	3.6	0.11	8.5
8	US	1,191	10,817	0.50	7.6	0.86	7.0
9	JP, MW, ZM	97	11,331	0.64	4.3	0.66	6.8
10	BW, ET, IN, IT, NA, PT, UG	136	3,692	0.37	4.3	0.80	2.4
11	AU, CH	354	2,050	0.75	8.7	0.93	1.0
12	KE	304	13,418	0.73	2.1	0.84	-2.0
13	TZ	159	27,686	0.50	2.5	0.77	-2.0

[1] *Frequency* is measured by the 'mean number of seizures' in the period 1998-2006 (i.e. the total number of all seizures which were made or have implicated a particular country/territory divided by the number of entities in the cluster); high numbers indicate greater frequency; low numbers indicate lesser frequency.

[2] *Scale* is measured by the 'mean weight' in the period 1998-2006 (i.e. the total volume of ivory represented by all seizures which were made or have implicated a particular country/territory divided by the number of entities in the cluster); high numbers indicate greater volumes of ivory; low numbers indicate lesser volumes of ivory.

[3] *Period of activity* is measured by the 'percentage of weight in recent period' (i.e. the total weight in the period, 1998-2006, divided by the total weight from both periods 1989-2006); values show the percentage of the total weight which represents activity in the recent period.

[4] *Law enforcement effort, effectiveness, and rates of reporting* is measured, firstly, by the 'mean CPI' (i.e. the total Corruption Perception Index score for each country in the period 1998-2006 divided by the number of entities in the cluster divided by the number of years); scores range from 1.0 (highest perception of corruption) to 10.0 (lowest perception of corruption).

[5] *Law enforcement effort, effectiveness, and rates of reporting* is measured, secondly, by the 'mean LE/reporting ratio' in the period 1998-2006 (i.e. the total number of in-country seizures divided by the total number of seizures divided by the number of entities in the cluster); ratios range from 0.00 (no law enforcement effort) to 1.00 (best law enforcement effort).

[6] *Internal ivory trade* is measured by the 'mean market score'; scores range from –4 (no or very small, highly-regulated domestic ivory markets and carving industries) to 20 (very large, unregulated domestic ivory markets and carving industries).

Discussion of the results: The following can be said about the 13 groups of countries and territories that derive from the cluster analysis:

Group 1 – Democratic Republic of the Congo (CD) and Thailand (TH): For the third consecutive time, these two countries fall in the same cluster with extremely problematic variables. In terms of frequency and scale, this cluster ranks in the middle range, indicating fairly regular involvement in the illicit trade in ivory. For period of activity, these two countries were more active in the recent period, 1998-2006, where two-thirds of the trade occurred. Effective law enforcement continues to be a very serious issue in both countries as noted by the low CPI and law enforcement effort scores, suggesting a very high perception of corruption and extremely lax law enforcement effort. Equally, the domestic ivory market score is the greatest of any cluster, indicating a potent internal trade dynamic. In summary, the same general description of these countries characterized previous ETIS analyses in 2002 and 2004. Since then, little progress appears to have been made in these countries in implementing Resolution Conf. 10.10 (Rev. CoP12) requirements for internal trade in ivory or the CITES action plan pursuant to Decision 13.26.

Group 2 – Cameroon (CM) and Nigeria (NG): Neighbouring countries Nigeria and Cameroon form a cluster this time, ranking in the middle range in terms of frequency and scale but with somewhat higher values than the previous cluster. With respect to the period of activity, nearly three-quarters of the illicit trade has transpired since 1998, indicating much recent activity. This cluster has the highest CPI score and the lowest level of law enforcement effort of any group. By the same token, this grouping has the second highest score for its domestic ivory market, again indicating considerable internal trade in ivory with little regulation by the government. Overall, these results essentially mirror the findings of previous ETIS reports. This is another case where there appears to be little positive change in status to indicate effective implementation of Resolution Conf. 10.10 (Rev. CoP12) requirements for internal trade in ivory and the CITES action plan under Decision 13.26.

Group 3 – China (CN): China forms a single country cluster with the second highest values for the number of seizures and the highest value for weight, indicating persistent involvement in high-volume illicit trade in ivory. At 91%, China also has the highest percentage of its trade occurring in the recent period. China clearly remains the most important contemporary player, a result that continues to amplify findings in previous ETIS analyses, however, some fundamental changes have occurred which demonstrate positive developments. China's law enforcement effort scores have improved markedly, rising from 6% in 2002 to 30% in 2004 to 58% in the current analysis. Given the scale noted in the measure of frequency for China's trade, the positive trend in the law enforcement effort ratio could only be achieved through an unprecedented effort to interdict illicit trade in ivory. The domestic ivory market score has also progressively dropped, but overall, China continues to face a major challenge as it continues to be the most important country globally as a destination for illicit ivory.

Group 4 –Egypt (EG) and Taiwan, province of China (TW): While Egypt and Taiwan (province of China) have appeared in the previous cluster analyses on both occasions, this time they form a cluster together. The values for frequency and scale fall at the low end of the scale, but the infrequent number of seizures often involve fairly large consignments of ivory. Occurrence of trade is fairly evenly split between the two periods, demonstrating a fairly constant involvement in the ivory trade. The CPI score and law enforcement effort ratio fall in mid-range positions, but the domestic ivory market score is rather high, largely due to the scale of the Egyptian market.

Group 5 – Hong Kong SAR (HK), the Philippines (PH) and Singapore (SG): All of these countries and territories have repeatedly appeared in each of the ETIS cluster analyses in the past, but never in the same groups. This cluster exhibits rather infrequent involvement in ivory seizures, but when incidences do occur they often involve high-volume cases, with 69% of the activity falling in the recent period. While the CPI variable is in an acceptable mid-range position, the CPI score would actually be much better if not for the negative influence of the Philippines. The law enforcement effort score is exceptionally poor, indicating that these countries or territories collectively are only making about one-quarter of the seizures in which they are implicated. The domestic ivory market score is in the mid-range, but this is largely due to the influence of Hong Kong SAR, where a very large market is found. Overall, the situation in the Philippines is most worrying and close examination of the implementation of Decision 13.26 with respect to that country appears warranted.

Group 6 – United Kingdom (GB), South Africa (ZA)and Zimbabwe (ZW): The United Kingdom and Zimbabwe, which formed a cluster in the previous ETIS analysis, are joined by South Africa. Although frequently involved in ivory product seizures, the low value for weight suggests that most seizures are small, and the scale of the trade is fairly balanced between the two periods. The CPI score is in the mid-range, indicating lower perceptions of corruption than many other clusters, but the law enforcement effort ratio indicates a less than average performance. To some extent, however, the seizure of worked ivory products that were legally exported from Zimbabwe confounds this variable and results in a lower value than would normally be expected if stricter domestic measures were not an issue. The domestic ivory market score is also in the mid-range, but the market in Zimbabwe is about twice the size of those found in either South Africa or the United Kingdom.

Group 7 – United Arab Emirates (AE), Benin (BJ), Djibouti (DJ), Gabon (GA), Ghana (GH), Macao SAR (MO), Malaysia (MY), Mozambique (MZ), Rwanda (RW), Sudan (SD), and Vietnam (VN): This cluster of eleven countries and territories, the largest grouping in the analysis, stands as a bit of a 'catch-all' group. It includes seven entities - Benin, Gabon, Ghana, Macao SAR, Malaysia, Rwanda and Vietnam - which have never featured in the cluster analysis in previous ETIS reports. These countries are infrequently implicated in ivory seizures which generally only have modest weight values. With 84% of the trade being seized since 1998, this group has become far more active in recent years. The low value CPI score, indicating a high perception of corruption, and one of the poorest values for law enforcement effort are cause for concern. The mid-range score for domestic ivory markets suggests that some countries have active internal ivory markets, including Gabon, Ghana, Macao SAR, Mozambique, Sudan and Vietnam. If not careful, in future iterations of this analysis, some of these countries are likely to move into more problematic clusters.

Group 8 – United States (US): The United States continues to rank highest in terms of number of seizures, but in the middle in terms of weight. This suggests mostly small-scale seizures, but some part of the traffic does involve larger shipments of ivory that may be commercial in nature. The illicit trade is equally split between the two periods. The high value CPI score and the law enforcement effort ratios are commendable. The domestic ivory market score has decreased somewhat, but is still in the mid-range and should be watched.

Group 9 – Japan (JP),Malawi (MW), and Zambia (ZM): This cluster has a fairly low value for number of seizures, but a much larger value for weight, indicating that many seizures entail large volumes of ivory. About two-thirds of the trade is in the most recent period, suggesting considerable recent activity, which was not the case for Japan in the 2002 ETIS analysis. The law enforcement effort ratio is 66%, indicating a better than average performance in terms of interdiction of illicit consignments. The domestic ivory market score is in the mid-range, but that primarily reflects the influence of Japan. While the Japanese market is highly structured to enhance regulatory oversight, it has been found deficient in some respects in recent years necessitating further improvements.

Group 10 – Botswana (BW), Ethiopia (ET), India (IN), Italy (IT), Namibia (NA), Portugal (PT) and Uganda (UG): Italy, for the first time in an ETIS report, and Ethiopia, which previously was noted as a country of major concern, both fall in this cluster. In terms of frequency and scale, this cluster is the opposite of the preceding cluster with slightly more seizures but lower weight values. With only 37% of the trade transpiring since 1998, instances of illicit activity appear to be dropping. The low value CPI score indicates that the perception of corruption is an important issue in some countries, but the law enforcement effort ratio indicates a fairly determined and effective response. The domestic ivory market score is also very low. It is worth noting Ethiopia's remarkable progress by falling within this cluster, largely resulting from the country's active response to Decision 12.39 adopted at CoP12 (the precursor of the current CITES action plan under Decision 13.26).

Group 11 – Australia (AU) and Switzerland (CH): This cluster is characterised by frequent, but very low volume ivory seizures, and three-quarters of the trade has transpired since 1998. With the best values of any cluster for CPI and law enforcement effort ratio, and a very low domestic ivory market score, it becomes the best composite group in this analysis.

Group 12 – Kenya (KE): Kenya, with high values for number of seizures and weight and nearly three-quarters of the activity transpiring in the recent period, confronts a persistent challenge with respect to illicit trade in ivory. With the second lowest CPI score, the perception of corruption is great, but

corruption in the wildlife sector may not necessarily be an important issue of concern as Kenya enjoys one of the highest law enforcement effort ratios. The exceptionally low domestic ivory market score also indicates a 'zero' tolerance policy for domestic trade in ivory.

Group 13 – Tanzania (TZ): Tanzania continues to be involved in a large number of high-volume ivory seizures and this activity has remained constant in both periods of time. The low CPI value suggests a fairly high perception of corruption, but like Kenya, this is mitigated by a fairly good law enforcement effort ratio that demonstrates a high rate of interdiction. The very low domestic ivory market score also indicates the absence of an internal ivory market.

Correlated relationships which drive illicit trade in ivory: As was the case in all previous analyses of the ETIS data, there is a highly significant negative correlation between the domestic ivory market score and the law enforcement effort reporting ratio. This result once again tells us that countries which have large, inadequately regulated domestic ivory markets (i.e. high scores) generally reveal the poorest law enforcement effort (i.e. low ratios). Thus, countries or territories which exhibit this characteristic are the most important driving forces behind the illicit trade in ivory.

PART IV: ASSESSMENT OF FACTORS GIVING RISE TO ILLICIT TRADE IN ELEPHANT IVORY

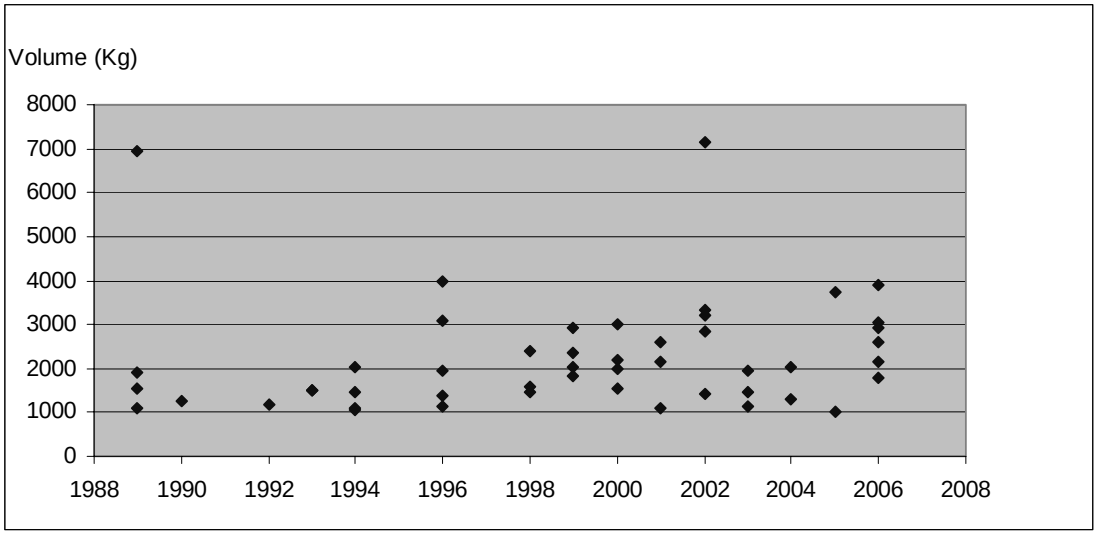
Background: Resolution Conf. 10.10 (Rev. CoP12) mandates that ETIS assess "*whether and to what extent observed trends are related to changes in the listing of elephant populations in the CITES appendices and/or the resumption of legal trade in ivory*". In this regard, we strive to answer the question:

– *What are the probable causes and factors behind any changes in the trend during this period of time and how do they relate to CITES?*

'Signals' or market forces? The question of whether the observed trends in the illegal trade in ivory are related to events and decisions under CITES raises the perennial question of 'signals'. The basic logic of this hypothesis holds that intentions or actions to transfer elephant populations from Appendix I to Appendix II, or to change annotations to allow any kind of trade in ivory, produce 'signals' that stimulate the illegal killing of elephants and illicit trade in ivory. In fact, CITES events featuring elephant issues on the agenda have been continuous since 1989 and the CITES dynamic stands as a constant background variable, giving rise to both negative and positive perceptions, interventions, responses and consequences. Examination of the trend does not reveal any patterns or relationships that serve to support the assumptions of the 'signals' hypothesis'. In contrast, the ETIS data indicate that the combination of market forces and the degree of regulation and law enforcement acting upon these markets are the most important factors giving rise to illicit trade in ivory.

The implication of large-scale ivory seizures: By defining large-scale ivory seizures as comprising one tonne of ivory or more, there are 49 such seizures in ETIS. Representing only 0.4% of the number of seizure cases, large-scale seizures represent 34% of the volume of ivory seized, demonstrating the huge influence large-scale ivory seizures exhibit in the data overall. Figure 10 depicts the year and the weight of these seizure, demonstrating that they are becoming more frequent and of larger scale over time. The vast majority of this ivory went into trade during the most recent period and was destined for China or the territories of Macao SAR, Hong Kong SAR and Taiwan (province of China). Japan, Philippines and Thailand also represent major destinations, although the Philippines is not usually recognized as a significant end-use market and may simply be a temporary transit country for export to other destinations most likely from within the group.

Figure 10: Large-scale ivory seizures >1 tonne (ETIS 05 March 2007)



The role of organized crime and rapidly globalizing markets: Large-scale ivory seizures are indicative of greater involvement of organized crime in the illegal ivory trade. The creation of efficient systems for the illicit procurement and trade of large volumes of ivory typically requires greater finance, better planning, organization and intelligence, investment in secure facilities for storage and staging purposes, the ability to exploit trading links and networks between sources and end-use markets effectively and covertly, and higher levels of collusion and corruption between private sector operators and government. It appears that the increase of organized crime in the illicit trade in ivory has gone hand-in-hand with the globalization of African markets and economic linkages. Foreign nationals in Africa, especially those with links to important end-use ivory markets, have now developed capabilities to move large consignments of raw ivory as well as processed ivory products directly to key Asian markets. These developments stand as a serious long-term challenge to the successful implementation of the CITES 'action plan' pursuant to Decision 13.26.

Assessing the issue of governance: The World Bank defines 'governance' as "*the manner in which power is exercised in the management of a country's economic, social and natural resources for development*". Governance issues play a defining role in determining the success of government policy, including those linked to CITES implementation of Decision 13.26. With respect to the interdiction of ivory, governance shortfalls can produce negative impacts on a country's ability to make and report ivory seizures, to establish or implement effective ivory stock management systems, to amend or improve legislation governing ivory trade issues, and to investigate and prosecute ivory trade offenders. Concerning legislation, the scoring system for countries under the CITES Legislation Project does not take the requirements for internal trade in ivory of Resolution Conf. 10.10 (Rev. CoP12) into account, leading to some countries with good scores completely failing to control domestic trade in ivory as a result of legal loopholes and deficiencies in national legislation.

PART V: CONCLUSIONS AND RECOMMENDATIONS

Conclusions of the trend analysis: With respect to the trend analysis, the following conclusions can be made:

– This report has produced an updated trend representing the general pattern of illegal trade in ivory over the period 1989-2006 (Figures 5 and 6). When adjusted to reduce bias and smoothed to indicate the underlying trend more clearly, the trend line shows that currently illicit trade in ivory has been increasing since 2004. The level of illicit trade now, however, probably is less than what transpired in 1998 and 1999, but it is increasing.

– The increasing trend line in recent years is serious cause for concern, as it develops in the wake of Decision 13.26 and following steps to implement the '*action plan for the control of trade in African elephant ivory*' since CoP13. The increasing trend is a clear signal that measures taken to date to implement Decision 13.26 have not been sufficient to demonstrate any positive impact.

Conclusions of the spatial analysis: With respect to the spatial analysis, the following conclusions can be made:

– On the basis of cluster analysis, the five countries most heavily implicated in the illicit trade in ivory are –Cameroon, China, the Democratic Republic of the Congo, Nigeria and Thailand. All of these countries featured in previous ETIS analyses as countries of concern, but only China demonstrates significant progress in addressing illicit ivory trade issues.

– A secondary group of countries and territories - Benin, Djibouti, Gabon, Ghana, Hong Kong SAR, Macao SAR, Malaysia, Mozambique, Philippines, Rwanda, Singapore, Sudan, United Arab Emirates and Vietnam - were also identified as playing important roles in the illicit ivory trade. Representing a mix of producers, transit country and end-use markets, these countries currently fall within clusters which exhibit poor law enforcement effort and potentially could become more prominent problematic players in the illicit trade. Another group of countries or territories which also need to be monitored closely include Egypt, Japan, Kenya, Malawi, Taiwan (province of China), Tanzania, South Africa, United Kingdom, United States, Zambia and Zimbabwe. While these countries or territories generally demonstrate better law enforcement effort, the illicit ivory trade challenge remains persistent and sustained vigilance is required.

– As was the case in the previous ETIS analyses, there is a highly significant negative correlation between the domestic ivory market score and the law enforcement effort ratio. This indicates that illicit trade in ivory continues to be most directly related to the presence of large-scale, inadequately regulated domestic ivory markets in Asia and Africa. In such places, law enforcement effort is lax commensurate with the scale of the illicit trade challenge, allowing markets to function with little regulatory oversight or impediment.

– The issue of inadequately regulated domestic ivory markets continues to require special attention. Decision 13.26, adopted at CoP13 to address this issue specifically, needs to remain in force and be more strictly implemented than in the past. There is sufficient justification to consider the imposition of punitive sanctions on those countries or territories which are failing to mark progress in implementing the requirements for internal trade in ivory under Resolution Conf. 10.10 (Rev. CoP12).

– Ethiopia currently stands as an exemplary example of how committed action to fully implement the requirements of the CITES action plan can lead to measurable improvement in the cluster analysis of the ETIS data. This result needs to be sustained.

Conclusions of assessment of factors giving rise to illicit trade in elephant ivory: The following conclusions can be made:

– The hypothesis that CITES elephant discussions and decisions produce 'signals' which lead to increasing illicit trade in ivory can not be validated using the ETIS data. The timeline of elephant issues and events under CITES, when viewed against the trend in illicit trade, does not exhibit any predictable relationship or pattern to support this notion.

– In contrast to signals, illicit trade in ivory is most directly related to tangible market forces and the degree of effective law enforcement. This analysis confirms for the third consecutive time that illicit ivory most typically flows through and into domestic ivory markets which lack effective law enforcement and regulatory control. In this regard, ivory currently follows the 'path of least resistance' in the expectation of realizing economic returns in the most timely manner.

– The occurrence of large-scale seizures has become far more frequent and larger in scale in the recent period 1998-2006 and such seizures are primarily destined for China, Hong Kong SAR, Macao SAR and Taiwan (province of China), which now functions largely as an integrated market. Japan, Philippines and Thailand also represent important other destinations, although the Philippines is not thought to be a significant end-use market at the present time.

– Large-scale ivory seizures are indicative of the involvement of organized crime operations which link source countries with end-use markets. The growing involvement of organized crime coincides with a period of rapid globalisation of African markets and trade dynamics. Asian involvement in the procurement, processing and shipping of illicit consignments of raw and worked ivory from Africa to

Asian markets has probably never been greater. This development presents a major challenge to national and international efforts to inhibit illicit trade in ivory.

– The issue of governance and the ivory trade deserves greater attention as a root cause of illicit trade dynamics. There are governance implications at all levels of the ivory trade, including whether or not seizures are made, seizures are reported, ivory stock management systems are developed, legislation is amended or improved, or ivory trade offenders are investigated or prosecuted. Unless governance issues are firmly addressed at the national level, successful implementation of the CITES action plan will be seriously compromised in Africa.

Recommendations: ETIS recommends the following:

– Decision 13.26, the *action plan for the control of trade in African elephant ivory* should remain in force and be strengthened. In particular, the process needs to be made more transparent and accountable. Sensitive law enforcement information should (of course) remain confidential, but the status of compliance with the requirements of Resolution Conf. 10.10 (Rev. CoP12), particularly details of legislation and market control systems, should be reported on a country-by-country basis to the Standing Committee in the Secretariat's regular update reports so that progress can be monitored and verified *in situ* as appropriate. Where progress is incremental or non-existent, the imposition of sanctions should be considered as currently stipulated in the action plan.

– As four of the countries most heavily implicated in illicit ivory trade, Cameroon, the Democratic Republic of the Congo, Nigeria and Thailand have shown little evidence of effective implementation of the provisions for internal ivory trade in Resolution Conf. 10.10 (Rev. CoP12) since CoP12. These countries should be considered as priorities with respect to the implementation of Decision 13.26.

– Because China aspires to be recognized as a 'designated ivory importing country' under CITES, but remains the paramount destination for illicit ivory globally, continued oversight attention should be maintained pursuant to Decision 13.26. Noting significant improvement over previous analyses of the ETIS data, China should be encouraged to continue to implement and enforce its domestic ivory trade control policy strictly, including effective public relations and law enforcement actions against illegal acquisition processing and sales of ivory products both within and outside of the country.

– Given Japan's tentative endorsement as a designated ivory importing country under CITES for the still-pending one-off sale of ivory from three southern African countries as agreed at CoP12, continued oversight attention should also be maintained pursuant to Decision 13.26. Noting that illegal trade in ivory to Japan has increased in recent years over previous analyses of the ETIS data, Japan should be encouraged to continue to implement and enforce its domestic ivory trade control policy strictly, including effective public relations and law enforcement actions against illegal acquisition, processing and sales of ivory products in the country.

– Other countries of concern in the cluster analysis should be carefully monitored in the context of the Decision 13.26 process, particularly those with significant domestic ivory markets and those which function as major trade entrepôt. Where compliance with the requirements of Resolution Conf. 10.10 (Rev. CoP12) is found to be lacking, timeframes should be established against which progress should be measured, including consideration of the imposition of punitive sanctions.

– Asian and African elephant range States, transit countries and end-use consumers, in particular those countries which have never or only rarely reported ivory or other elephant product seizure information through the CITES process, should be encouraged to improve their participation in ETIS, review their national law enforcement data and send information on seizures in a timely manner in the future. TRAFFIC should continue to provide updates on the data collection efforts of ETIS to the CITES Standing Committee and draw attention to countries which are failing to meet their obligation to CITES in this regard.

– Compliance with the requirements for internal ivory trade in Resolution Conf. 10.10 (Rev. CoP12) needs to be factored into the CITES Legislation Project pursuant to Resolution Conf. 8.4 *National laws for implementation of the Convention*. No country with a significant domestic ivory market should be eligible for inclusion in Category 1 ("*legislation that is believed generally to meet the*

requirements for implementation of CITES") unless they fully comply with CITES requirements for internal trade controls for ivory.

– Capacity building events to improve implementation of the Convention and law enforcement for wildlife trade issues should include modules which promote participation in ETIS and address ivory trade issues. Donors should be encouraged to provide funds for such events in priority countries.

COMMENTS FROM THE SECRETARIAT

A. The Secretariat thanks TRAFFIC for preparing this comprehensive document and annexes.

B. The ETIS analysis reinforces many of the comments made by the Secretariat in document CoP14 Doc. 53.1 and confirms the serious levels of illegal trade in ivory. It is clear that much more requires to be done to combat such trade. The document also corroborates the Secretariat's view that many Parties have not done enough to implement the action plan adopted at CoP13.

C. The Secretariat notes the recommendations that have been made and, in general, believes them worthy of consideration by the Conference of the Parties. However, it does not support the recommendation relating to the CITES National Legislation Project as it does not believe it is appropriate to link the Project to species-specific matters in the manner suggested.

D. The Secretariat wishes to remind Parties that its ability to devote resources to monitoring illegal trade in ivory and implementation of the action plan adopted at CoP13 has been limited. The Conference will, therefore, have to carefully consider how such monitoring can be conducted and how the Secretariat can support Parties in their efforts to regulate trade in ivory.

E. The Secretariat looks forward to discussing documents CoP14 Doc. 53.1 and Doc. 53.2 with African elephant range States at their dialogue meeting immediately prior to CoP14. It hopes that such discussions will help guide the Conference when it subsequently addresses this issue.

THE ELEPHANT TRADE INFORMATION SYSTEM (ETIS) AND THE ILLICIT TRADE IN IVORY: A REPORT FOR THE 14TH MEETING OF THE CONFERENCE OF THE PARTIES TO CITES

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15 April 2007

Introduction

Through the adoption of Resolution Conf. 10.10, at the 10th meeting of the Conference of the Parties (CoP10) in 1997, the CITES Parties mandated the creation of a comprehensive international monitoring system under the management of TRAFFIC to track illegal trade in elephant products. Since 1999, the Elephant Trade Information System (ETIS) has been developed to serve this purpose. The objectives of ETIS, as stated in Resolution Conf. 10.10 (Rev. CoP12), are:

i) measuring and recording levels and trends, and changes in levels and trends, of illegal hunting and trade in ivory in elephant range States, and in trade entrepôts;

ii) assessing whether and to what extent observed trends are related to changes in the listing of elephant populations in the CITES appendices and/or the resumption of legal international trade in ivory;

iii) establishing an information base to support the making of decisions on appropriate management, protection and enforcement needs; and

iv) building capacity in range States.

The Resolution calls for TRAFFIC to produce "a comprehensive report to each meeting of the Conference of the Parties". To date, two major assessments of the ETIS data have been presented to the Parties at CoP12, in Santiago, Chile in November 2002, and CoP13, in Bangkok, Thailand in October 2004 (see CoP12 Doc. 34.1 Annex 1 and CoP13 Doc. 29.2 Annex, available on http//www.cites.org). This report constitutes TRAFFIC's reporting obligations for CoP14 and was reviewed by members of the MIKE/ETIS Technical Advisory Group before its submission to CITES. And finally, TRAFFIC would like to acknowledge with gratitude the funding support from the Department of Environment, Food and Rural Affairs (DEFRA) of the United Kingdom of Great Britain and Northern Ireland which has continuously supported the operation and management of ETIS since CoP13, including the production of this report.

Descriptions of the ETIS structure and database components were presented in the two previous ETIS reports for CoP12 and CoP13. Readers are advised to review those documents for details concerning the basic conceptual framework of the monitoring system and its constituent components as those aspects of ETIS will not be addressed directly in this submission. Further, the general development and operation of ETIS since CoP13 is also not offered in a detailed manner in this analysis. Such information, however, is regularly submitted in update reports at each meeting of the CITES Standing Committee (SC) for consideration by the Standing Committee's MIKE-ETIS Sub-Group. In accordance with this practice, a report covering operational developments since the 54th meeting of the Standing Committee (SC54, Geneva, October 2006) will be submitted for consideration at SC55 on 1 June 2007. This report fulfils all of the reporting requirements for ETIS as specified in Resolution Conf. 10.10 (Rev. CoP12).

PART I: THE ETIS DATA

Number of records

Following a concerted effort to collect and verify elephant product seizure records from around the world, data entry functions into ETIS were temporarily suspended on 5 March 2007 in order to produce this analysis. As of that date, ETIS comprised 12,378 elephant product seizure records, representing law enforcement actions in 82 countries or territories since 1989. In comparison to the ETIS analysis prepared for CoP13 in 2004, this analysis is based upon 2,952 more records of elephant product seizures (Table 1). Indeed, the ETIS seizure data comprises the world's largest collection of law enforcement records for illegal trade in elephant products.

The number of elephant product seizure records by country by year is presented in Annex 2. It should be noted that verification of another 576 seizure records remains pending, including 49 cases which the Lusaka Agreement Task Force (LATF) provided in a table in an amendment proposal submitted by Kenya and Mali at CoP14 (CITES, 2007). Finally, another 174 records of pending cases have been rejected following repeated, but unsuccessful, attempts over several years to verify the cases with government authorities in the relevant countries or territories, including 151 cases which had been submitted by the Born Free Foundation. Very few of the rejected cases appeared to represent duplicates.

Table 1: Number of seizure cases and percentages by region in which they occurred for each CITES CoP (ETIS 5 March 2007)

Region	Number of Seizure Cases and Percentage of Total for each CoP					
	CoP12	%	CoP13	%	CoP14	%
Africa	**1,788**	*22.9*	**2,102**	*22.3*	**2,751**	*22.2*
Asia	**595**	*7.6*	**846**	*9.0*	**1,245**	*10.1*
Europe	**2,598**	*33.2*	**3,076**	*32.6*	**4,132**	*33.4*
North America	**2,703**	*34.6*	**2,894**	*30.7*	**3,451**	*27.9*
Oceania	**131**	*1.7*	**506**	*5.4*	**797**	*6.4*
Central/South America & Caribbean	**2**	*0.0*	**2**	*0.0*	**2**	*0.0*
Total	**7,817**	*100.0*	**9,426**	*100.0*	**12,378**	*100.0*

Table 1 provides evidence that the Parties are either steadily improving their rate of reporting elephant product seizure cases to ETIS or that data collection efforts are meeting with greater success (it is difficult to say, however, that more seizures are actually taking place as the annual totals for the number of seizures reported to ETIS has remained within a fairly constant range over the last decade). In any event, the 22-month period of time between the production of the ETIS analysis reports for CoP12 and CoP13, saw the elephant product seizure database increase by an average of 73 cases per month. The 32-month period of time between the ETIS report issued at CoP13 and the current analysis has seen the rate of increase grow by 26 % to an average of 92 elephant product seizure cases per month. This latter period has further benefited from the development of a collaborative relationship between the World Customs Organization and ETIS which entails an annual data exchange.

Looking at the data from a regional perspective, since CoP12, the Asian and Oceania regions have steadily increased their proportion of the total data set, with the active participation of China and Australia, respectively, standing behind this result more than any other factor. In spite of recent improvements in reporting, as the major ivory consuming region of the world, one would actually expect Asia to represent a higher proportion of the data in ETIS, but it remains a fact that few countries in Southeast Asia, particularly the ASEAN countries, are reporting data to ETIS on a regular basis. Although continuing to make and report seizure data regularly, North America's overall proportion of the number of seizure cases in the data has steadily dropped since CoP12, reflecting better participation in ETIS from other regions. The proportion of the data representing Africa and Europe, however, has remained fairly

consistent. The situation for Central and South American and Caribbean countries has remained static with virtually no evidence of elephant product seizures.

While Africa's proportion of the data has remained fairly constant over time, it is worth noting that eight African Elephant range States – Benin, Equatorial Guinea, Eritrea, Guinea Bissau, Liberia, Senegal, Somalia and Togo – have never made and reported to ETIS a single elephant product seizure over the 18-year period of time. Within Asia, the same can also be said of five Asian Elephant range States – Bangladesh, Cambodia, Indonesia, the Lao People's democratic Republic and Myanmar. Many other range States – Burkina Faso, the Central African Republic, Chad, the Congo, Ghana, Guinea, Mali, Niger, Sierra Leone and Swaziland in Africa, and Sri Lanka in Asia – have made and reported less than five seizures since 1989 to the present. As elephant range States, there is an expectation that law enforcement effort would result in seizures at least sometimes and that these would be reported to ETIS.

Converting 'numbers of pieces' to 'weight' in the seizures database

Many ETIS records specify only 'number of pieces' by ivory type, but fail to record 'weight in kg'. In fact, weight is the critical constituent for assessing the impact of ivory trade on elephant populations. Thus, in instances where only one variable is given, it is preferable that the Parties report the total weight of a seizure to ETIS and not the number of pieces. When this is not the case, and only the number of pieces is provided, it is necessary to derive the missing weight value through analysis of data where both the number of pieces and weight is given by ivory type. Various predictive models can be used to achieve a result, but no method is perfect given the wide variability in the data. For example, ETIS cases which provide only the number of pieces but no value for weight range from one to 40,810 pieces. To further illustrate the degree of variability, consider that a single piece of worked ivory might represent anything from a small ivory bead weighing just a few grams to an elaborate carved sculpture weighing over 20 kg. There is no 'foolproof' method to 'know the unknown', but every attempt is made to provide the best possible estimate.

In this analysis, weights were estimated from number of pieces in the following way. In separate exercises for seizures of raw, worked and semi-worked ivory, records containing both weights and number of pieces were extracted from the ETIS database. Regression models representing the relationship between number of pieces and weights were then fitted to these subsets of records. In CoP13 and previous analyses, simple linear regressions were fitted to the logarithms of the variables, however, this approach did not work well with the additional data available for the present analysis. Exploratory data analysis indicated that these relationships were now non-linear, so generalized additive models, or GAMs, (Wood, 2006) were fitted in preference to simple linear regression models. The resulting GAMs were used to 'predict' or estimate the weights for records where only the number of pieces was known. The entire procedure was repeated separately for seizures of raw, semi-worked and worked ivory (Figures 1, 2 and 3, respectively), with solid lines representing the weight estimation and dashed lines the confidence limits.

Figure 1: Estimating weights from number of pieces for 'Raw Ivory' (with 95 % confidence bands)

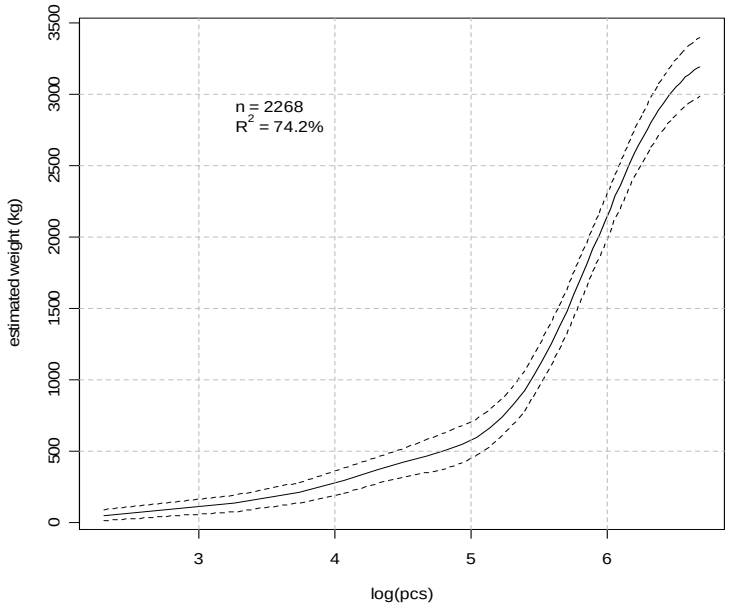


Figure 2: Estimating weights from number of pieces of 'Semi-worked Ivory' (with 95 % confidence bands)

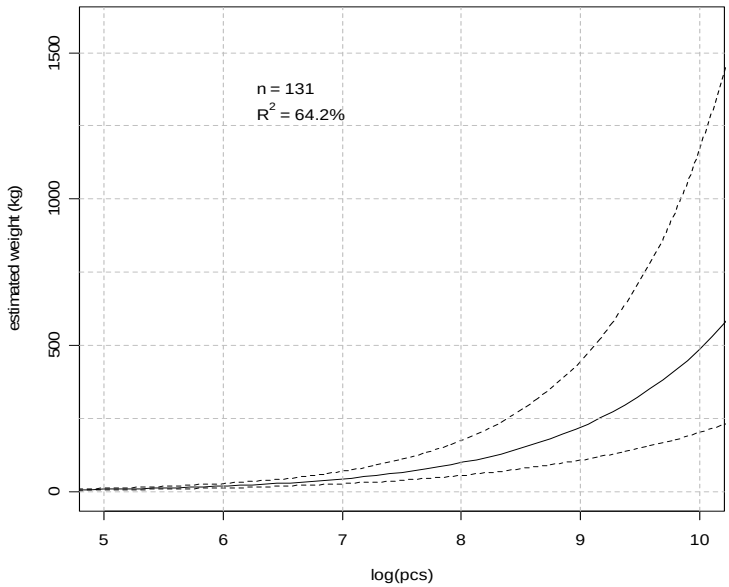
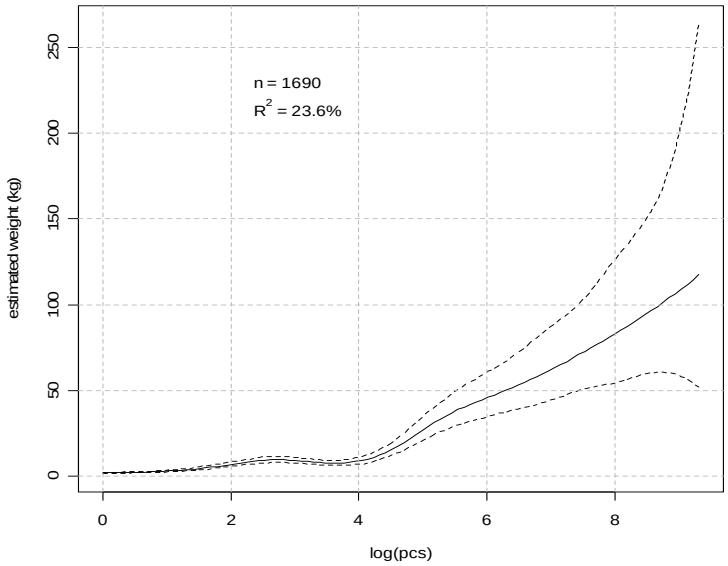


Figure 3: Estimating weights from number of pieces for 'Worked Ivory'(with 95 % confidence bands)



It is worth noting that the above method of estimation is believed to offer more precision than that used in the analyses of ETIS data presented at CoP12 and CoP13 (Milliken *et al.*, 2002 and 2004). The results, however, are not identical and in certain cases the differences are considerable. As can be seen in Figure 1, the confidence limits for deriving weight values for 'raw ivory' remain very narrow throughout the entire model, demonstrating rather precise accuracy at any point. On the other hand, Figures 2 and 3 for 'semi-worked' and 'worked ivory', respectively, indicate that accuracy is greatest for seizures with fewer numbers of pieces, while those involving large numbers of pieces are less precise exhibiting wider confidence limits. Thus, even with the improved methodology introduced in this report, there still remains considerable uncertainty in estimating the weights of seizures of worked and semi-worked ivory when the number of pieces is large. This primarily occurs because the estimation in this range is based on only a limited number of cases for which both values are given, resulting in rather wide confidence intervals. The estimation in this analysis was based on 2,268 cases for raw, 131 for semi-worked and 1,690 for worked ivory. (A similar approach was also used to get estimates of numbers of pieces for seizure cases where only the weight was known, but the detailed results are not presented here as they are not pertinent to the subsequent analysis.)

Volume of ivory represented in the seizures database:

Whether ivory is distinguished as raw, semi-worked or worked ivory in the ETIS data, in presenting the collective weight of the data it is necessary to have it reflect 'raw ivory equivalent' values. To do so, consideration needs to be given for the loss of scrap and wastage that occurs during the manufacturing process. Thus, for semi-worked and worked ivory products, weights have been increased by 30 % based upon assessments of the loss of ivory through various carving and mechanized manufacturing processes (Milliken, 1989; CITES, 2000). By making these adjustments, it is possible to better estimate the volume of ivory the seizure data represent.

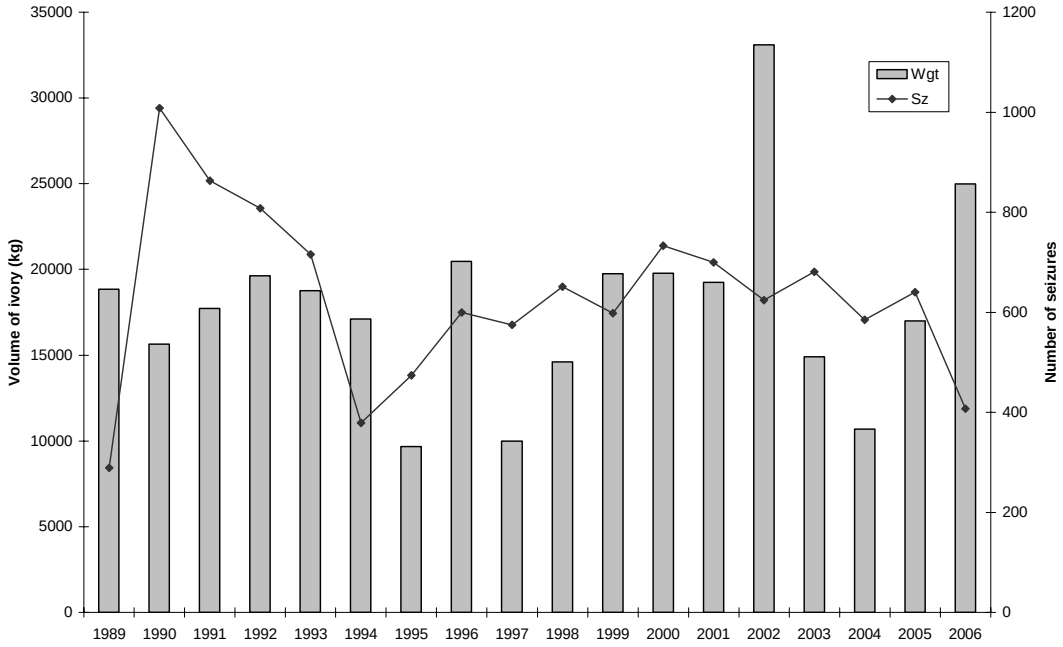
Table 2 provides a summary of the volume of ivory represented by the ETIS data in raw ivory equivalent terms as of 5 March 2007. Collectively, it is estimated that a total of over 322 tonnes of ivory has reportedly been seized throughout the world and reported to ETIS from 1989 onwards. As a proportion of the total weight of ivory in the ETIS data, nearly 78 % reflects raw ivory seizures, while worked ivory products represent 18 % and semi-worked ivory accounts for about 4 % of the total weight.

Table 2: Estimated volume of ivory in 'raw ivory equivalent' terms represented by ETIS seizure data, 1989-2007 (ETIS 5 March 2007)

Year	Raw ivory Weight (kg)	Semi-worked (kg)	Worked Ivory Weight (kg)	Total (kg)
1989	17,609	777	450	18,835
1990	7,662	2,051	5,942	15,655
1991	12,525	630	4,559	17,713
1992	14,150	233	5,253	19,636
1993	14,022	1,291	3,445	18,757
1994	14,536	658	1,913	17,107
1995	7,217	479	1,972	9,668
1996	16,458	1,689	2,334	20,481
1997	7,760	462	1,767	9,988
1998	11,121	104	3,383	14,608
1999	16,265	174	3,318	19,756
2000	16,670	749	2,357	19,776
2001	14,391	62	4,793	19,246
2002	25,040	1,814	6,235	33,090
2003	11,515	83	3,316	14,915
2004	7,774	45	2,876	10,695
2005	14,038	66	2,896	17,000
2006	22,857	542	1,577	24,975
2007	173	0	90	263
Total	**251,782**	**11,907**	**58,474**	**322,164**

In comparison to the previous ETIS analysis (Milliken *et al*., 2004), in this report, using the new method for computing missing weight values as described above, the total estimated weight of ivory seized has increased to some degree in every year with the exception of 1994. As noted in the ETIS analysis to CoP13, in that year, one particular case concerning Thailand involved the seizure of 28,128 pieces of worked ivory, but did not provide any indication concerning the weight of the items seized; in fact, this data point is exceptional, representing the largest single consignment of worked ivory products for which the weight variable remains unknown. Using the conversion methodology of the ETIS report to CoP12, this seizure represented 68 kg of ivory, whilst the conversion values used in the ETIS report to CoP13 resulted in a weight of 4,197 kg of ivory for this seizure (in both cases, before calculating raw ivory equivalent). Using the current method, which is believed to mark a considerable improvement in addressing the challenge of determining missing weight values, this seizure has now been given an unadjusted net weight value of 149 kg. As indicated previously, this example amplifies the importance of providing data on both the number of pieces and the weight of items seized by ivory type to enable greater precision in future analyses. (Finally, it should also be noted that whether or not the weight values for this particular data point represent an overestimate or an underestimate in the various ETIS analyses that have been offered to date, Thailand has consistently emerged as a country of major importance in the illicit trade in ivory. Any distortion in computing the weight of this particular seizure has not appreciably altered the results of either the temporal or spatial analyses.)

Figure 4: Estimated weight of ivory and number of seizure cases by year, 1989-2006 (ETIS 5 March 2007)



Using a classic bar and line graph representation, Figure 4 depicts the weight of ivory seized and the number of cases upon which the data are based for each year since 1989. The number of seizures involving elephant ivory ranges from a low of 289 cases in 1989 to a high of 1,008 in 1990, with a mean value of 630 cases each year. Seized ivory weights fluctuate between 9,668 kg in 1995 and 33,090 kg in 2002, with a mean value of 17,883 kg each year. It also needs to be appreciated that the 'raw' data presented in Table 2 and Figure 4 do not in any way represent absolute trade volumes, nor are the data suggestive of trends over time.

The issue of trends will be addressed in the next section of this report, but it is worth noting that trying to establish absolute illegal ivory trade values by applying seemingly random conversion rates to raw ivory data values is, at best, questionable. One recent publication asserted that "it is commonly assumed that Customs intercepts 10 % of all contraband (e.g. drugs, weapons, pirated compact discs)" and used this assumption as the basis to extrapolate from raw ivory seizure data to absolute values and calculate elephant losses (Wasser *et al.*, 2007). There is no reference provided to support this statement, but most law enforcement professionals do not subscribe to such a simple formula. The United Nations Office on Drugs and Crime, for example, puts considerable effort into researching narcotics production in source countries and, in the case of cocaine and opium, has relatively accurate figures, enabling the comparison of seizure data with estimated levels of production. Using supply-side methodologies, some recent studies have indicated that annual interception rates range between 10-48 % for various narcotic commodities in various years (McVay, 2004). For ivory, of course, annual production levels remain unknown (although MIKE should eventually provide good insight on this issue in the future), and not all ivory in trade at the current time represents recent mortality as leakage from ivory stocks and other forms of 'old' ivory comprise at least some part of the illicit traffic. Recent information suggesting increases in the price of raw ivory in Asian markets (IFAW, 2006; Stiles, in prep.) is suggestive that the series of successful large-scale ivory interdictions in 2006 may have actually resulted in a diminished supply, driving local prices to new heights.

PART II: AN ANALYSIS OF TRENDS IN IVORY SEIZURES IN THE ETIS DATA

Background

Resolution Conf. 10.10 (Rev. CoP12) calls for ETIS to measure "levels and trends, and changes in levels and trends" of illegal trade in ivory. This analysis aims to achieve that requirement by addressing the following question:

> *What is the trend in the illicit trade in ivory since 1989 to the present and how has it changed over time?*

As indicated in previous analyses, ETIS is not designed to determine absolute levels of illegal trade in elephant ivory. For a variety of reasons, it is simply not possible to know the exact number of, and details for, every single ivory seizure which has occurred in the world from 1989 onwards. Many seizures, by design or otherwise, go unreported to ETIS and do not become part of the information base at hand. What is 'unknown', to a large extent, will remain 'unknown', but over time an increasing number of elephant product seizures have been made and reported to ETIS. These cases reveal not only where and in what quantities ivory was seized but, in 80 % of the ETIS records, other information is provided, including the origin of the contraband and the trade route the consignment followed before being seized. Thus, countries which may never report ivory seizures can be 'captured' and assessed in the context of seizure events that take place elsewhere in the world. Collectively these records form a time-based, country-specific information base, analogous to a 'window' through which it is possible to assess the scale, frequency and dynamics of illicit trade in elephant ivory. It needs to be recognized, however, that the 'view' through this window is inherently imperfect because of bias in the data, but it can be substantially improved if independent proxy measures are found to mitigate the factors which give rise to bias. For this purpose, an integral part of the information system which forms ETIS includes a series of subsidiary databases which track such things as law enforcement effort, efficiency and rates of reporting. These variables, which are ever changing over time, are key factors introducing bias into the data, determining both its quality and quantity. By using proxy measures in statistical analysis, it is possible to adjust the data to mitigate or reduce the various forms of bias contained within it. By making such adjustments, it then becomes possible to produce trends that are believed to reflect, in a general manner, the relative trends in illicit trade in ivory that are occurring over the period of time under consideration.

The methodological framework

The methods for this temporal analysis are broadly similar to those previously used for the analytical report to CoP13 (Milliken *et al.*, 2004). With only seven seizure cases reported to date, the year 2007 is data deficient and it has been excluded from the analysis. Conversely, it is encouraging to note that although the year 2006, with 446 reported seizures, is significantly below the mean annual value of 630 seizure records, it nonetheless proved robust enough as a dataset to be included in the analysis. This is a very satisfactory outcome as it means that the trend analysis for CoP14 is as current as it can possibly be for an assessment undertaken in early 2007.

For this analysis, the ETIS database contained 12,371 seizure records, of which 1,033 records involved non-ivory elephant products only. These data were not considered in this analysis, leaving 11,338 records which involved seizures of ivory. These records derive from law enforcement actions undertaken in 82 countries, which implicate a total of 164 countries around the world as part of the trade chains in these instances of illicit trade in ivory.

As noted above, it is necessary to address inherent issues of bias in the data and make adjustments. Although direct measurement of the causes of bias are not available, a number of proxy variables are used as substitutes in this regard. The main sources of bias and the proxy variables used as corrective measures are:

– *Variation in law enforcement effort and efficiency*: Bias arises from the varying degree of law enforcement effort and efficiency that exists between and within countries, and over time. Two variables have been used to mitigate this issue, the Corruption Perception Index (*cpi*) and the Law Enforcement Effort Ratio (*sz.ratio*) for each country in each year.

– *Variation in reporting rate*: An unknown proportion of ivory seizures are never reported to ETIS and it is assumed that this uncertainty varies between countries and years. To compensate for different rates of reporting, the proportion of years that a country submits a CITES Annual Report was assumed to reflect a similar rate of reporting. In this regard, the CITES Annual Report Ratio (*rep.ratio*) was used to adjust for bias in the rates of reporting.

– *Uneven data collection*: At various times during the period of operation of ETIS, different levels of effort have been used in the collection of elephant product seizure data. To adjust for this bias, the Data Collection Score (*dcs*) was devised as a measure of data collection effort for each country in each year.

To adjust for bias, the data were fitted to a linear mixed-effects model (Pinheiro and Bates, 2000) and then the estimated effects were removed from the response. The adjusting variables that were fitted were:

sz.ratio	ratio of seizures made 'in-country' to total number of seizures which country made or was implicated in: *sz.in.2/(sz.in.2 + sz.out.2)*
rep.ratio	CITES Annual Report Ratio
dcs	ETIS Data Collection Score
cpi	Corruption Perception Index (Transparency International)

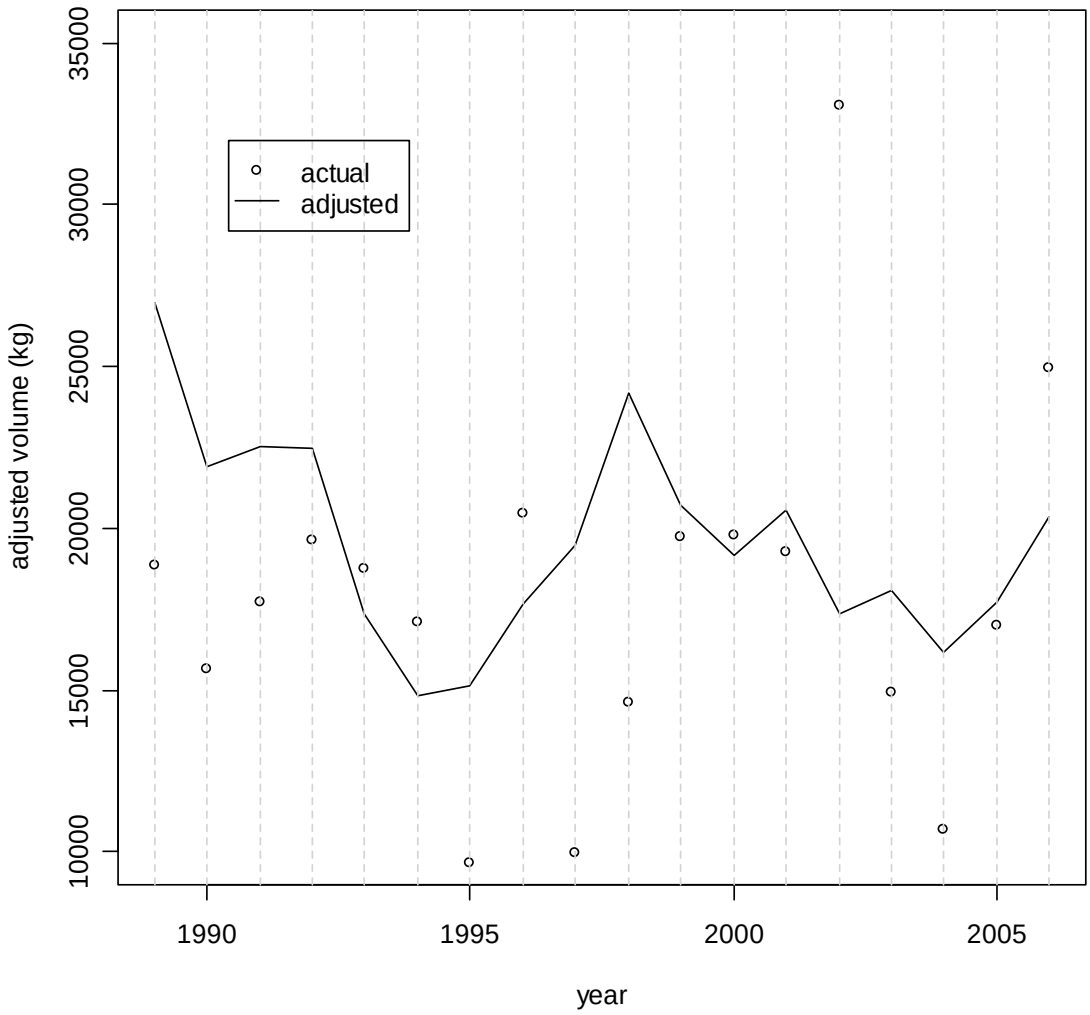
Of these, only *dcs* and *sz.ratio* were statistically significant as regressor variables ($P < 0.0001$ for each). The *dcs* variable was then fitted as a random effect (i.e. its coefficient was allowed to vary from country to country). While overall *sz.ratio* was significant, but not in its effects in terms of between-country variation, it was fitted as a simple fixed-effect explanatory variable. Accordingly, *cpi* and *rep.ratio* were not used in the subsequent trends analysis. The total volume of ivory for each country in each year was then adjusted by removing the contributions from *dcs* and *sz.ratio*. These adjusted weights were then summed over countries to provide a total adjusted estimate of the volume of ivory in raw ivory equivalent terms for each year.

The unsmoothed trend

With the bias reduced as described above and the data adjusted accordingly, it is possible to estimate a trend. Using a solid line, Figure 5 shows the adjusted total volume of ivory seized in each year, as represented by the ETIS data during the period under examination. This trend line is shown in relation to the unadjusted data points rendered as small circles, which correspond to the annual totals of ivory seized as presented in Table 2 and Figure 4 of this report. In years where, for example, data collection has been most passive, such as 1989 through 1992, the trend line is adjusted upwards, while in years where data collection has been more actively pursued, as in 1993 and 1994, it is adjusted downwards. In this manner, removal of the bias allows for the underlying trend to become evident.

As in previous analyses of the ETIS data, the trend line demonstrates a general decline in the volume of ivory seized between 1989 through 1995 (Milliken *et al.*, 2002 and 2004). This decline is then followed by a progressive increase which peaks in 1998, and then falls somewhat erratically over the next six years. From 2005 onwards, there is an upward thrust which is all the more remarkable considering that data for 2005 and 2006 are believed to represent largely incomplete datasets. Indeed, as more seizure data are received for the years 2005 and 2006, there is every expectation that the upward trend will become even sharper.

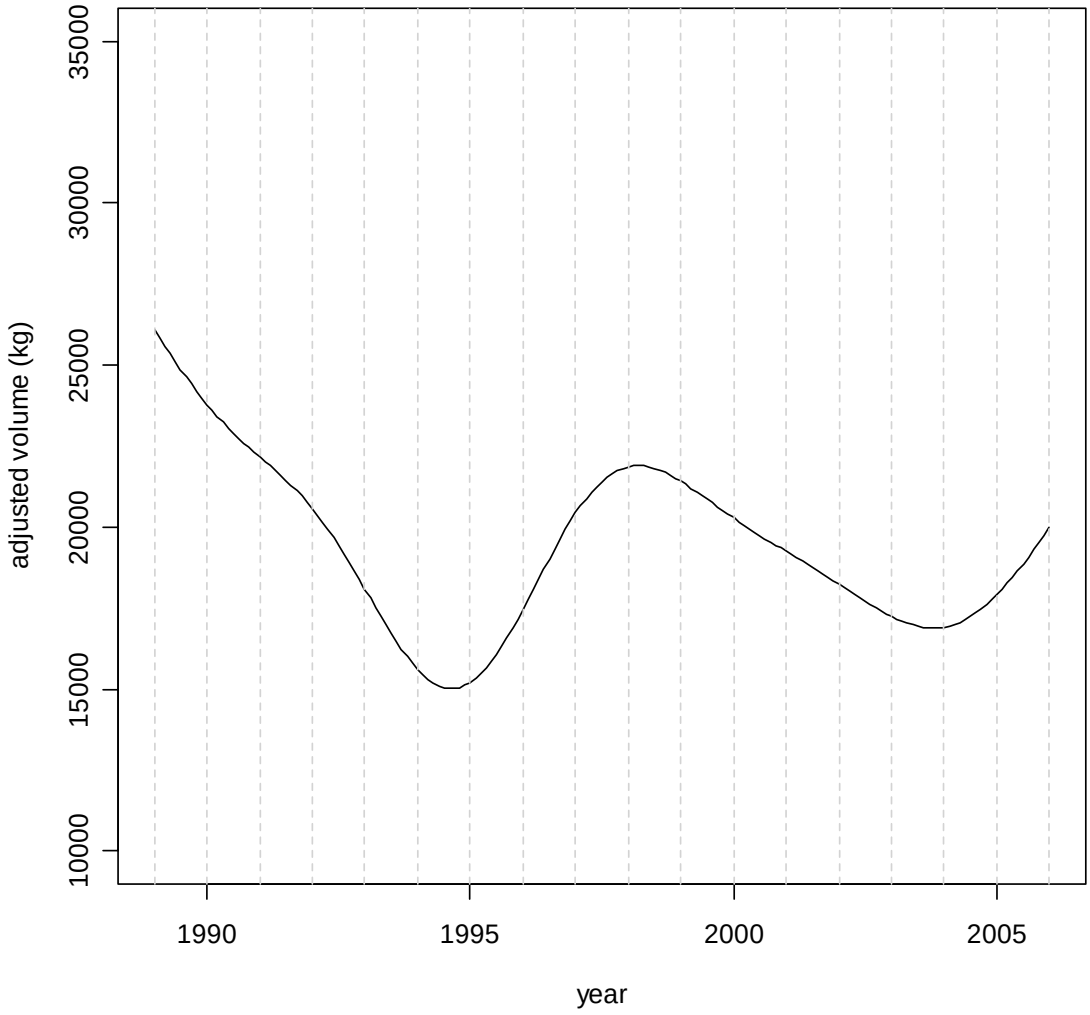
Figure 5: Adjusted trend 1989-2006 with actual volume of ivory in 'raw ivory equivalent' terms (ETIS 5 March 2007)



Smoothing the trend

To provide a better graphic representation of the underlying trend, it is possible to fit the results of Figure 5 to a generalized additive model (Hastie and Tibshirani, 1990) with a cubic spline smoother. Figure 6 removes the more extreme fluctuations of Figure 5 and depicts a smoothed adjusted trend line for the illicit trade in ivory. As such, the trend shows a fairly steady decline in the seizure of illicit ivory through 1995, followed by a sharp increase from 1996 through 1998. Thereafter, the trend demonstrates a gradual decline in ivory seizures to 2004, but this is again followed by resurgent upward movement from 2005 onwards.

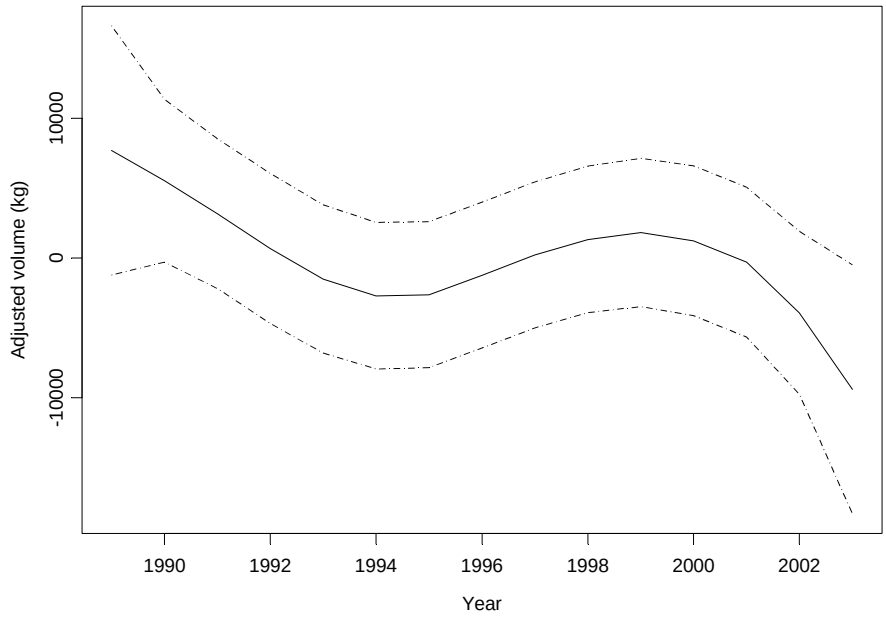
Figure 6: Smoothed adjusted trend 1989-2006 with actual volume of ivory in 'raw ivory equivalent' terms (ETIS 5 March 2006)



Comparing the trend (1989-2006) with the result in the ETIS analysis to CoP13

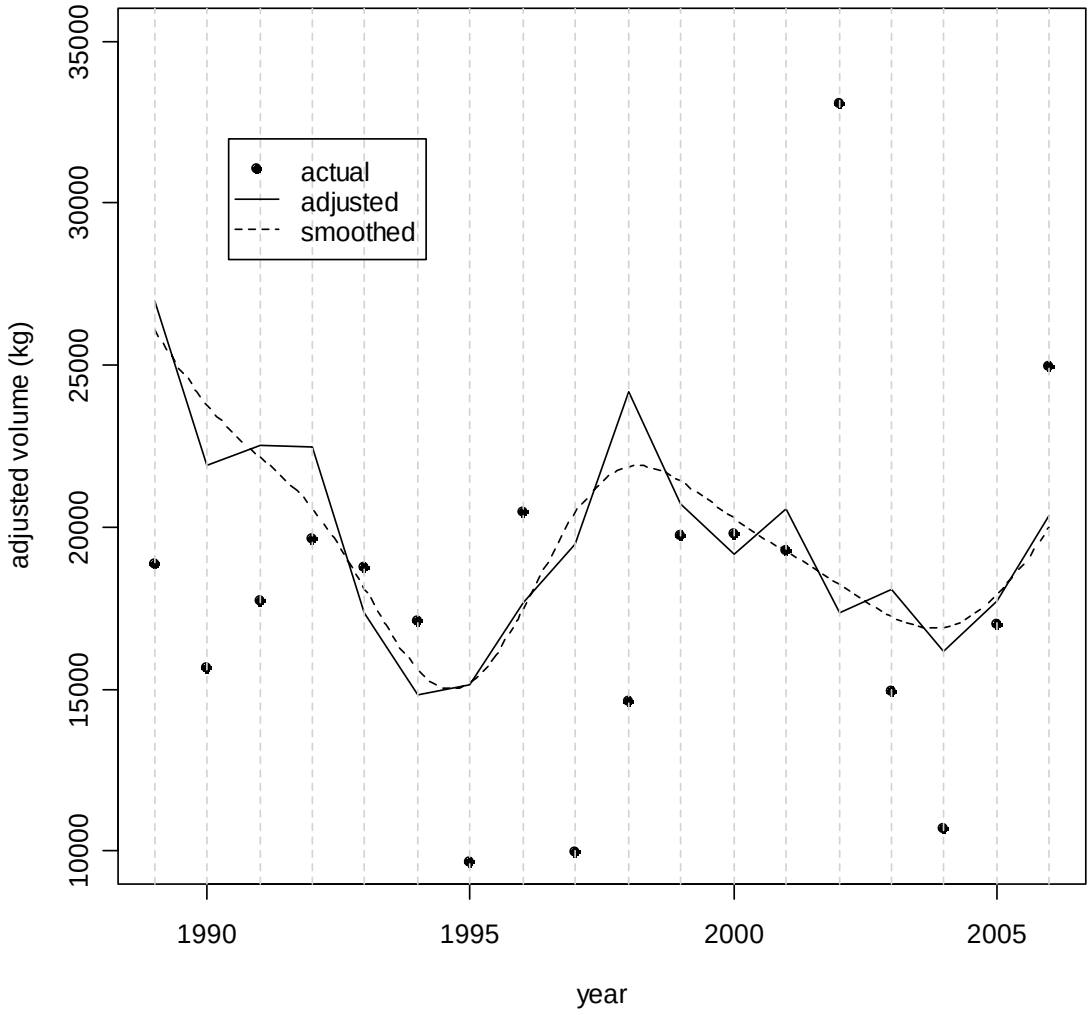
It is interesting to note that the basic pattern of Figure 6 generally confirms the smoothed adjusted trend line depicted in Figure 7 below that was presented as a tentative result in the ETIS analysis for CoP13 before a decision was taken to remove the data for 2003 for being 'data deficient' (Milliken *et al.*, 2004). The period of decline that was initially suggested in Figure 7 is now more vividly apparent in Figure 6 in the current analysis, which is based upon 374 more seizure cases for the year 2003, plus another 1,632 cases over the next three years. Any downward trend, however, abruptly halts in 2004, another low volume year, giving way to strong upward momentum in the trend line through 2006. In fact, it is likely that the observed downward trend from 1999 through 2004 will be moderated considerably as more data accrue to ETIS, especially for the years 2005 and 2006, increasing the upward pull of the trend line. Indeed, with the emergence of more data, the possibility of the downward drift through 2004 becoming a much flatter line indicating very little decline can not be discounted at this time. In other words, it may be premature to say that there has actually been a period of significant decline in the illicit trade in ivory. In any event, there is an undisputed indication that illicit trade in ivory is once again increasing.

Figure 7: Smoothed adjusted trend line for 1989-2003 (scaled) ± 2 standard errors (95 % confidence interval) presented to CoP13 (ETIS 6 July 2004)



In Figure 8, the smoothed adjusted trend line (the dashed line) is shown against the actual data (dots) and the adjusted trend before smoothing (the solid line). It is important to bear in mind that the scale of this graph is somewhat different from the one above. With more compression to account for four more years of time, the results appear as somewhat sharper movements.

Figure 8: Smoothed adjusted trend 1989-2006 with actual and adjusted volume of ivory in 'raw ivory equivalent' terms (ETIS 5 March 2007)



If the trend exhibited in Figure 8 satisfactorily reflects the pattern of illegal trade in ivory globally during this period of time – and there is every reason to believe that it does – the fact that illicit trade is once again increasing is serious cause for concern. It is especially worrying that the recent sharp increase takes place following the adoption of Decision 13.26 to address the world's unregulated domestic ivory markets which, in the ETIS analysis to CoP13, was identified as the principal causative factor behind illegal trade. The trend clearly suggests that Decision 13.26 is not having the desired impact and it needs to be more forcefully implemented if a downward trend in illicit trade in ivory is to be realized in the future.

PART III: THE SPATIAL ASPECTS OF THE ETIS DATA

Background

Resolution Conf. 10.10 (Rev. CoP12) calls for ETIS to establish "*an information base to support the making of decisions on appropriate management, protection and enforcement needs*". Since the first analysis was presented at CoP12 in 2002, a spatial analysis of the ETIS data has been recognized as an adept means to identify those countries or territories where management, protection and enforcement needs in terms of illegal trade in ivory are likely to be the greatest. Once again, a spatial analysis will strive to answer the following questions:

– Which countries or territories are playing leading roles in the illicit trade in ivory?, and

– What are the characteristics of this involvement in illegal trade in ivory?

As in the past, the spatial analysis of the ETIS ivory seizure data is based upon agglomerative hierarchical cluster analysis (Everitt *et al.*, 2001), using Ward's method with standardized variables by means of the R software package (R Development Core Team, 2006). This statistical technique results in a dendrogram depicting a series of well-defined groups (or clusters) of countries or territories that exhibit similar patterns in the seizure data. It is possible to describe the characteristics of these groupings in terms of numbers of seizures, volumes of ivory seized and other key factors in order to understand underlying ivory trade dynamics and other characteristics. This method of analysis serves to isolate those countries that, according to the ETIS data, account for the largest proportion of the illegal trade in ivory since 1989, while countries and territories of lesser importance are screened out of the analysis. In this manner, cluster analysis eliminates a considerable portion of the 'background noise' to sharpen the focus on those countries or territories that are unquestionably playing the most important roles in the illicit trade in ivory.

The statistical analysis

Of the 12,378 records currently in ETIS, 11,331 relate to trade in ivory or ivory products between 1989 and 2006. This dataset comprised seizures made by 82 countries or territories, collectively implicating 164 countries or territories around the world in the illicit trade in ivory. The data for each country and for each year from 1989-2006 included the number of seizures reported by the country itself (*sz in*), plus the number of seizures in which the same country was implicated as the country of origin, re-export, export or destination of seizures which occurred elsewhere (*sz out*). These data were treated separately, and the corresponding weights of the volume of ivory (in raw ivory equivalent terms) were summed (*wt in* and *wt out*). To distinguish between historical and relatively recent patterns of trade, the period covered by ETIS data was divided into two periods: 1989-1997 and 1998-2006. The period 1998-2006 is of primary interest because these years most directly reflect trade dynamics that are contemporary and, as such, would be most responsive to mitigating measures and interventions at the present time.

Preliminary data screening

An initial subjective screening of the data transpired in order to eliminate those countries implicated in fewer than 20 seizures overall and with a total raw ivory equivalent (RIE) weight of less than 100 kg over the entire 18-year period. This reduced the number of countries under consideration from 164 to 89, while continuing to include those entities that account for the bulk of the ETIS data.

Further reduction of the data was achieved through a preliminary screening cluster analysis based on the following variables:

wt.in.1	total weight seizures reported 'in-country', 1989-1997
wt.in.2	total weight seizures reported 'in-country', 1998-2006
wt.out.1	total weight seizures reported elsewhere, implicating the country, 1989-1997
wt.out.2	total weight seizures reported elsewhere, implicating the country, 1998-2006
wt.ratio	ratio of total weight 1989-1997 to total weight 1998-2006

This clustering identified 39 countries whose mean weight (over the entire period 1989-2006) was 12,276 kg with a mean number of seizures of 367. The corresponding mean weight for the remaining 50 countries was 1,336 kg, and the mean number of seizures was 91. This residual group of 50 countries were excluded from the analysis, leaving the 39 countries which are most profoundly implicated in the illicit trade in ivory. It should also be noted that the difference between the first and second steps in the data reduction exercise is that the groupings that result from the cluster analysis are statistically determined by the data itself and do not entail any subjective intervention.

Adjusting to remove bias in the data

As previously noted, there are a number sources of bias in the ETIS data. To be able to make comparisons between countries and through time, it is necessary to adjust the number of seizures and weight of seizures made in-country to account for differing degrees of effort in terms of data collection, law enforcement and reporting. Statistical adjustments were made to both weights and numbers of seizures to account for bias due to these factors. The variables used for these adjustments were the Data Collection Score (*dcs*), as a proxy measure for variability in data collection effort, and the Corruption Perception Index (*cpi*), for variability in law enforcement efficiency and rates of reporting. The method of adjustment was to fit regression models and removed the estimated effects due to these variables from the response variable.

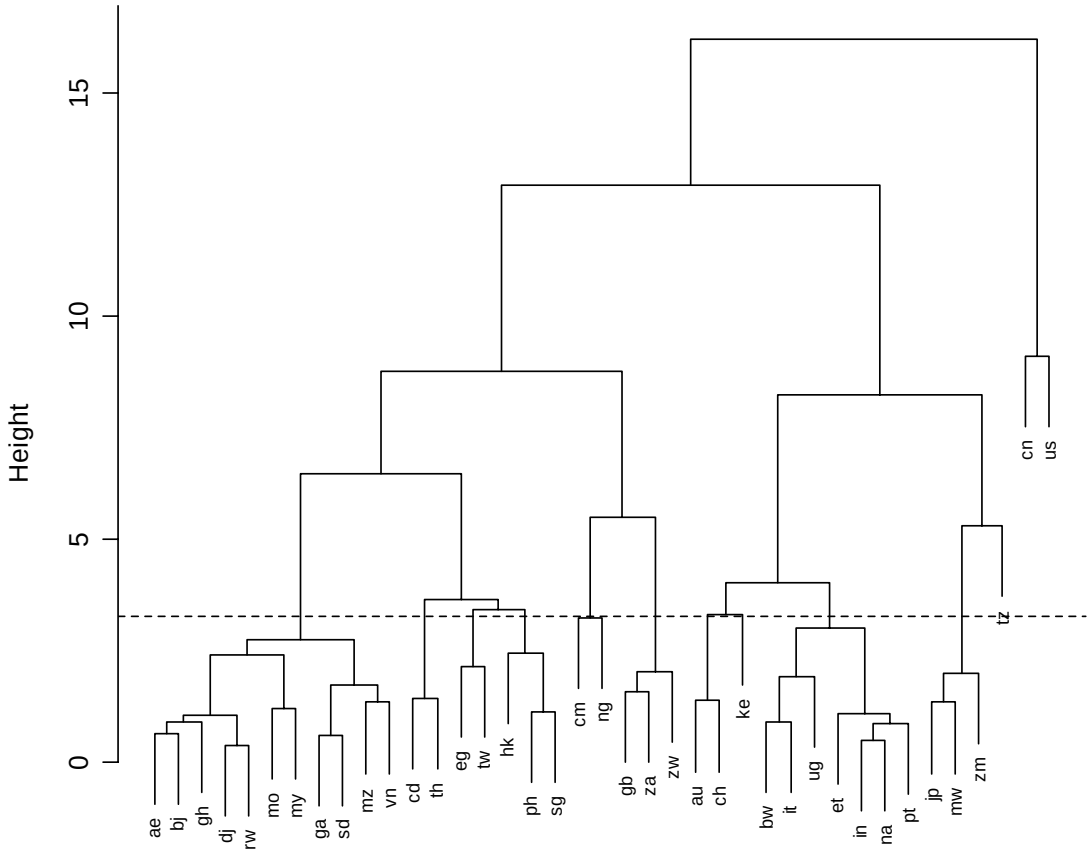
The cluster analysis

The 39 countries identified by the preliminary screening to represent the greatest portion of the trade as described above were classified according to a cluster analysis covering the period 1998-2006 based on the following variables:

sz.in.adj	adjusted number of seizures reported in-country
sz.out	total number of seizures implicating the country
sz.ratio	ratio of seizures made 'in-country' to total number of seizures which country made or was implicated in: *sz.in.2/(sz.in.2 + sz.out.2)*
wt.in.adj	adjusted total weight of seizures reported in-country
wt.out	total weight of seizures implicating the country
dims	domestic ivory market score

The later period was used so that more contemporary patterns in the trade were elicited. This analysis resulted in the following dendrogram:

Figure 9: The cluster analysis



Key: AE-United Arab Emirates; BJ-Benin; GH-Ghana; DJ-Djibouti; RW-Rwanda; MO-Macao SAR; MY-Malaysia; GA-Gabon; SD-Sudan; MZ-Mozambique; VN-Viet Nam; CD-Democratic Republic of the Congo; TH-Thailand; EG-Egypt; TW-Taiwan (province of China); HK-Hong Kong SAR; PH-Philippines; SG-Singapore; CM-Cameroon; NG-Nigeria; GB-United Kingdom; ZA-South Africa; ZW-Zimbabwe; AU-Australia; CH-Switzerland; KE-Kenya; BW-Botswana; IT-Italy; UG-Uganda; ET-Ethiopia; IN-India; NA-Namibia; PT-Portugal; JP-Japan; MW-Malawi; ZM-Zambia; TZ-United Republic of Tanzania; CN-China; US-United States of America

The results of the cluster analysis are presented in Figure 9. In this hierarchical configuration, the 'height' axis, which ranges from 0 to 15, represents a relative measure of dissimilarity between clusters. The degree of vertical separation between various clusters along this axis is indicative of their differences. For example, the path from the cluster (AE – United Arab Emirates, BJ - Benin) (on the far left hand side of the figure) to cluster (MO – Macao SAR, MY - Malaysia) (slightly to the right) reaches a height of about three units, while the path between (AE, BJ) to (TZ – United Republic of Tanzania) (on the far right hand side of the figure) represents about 12 units of height. Simply put, the differences between (AE, BJ) and (TZ) are far greater than the differences between (AE, BJ) and (MO, MY) in terms of the underlying statistics. In this regard, the characteristics of the seizure data for (CN – China) and (US – United States) (on the far right hand side of the dendrogram) exhibit the greatest differences to all other clusters in the configuration.

It is useful to conceptualize the dendrogram as a 'mobile' with all end points hanging to the 0 point on the height axis (even those clusters for CN and US that now appear at the top of the configuration). Cluster groupings can be obtained by 'cutting' a horizontal line at any point across the figure. The points where the vertical lines intersect with the horizontal line essentially produce cluster groupings with a particular measure of refinement. In this regard, placing the horizontal line at higher points along the height axis results in fewer but coarser clusters of countries, while putting the line at the lowest point, just above '0' point for example, would result in the total separation of all countries in the configuration.

While various groupings are possible, in the hierarchical representation for this analysis, a 'cut' (represented by the dashed line in Figure 9) was made at approximately 3.5 units, resulting in the formation of 13 clusters whose underlying characteristics could be assessed effectively. These groupings include four single country clusters, four pairs of countries or territories, three clusters of three countries or territories, one cluster of seven countries and one cluster of 11 countries. Both of the previous ETIS analyses were based upon assessing the data through 13 cluster groups (Milliken *et al.*, 2002 and 2004).

Table 3: Summary statistics for the 13 groups of the cluster analysis (1998-2006)

		Measure of Frequency	***Measure of Scale***	***Measure of Period of Activity***	***Measures of Law Enforcement Effort Efficiency and Rates of Reporting***		***Measure of Internal Ivory Trade***
Group	**Countries**	**Mean no. of seizures[1]**	**Mean weight (kg)[2]**	**Percentage of weight in recent period[3]**	**Mean CPI[4]**	**Mean LE/reporting ratio[5]**	**Mean market score[6]**
1	CD, TH	144	9,412	0.65	2.6	0.13	16.0
2	CM, NG	223	11,039	0.73	1.8	0.05	14.8
3	CN	729	39,375	0.91	3.4	0.58	12.0
4	EG, TW	70	7,036	0.55	4.5	0.57	11.2
5	HK, PH, SG	79	11,858	0.69	6.7	0.21	9.0
6	GB, ZA, ZW	401	5,808	0.46	5.4	0.44	8.8
7	AE, BJ, DJ, GA, GH, MO, MY, MZ, RW, SD, VN	41	2,823	0.84	3.6	0.11	8.5
8	US	1,191	10,817	0.50	7.6	0.86	7.0
9	JP, MW, ZM	97	11,331	0.64	4.3	0.66	6.8
10	BW, ET, IN, IT, NA, PT, UG	136	3,692	0.37	4.3	0.80	2.4
11	AU, CH	354	2,050	0.75	8.7	0.93	1.0
12	KE	304	13,418	0.73	2.1	0.84	-2.0
13	TZ	159	27,686	0.50	2.5	0.77	-2.0

(1) *Frequency* is measured by the 'mean number of seizures' in the period 1998-2006 (i.e. the total number of all seizures which were made or have implicated a particular country/territory divided by the number of entities in the cluster); high numbers indicate greater frequency; low numbers indicate lesser frequency.

(2) *Scale* is measured by the 'mean weight' in the period 1998-2006 (i.e. the total volume of ivory represented by all seizures which were made or have implicated a particular country/territory divided by the number of entities in the cluster); high numbers indicate greater volumes of ivory; low numbers indicate lesser volumes of ivory.

(3) *Period of activity* is measured by the 'percentage of weight in recent period' (i.e. the total weight in the period, 1998-2006, divided by the total weight from both periods 1989-2006); values show the percentage of the total weight which represents activity in the recent period.

(4) *Law enforcement effort, effectiveness, and rates of reporting* is measured, firstly, by the 'mean CPI' (i.e. the total Corruption Perception Index score for each country in the period 1998-2006 divided by the number of entities in the cluster divided by the number of years); scores range from 1.0 (highest perception of corruption) to 10.0 (lowest perception of corruption).

(5) *Law enforcement effort, effectiveness, and rates of reporting* is measured, secondly, by the 'mean LE/reporting ratio' in the period 1998-2006 (i.e. the total number of in-country seizures divided by the total number of seizures divided by the number of entities in the cluster); ratios range from 0.00 (no law enforcement effort) to 1.00 (best law enforcement effort).

(6) *Internal ivory trade* is measured by the 'mean market score'; scores range from –4 (no or very small, highly-regulated domestic ivory markets and carving industries) to 20 (very large, unregulated domestic ivory markets and carving industries).

Table 3 presents summary aggregated statistics for the 13 groups. Thus, for single country clusters, the statistics definitively reflect the data for that particular country, but for clusters comprised of two or more countries, the statistics represent the mean of all of the constituent components. In Table 3, the clusters have been arranged according to their 'mean market score' that derives from the *Domestic Ivory Market Database* in ETIS.

Discussion: assessing the results

The summary statistics in Table 3 highlight the salient characteristics of ivory trade dynamics for each of the clusters. It goes without saying that from the standpoint of illicit trade in ivory, some clusters are clearly more problematic the others. The following can be said about the 13 groups of countries and territories that derive from the cluster analysis:

Group 1 *Democratic Republic of the Congo (CD) and Thailand (TH)*: For the third consecutive time, these two countries, both of which are elephant range States, fall in the same cluster with extremely problematic variables. In terms of frequency and scale, this cluster ranks in the middle range, indicating fairly regular involvement in the illicit trade in ivory. It should be noted, however, that the Governments of the Democratic Republic of the Congo and Thailand are not regularly submitting elephant product seizure data to ETIS. To some degree, poor participation in ETIS serves to obscure the measures for frequency and scale, and actual values are certainly higher than indicated. In terms of period of activity, these two countries were more active in the recent period, 1998-2006, with two-thirds of the trade occurring during these years. Effective law enforcement continues to be a very serious issue in both countries as noted by the low CPI and law enforcement effort scores. These scores indicate a very high perception of corruption and extremely lax law enforcement effort. Equally, the domestic ivory market score is the greatest of any cluster, indicating a potent internal trade dynamic. Studies have documented an active ivory market in Kinshasa, the capital city of the Democratic Republic of the Congo, including reports of ivory being sold from shops in the departure lounge area of the international airport (Martin and Stiles, 2000). The local ivory carving industry could be growing and is intimately linked with the escalating trade in worked ivory products in neighbouring Angola (Milliken *et al.*, 2006; Hunter *et al.*, 2004; Martin and Stiles, 2000). Further, the Democratic Republic of the Congo continues to be a major supplier of illegal consignments of ivory to other parts of Africa and international destinations. Research has demonstrated that the Democratic Republic of the Congo is the most important source of ivory found in West African and Sudanese ivory markets (Martin, 2005; Courouble *et al.*, 2003), and that large consignments of ivory continue to move out of areas of conflict in northern and eastern parts of the country, often reaching markets in Asia via Uganda and through East African seaports in Kenya and the United Republic of Tanzania (Hunter *et al.*, 2004; Mubalama and Mushenzi, 2004; United Nations, 2001). For its part, Thailand clearly remains the undisputed, largest ivory market in Southeast Asia, although the scale of the market appears to have contracted in recent years. Regardless, nearly 21,500 ivory products in over 200 outlets, the majority in prominent tourist shopping locations, and an active, but declining, carving industry were observed in the most recent survey conducted in late 2006 (Stiles, in prep.; Martin and Stiles, 2002). These findings indicate that legal loopholes in the country's legislation continue to provide an avenue for fairly open trade in ivory products at the retail level and that law enforcement has been sporadic at best. With one of the largest tourist industries in the world, the negative impact of Thailand's ivory trade on wild elephant populations continues to be great. In summary, the same general description of these countries characterized previous ETIS analyses in 2002 and 2004. Since then, little progress

appears to have been made in these countries in implementing Resolution Conf. 10.10 (Rev. CoP12) requirements for internal trade in ivory or the CITES action plan pursuant to Decision 13.26.

Group 2 *Cameroon (CM) and Nigeria (NG)*: In this analysis, Nigeria and Cameroon, neighbouring countries which are both African Elephant range States, form a cluster. Like the previous group, Nigeria and Cameroon rank in the middle range in terms of frequency and scale but with somewhat higher values than the previous cluster. With respect to the period of activity, nearly three-quarters of the illicit trade involving these countries has transpired since 1998, indicating that these countries remain actively connected to the illicit trade in ivory. As both countries rarely, if ever, supply elephant product seizure data to ETIS, their involvement in the trade is largely revealed through seizure records obtained from other countries. This cluster demonstrates the highest perceptions of corruption and the lowest level of law enforcement effort of any group assessed in this analysis. Indeed, at only 5 %, there is little evidence of successful law enforcement, although Cameroon has made and reported some ivory seizures to ETIS in recent years. By the same token, this grouping has the second highest score for its domestic ivory market, again indicating considerable internal trade in ivory with little regulation by the government. The most recent assessment of Nigeria's domestic ivory market found it to be expanding, with ivory routinely available in the departure lounge areas of the international airport in Lagos (Courouble *et al.*, 2003; Martin and Stiles, 2000). Unfortunately, Cameroon's domestic ivory market has not been assessed since 1999 when 654 kg of worked ivory products were found for sale in Douala and Yaounde markets (Martin and Stiles, 2000). Recent large-scale seizures of raw ivory in Hong Kong, however, have been traced to the port of Douala, Cameroon, which clearly serves as an entrepôt for ivory collected from throughout the Central Africa region (CITES, 2006a). Nigerian seaports play a similar role, supported by considerable cross-border movement of ivory between Cameroon and Nigeria (Courouble *et al.*, 2003). Overall, these results essentially mirror the ETIS reports for CoP12 and CoP13 (Milliken *et al.*, 2002 and 2004). This is another case where there appears to be little positive change in status to indicate effective implementation of Resolution Conf. 10.10 (Rev. CoP12) requirements for internal trade in ivory and the CITES action plan under Decision 13.26.

Group 3 *China (CN)*: Once again China forms a single country cluster with the second highest values for the 'mean number of seizures' and the highest value for 'mean weight', indicating persistent ongoing involvement in high-volume illicit trade in ivory. In addition, compared to all other clusters, at 91 %, China has the highest percentage of its trade by weight in the most recent period of time. There is little doubt that China remains the most important contemporary player, a rapidly developing phenomenon that is linked to the nation's booming economy. As such, these findings continue to amplify previous results made in the ETIS analyses for CoP12 and CoP13. However, some fundamental changes have occurred which clearly demonstrate positive, responsive action on the part of China's authorities. In particular, China's law enforcement effort scores have improved markedly, rising from 6 % in 2002 to 30 % in 2004 to 58 % in the current analysis. Given the scale noted in the measure of frequency for the Chinese trade, the positive trend in the law enforcement effort ratio could only be achieved through an unprecedented and unwavering effort to ferret out illicit trade in ivory and report elephant product seizures to ETIS on a regular basis. At the same time, China's domestic ivory market score has also progressively dropped (given the broader scale of the domestic ivory market score in each successive analysis). The implementation of a comprehensive domestic ivory market control system that has become progressively more stringent since 2002 stands behind this development (CITES, 2005). Still, China's retail ivory market remains comparatively large to most other clusters in this analysis and there is continuing evidence of ivory trade beyond the official control system (Martin, 2006; IFAW, 2006). Further, the increasing involvement of Chinese nationals in the illicit procurement of ivory within African presents a major law enforcement challenge to both African elephant range States and China itself. China, like Japan, hopes to be designated as a CITES-approved ivory importing country with respect to the still-pending one-off sale of raw ivory from southern Africa, but formal certification in this regard has not yet transpired. China should be encouraged to continue their strong proactive approach to law enforcement and push forward with further improvements to its national regulatory

system as the country continues to be the most important country globally as a destination for illicit consignments of ivory.

Group 4 *Egypt (EG) and Taiwan, province of China (TW)*: While Egypt and Taiwan (province of China) have appeared in the previous cluster analyses on both occasions, this time they form a cluster together. Collectively, the values for frequency and scale fall at the low end of the scale, but the infrequent number of seizures often involve fairly large consignments of ivory. In fact, Taiwan (province of China) has featured in nine of the top 49 largest ivory seizures in ETIS, with the trade linked to Cameroon, Nigeria and the United Republic of Tanzania as sources, while Egypt has also done so on one occasion linked to the Sudan as the source. Further, by weight, the trade is fairly evenly split between the two periods of time, demonstrating a fairly constant involvement in the ivory trade. The modest CPI score and law enforcement effort ratio are more heavily influenced by the position of Egypt rather than Taiwan (province of China). While both members of this cluster have domestic ivory markets, the Egyptian market is much larger in all respects. In 2005, over 10,700 ivory products and approximately 50 active carvers were identified in Cairo, Luxor and Aswan markets (Martin and Milliken, 2005), while a similar study in Taiwan found only 1,849 products on the local market and one carver, indicating a much diminished local market (Martin and Stiles, 2003). Nowadays, Taiwan (province of China) seems to function more as an entrepôt for the benefit of mainland China, especially ivory processing operations in nearby Fujian Province, and Hong Kong SAR. Both Egypt and Taiwan (province of China) have been irregular in their provision of elephant seizure data to ETIS. In this regard, virtually no information has been received from Egypt from 2003 onwards, and the dataset of Taiwan (province of China), except for the two high-profile cases in 2006 and one other case in 2005, lacks any data from 2001 onwards. Finally, Egypt's domestic ivory market needs to demonstrate compliance with the requirements of Resolution Conf. 10.10 (Rev. CoP12).

Group 5 *Hong Kong SAR (HK), the Philippines (PH) and Singapore (SG)*: All of these countries and territories have repeatedly appeared in each of the ETIS cluster analyses in the past, but never in the same groups. In the analysis for CoP13, Philippines was in a 'catch-all cluster' but noted as becoming increasingly active in the illicit trade which could potentially break into a more prominent cluster in the future. Indeed, that appears to have occurred in this analysis. This time the Philippines joins Hong Kong SAR and Singapore in the same cluster that exhibits rather infrequent involvement in ivory seizures, but when incidences do occur they often involve high-volume cases. Indeed, these three countries and territories account for five of the 18 largest ivory seizures in ETIS since 2002. As such, all three entities have been more active in the recent period, with 69 % of the weight of seized ivory occurring since 1998. While the CPI variable is in an acceptable mid-range position, the perception of corruption would actually be much lower if not for the negative influence of the Philippines. (In fact, it is probably worth noting that the largest ivory seizure ever made in the Philippines, possibly as much as 3.7 tonnes of raw ivory in 2006, subsequently disappeared from the custody of Manila Customs under corrupt circumstances (CITES, 2006a). The law enforcement effort score is exceptionally poor, indicating that these countries or territories collectively are only making about one-quarter of the seizures in which they are implicated. In fact, all three countries or territories function as major transit points in the illicit trade in ivory, especially Hong Kong SAR for China, and Singapore and the Philippines for China, Japan and possibly Thailand. Hong Kong SAR consistently makes and reports ivory seizures to ETIS and, amongst the Asian region, represents one of the best datasets. On the other hand, in recent years, it should be observed that Singapore rarely makes and reports seizure cases to ETIS, while the Philippines has remained completely unresponsive to requests for information. The domestic ivory market score continues to be in the mid-range when aggregated, but this is largely due to the influence of Hong Kong SAR, where the last major survey four years ago identified over 35,000 ivory products on the retail market (Martin and Stiles, 2003). In fact, most of the seizures involving Hong Kong SAR that were made elsewhere in the world involve the confiscation of worked ivory products. Singapore's domestic ivory market has steadily declined (Martin and Stiles, 2002), but a new carving industry producing religious sculptures and artefacts has recently been identified in the Philippines that may be linked to an export trade to Italy, the Holy See and perhaps other

destinations (C. Mwale, pers. comm., 2007). Overall, the situation in the Philippines is most worrying and close examination of the implementation of Decision 13.26 with respect to that country is warranted.

Group 6 *United Kingdom (GB), South Africa (ZA) and Zimbabwe (ZW)*: The United Kingdom and Zimbabwe formed a cluster in the ETIS analysis to CoP13. Now, they are joined by South Africa to form a cluster. Both Zimbabwe and South Africa are African Elephant range States whose populations are in Appendix II of the Convention with annotations allowing conditional trade in various elephant products. On the other hand, the United Kingdom primarily functions as a transit route linked to both Asia and Africa, but also has a domestic ivory market of some importance (Martin and Stiles, 2005). With the third highest value, these countries are very frequently involved in ivory product seizures, but the low value for 'mean weight' strongly suggests that most cases are small-scale seizures. Under CITES, since 1997, Zimbabwe has been allowed to export ivory carvings for non-commercial purposes. Regardless, worked ivory products coming from Zimbabwe under both legal and illegal (i.e. without the endorsement of a Zimbabwean Customs stamp at the point of exportation) circumstances as 'personal effects' are often ineligible for import and seized in other countries, especially those with stricter domestic measures. In recent years, raw ivory from Zimbabwe's ivory store has also been seized in China and locally, leading the authorities to suspend temporarily government ivory sales to registered dealers for local production purposes as they review and improve the control system; a one-off sale from the government store to registered dealers was held in April 2007 as a means to test the new control system. In terms of period of activity, a slightly larger proportion of the trade has occurred in the earlier period of 1989-1997, but overall the scale of the illegal trade is fairly balanced between the two periods. The CPI score is in the mid-range, indicating lower perceptions of corruption than many other clusters, but Zimbabwe has the lowest CPI scores of this group. The law enforcement effort ratio is also below the mid-point, indicating a less than average performance collectively. To some extent, however, the seizure of worked ivory products that were legally exported from Zimbabwe confounds this variable and results in a lower value than would normally be expected if stricter domestic measures were not at play. The domestic ivory market score is also in the mid-range, but as an aggregated score it is worth noting that the market in Zimbabwe is about twice the size of those found in either South Africa or the United Kingdom.

Group 7 *United Arab Emirates (AE), Benin (BJ), Djibouti (DJ), Gabon (GA), Ghana (GH), Macao SAR (MO), Malaysia (MY), Mozambique (MZ), Rwanda (RW), Sudan (SD), and Viet Nam (VN)*: This cluster of 11 countries and territories, the largest grouping in the analysis, stands as a bit of a 'catch-all' group. It includes seven entities – Benin, Gabon, Ghana, Macao SAR, Malaysia, Rwanda and Viet Nam – which have never featured in the cluster analysis in previous ETIS reports. As demonstrated by the 'mean number of seizures' and 'mean weight' variables, the frequency and scale measures for this group are in the lowest range compared to any other cluster. This indicates that, when viewed as an aggregate, these countries are infrequently implicated in ivory seizures which generally only have modest weight values. In fact, all of the African countries and the United Arab Emirates and Viet Nam rarely if ever contribute ivory seizure data to ETIS (although the Sudan recently provided information for 2006), while Macao SAR and Malaysia are sporadic contributors of data at best. As such, trade dynamics come into focus largely through the seizure information supplied by others which may serve to understate the degree of involvement of these countries or territories. With 84 % of the trade by weight being seized since 1998, these countries have become far more active in the illicit trade in recent years. Another worrying factor is that this cluster has a low value for CPI, indicating a high perception of corruption, and one of the poorest values for law enforcement effort. While there is certainly some variability when considered individually, overall these countries generally play problematic roles in the illicit trade in ivory as medium-scale suppliers, transit countries or end-use markets. The mid-range score for domestic ivory markets suggests that some countries have active internal ivory markets, which certainly includes Gabon, Ghana, Macao SAR, Mozambique, the Sudan and Viet Nam, and mostly modest ivory carving industries have been identified in some of these countries (Martin, 2005; Hunter *et al*., 2004; Martin and Stiles, 2000 and 2003; Stiles, 2004). In future iterations of this analysis, some of these

countries – most probably Gabon, Mozambique, the Sudan and Viet Nam – could move into more prominent clusters unless the authorities move aggressively to curtail illicit trade in ivory, particularly that associated with their domestic ivory markets.

Group 8 *United States (US)*: Reporting over four times as many seizures as any other country in ETIS, the United States continues to rank highest in terms of 'mean number of seizures', but in the middle in terms of the measure for scale. This indicates that the United States continues to make a large number of rather small ivory seizures, which is indicative of a country largely dealing with the illegal import of ivory products as personal possessions. However, it should be noted that the 'mean weight' value is comparatively much larger than that of Group 11 (Australia and Switzerland), countries which otherwise share similar values and trade dynamics, suggesting that at least some part of the ivory traffic to the United States involves larger-scale shipments of either raw or worked ivory products that may be commercial in nature. In fact, there is growing evidence of ivory processing in the United States (Williamson, 2004; E. Martin, pers. comm.., 2007). In terms of the measure for period of activity, the 50 % value suggests that the illicit trade to the United States has remained evenly consistent between the two periods. The high values for CPI and the law enforcement effort ratios indicates that there is a very low perception of corruption in the country and very commendable law enforcement effort. The domestic ivory market score has decreased somewhat, but is still in the mid-range. The degree of regulation, particularly compliance with the requirements for internal trade in ivory in Resolution Conf. 10.10 (Rev. CoP12), remains to be established.

Group 9 *Japan (JP), Malawi (MW), and Zambia (ZM)*: Once again Japan, a major ivory consumer in Asia and the only beneficiary of the 1999 CITES-approved one-off sale of raw ivory from southern Africa, falls into a cluster that includes two African Elephant range States, Malawi and Zambia. These countries have a fairly low value for 'mean number of seizures', the frequency measure, but have a much larger value for 'mean weight', indicating that many reported seizures entail fairly substantial volumes of ivory. About two-thirds of the trade by weight is accounted for in the most recent period, 1998-2006, suggesting that all countries are currently active in the illicit ivory trade. This was not the case for Japan in 2002 when the first ETIS analysis was presented (Milliken *et al.*, 2002). Indeed, all three countries – Zambia as the predominate supplier, Malawi as the exporter, and Japan as the designated destination – were interlinked in the largest ivory seizure of over seven tonnes that was made in Singapore in 2002. More recently, in mid-2006, Japan made the largest ivory seizure in its own history; consisting of nearly three tonnes and including both raw and semi-worked ivory, this consignment stands as formidable and worrying evidence that Japan is a contemporary destination for illicit ivory. The relatively low CPI score suggests that there is a high perception of corruption, but the aggregated value more strongly reflects the influence of Malawi and Zambia more than Japan. The aggregated law enforcement effort ratio stands at a respectable 66 %, indicating a better than average performance in terms of interdiction of illicit consignments overall. The domestic ivory market score is in the mid-range, but that primarily reflects the influence of Japan as both Malawi and Zambia harbour relatively small internal ivory markets in comparison. While the Japanese market is highly structured to enhance regulatory oversight, it has been found deficient in some respects in recent years necessitating further improvements (CITES, 2006a). At the 54th meeting of the CITES Standing Committee, Japan was given tentative approval to be a CITES-designated ivory importing country with respect to the still-pending one-off sale of raw ivory that was approved for three African countries at CoP12 in 2002 (CITES, 2006b). As recent seizures demonstrate, however, Japan still faces major challenges in implementing its domestic ivory market control policy and ensuring that ivory of illicit origin does not penetrate the system. Malawi and Zambia are also exhibiting a faltering performance in recent years.

Group 10 *Botswana (BW), Ethiopia (ET), India (IN), Italy (IT), Namibia (NA), Portugal (PT) and Uganda (UG)*: This cluster of seven countries is another 'catch-all' mix of elephant range States (Botswana, Ethiopia, India, Namibia and Uganda) and transit or consumer countries (Italy and Portugal). Italy appears in the cluster analysis for the first time, while all other countries have featured in the cluster analysis at least one time previously. In terms of frequency and scale, this cluster is the opposite of the preceding cluster with slightly more seizures in

terms of frequency but low weight values in terms of scale. The 'period of activity', however, strongly suggests that involvement in the illicit trade in ivory is decreasing with only 37 % of the trade transpiring since 1998. The low value CPI score indicates that the perception of corruption is an important issue in some of these countries, however, the law enforcement effort ratio indicates a determined and effective response. As an aggregated group, the domestic ivory market score is very low, and there is active suppression of internal trade in ivory in Ethiopia, India and Uganda (Milledge and Abdi, 2005; Hunter *et al*., 2004; TRAFFIC, 2003). Other countries in this cluster have little or fairly well regulated domestic ivory trades (Martin and Stiles, 2005). The inclusion of Ethiopia in this cluster is worth amplifying as this country was identified in the ETIS analysis to CoP13 as one of the six most problematic countries in the world. Since then, Ethiopia, with assistance from TRAFFIC, WWF and the CITES Secretariat, convened a workshop to assess the problem, has submitted a backlog of elephant product seizure data to ETIS, and launched a major law enforcement crack-down that has effectively eliminated the domestic ivory market in the capital city (Milledge and Abdi, 2005). Compared to the CoP13 analysis, Ethiopia's position in the current analysis has improved dramatically and stands as the best example to illustrate how a country can act decisively to implement Decision 12.39 and, later, Decision 13.26.

Group 11 *Australia (AU) and Switzerland (CH)*: This marks the first time that Australia has appeared in the cluster analysis, joining Switzerland in a group characterised by frequent, but very low volume ivory seizures. Like the United States, these values are indicative of countries whose interface with illicit trade in ivory is primarily through the introduction of ivory products as personal possessions rather than as commercial shipments. Possibly reflecting the fact that ivory seizure data for Australia is essentially absent from the early period, 1989-1997, as well as perhaps an increase in tourism from these countries to destinations with unregulated domestic ivory markets, three-quarters of the trade has transpired since 1998. With the best values of any cluster for CPI and the law enforcement effort ratio, and a very low domestic ivory market score, Australia and Switzerland arguably illustrate the best-case scenario of any grouping in this cluster analysis.

Group 12 *Kenya (KE)*: Kenya, an elephant range State, has featured in the two previous ETIS analyses, but this time falls into a cluster of its own. With high values for 'mean number of seizures' and even higher values for 'mean weight', Kenya confronts a persistent challenge with respect to illicit trade in ivory. With nearly three-quarters of the trade by weight transpiring in the most recent period, 1998-2006, it appears that the illicit traffic in ivory is increasing, primarily due to Kenya's role as a transit country. Indeed, large-scale consignments of ivory originating in the Central African region, and packaged in shipping containers in neighbouring Uganda (CITES, 2004), have moved onto international markets through the seaport of Mombasa. Further, as Kenya's own population of African Elephants has continued to increase throughout this period (Blanc *et al.*, 2007), the greatest impact of the illicit ivory trade associated with Kenya appears to be external to the country. With the second lowest CPI score in this analysis, the perception of corruption is great, but corruption in the wildlife sector may not necessarily be an important issue of concern as Kenya enjoys one of the highest law enforcement effort ratios in this analysis. That is to say that Kenya, more often than not, is successfully seizing ivory before it moves out of the country. The exceptionally low domestic ivory market score also indicates a 'zero' tolerance policy for domestic trade in ivory.

Group 13 *United Republic of Tanzania (TZ)*: The United Republic of Tanzania, another elephant range State and previously in both of the ETIS analyses, emerges in a cluster of its own for the first time. The United Republic of Tanzania has a mid-point value for 'mean number of seizures', but has the second highest value of all for 'mean weight'. This indicates that the United Republic of Tanzania continues to be involved in a large number of high-volume ivory seizures. In fact, the United Republic of Tanzania has either made or otherwise been implicated in 11 of the 49 highest volume seizures reported to ETIS. With a 50 % value as the period of activity measure, the scale of the trade remains virtually unchanged in either period of time. The very low CPI value suggests a fairly high perception of corruption, but like Kenya, this is mitigated by the law enforcement effort ratio which demonstrates a high

rate of interdiction. Finally, and again like Kenya, the very low domestic ivory market score marks a country with virtually no ivory on its internal market. As such, the United Republic of Tanzania primarily functions as a transit country, with its ports of Dar es Salaam and Tanga providing access to global markets for ivory that often originates from interior regions on the African continent. Thus, the greatest impact of the ivory trade with which the United Republic of Tanzania is associated is on elephant populations existing outside of the country as the Tanzanian elephant population has demonstrated considerable growth in numbers since 1989 (Blanc *et al.*, 2007).

Correlated relationships which drive illicit trade in ivory

The description of the individual clusters above serves to bring out the salient characteristics and key relationships of the entities in each group. Table 4 presents a statistical correlation of the variables given in the summary statistics found in Table 3. As was the case with all previous analyses of the ETIS data, there is a highly significant negative correlation between the domestic ivory market score and the law enforcement effort reporting ratio. In the first ETIS analysis in 2002, this correlation was -0.86, dropping somewhat to -0.76 in the analysis in 2004. This time the correlation shows a slight increase to -0.77, with the P value still remaining (as always) highly significant at < 0.001. This once again tells us that countries which have large, unregulated domestic ivory markets (i.e. high scores) generally reveal the poorest law enforcement effort (i.e. low ratios). Thus, countries or territories which exhibit this characteristic are the most important driving forces behind the illicit trade in ivory. In previous analyses, secondary degrees of positive correlation were found between the CPI score and the law enforcement effort ratio, and the change in weight percentage and the domestic ivory market score. In this analysis, however, that was no longer the case.

Table 4: Correlation between variables in Table 3

	Mean No. of seizures	**Mean weight**	**Change in weight**	**Mean CPI**	**LE/report ratio**
Mean weight	-0.26 (ns)				
Change in weight	0.00 (ns)	0.28 (ns)			
Mean CPI	0.37 (ns)	-0.36 (ns)	-0.16 (ns)		
LE/report ratio	0.41 (ns)	-0.40 (ns)	-0.32 (ns)	0.35 (ns)	
Market score	0.01 (ns)	0.23 (ns)	0.38 (ns)	-0.16 (ns)	**-0.77 (***)**

Key: ns = not significant
** = significant at P < 0.001

In terms of scale, the impact of domestic ivory markets that exhibit weak regulation and law enforcement on elephants is major. One analysis assessed the consumption of ivory by carvers in various markets around the world, concluding that between 33-83 tonnes of ivory are required to support the annual consumption of the 22 most problematic markets in Africa and Asia (Hunter *et al.*, 2004). The study further suggested that this volume of ivory represents between approximately 4,800 and 12,200 elephants annually, most of which derive from illicit sources, particularly in Central Africa (Hunter *et al.*, 2004). These figures clearly stand behind substantial illegal killing of elephants.

Assessing the results of the spatial analysis

The three clusters which hold the Democratic Republic of the Congo and Thailand, Cameroon and Nigeria, and China continue to play the most problematic contemporary roles in the illicit trade in ivory. This result is consistent with the two previous ETIS analyses where the top tier group of major players included all five of these countries, plus Ethiopia. (As has been described above in the description of Group 10 in the cluster analysis, since CoP13, Ethiopia has taken far-reaching measures to address the

full range of issues which foster illicit ivory trade in and through the country, and the success of these actions means Ethiopia is no longer a country of major concern at this time. In this regard, Ethiopia should be commended for its positive actions and encouraged to sustain its commitment to suppress illicit trade in ivory in and through the country.)

Likewise, of the remaining countries, only China has demonstrated progressive improvement by taking decisive steps to regulate its domestic ivory market and improve law enforcement both at ports of entry and, more recently, in the retail market. The consequence of these actions is evident in a significantly improved law enforcement effort ratio and a somewhat diminished domestic ivory market score. Since CoP12, China has taken the issue of illicit trade in ivory very seriously and should be duly commended for these impressive efforts. By the same token, China must remain cognizant that current efforts must not wane in the face of a persistent challenge as, more than any other single factor, the Chinese market continues to exert the greatest influence on global ivory trade dynamics. Indeed, although treated separately in this analysis (and both previous ETIS reports), the ivory trades of Hong Kong SAR, Macao SAR and even Taiwan (province of China) now all seem to be inextricably interlinked with that of the Chinese mainland. As an aggregated unit, the scale of this grouping is unprecedented in global terms. For this reason, if the current display of vigilance and unwavering focus to addressing outstanding problems can be maintained, China potentially holds the key for reversing the upward surge of the current trend line for illicit trade in ivory.

Finally, it needs to be appreciated that Chinese control and law enforcement efforts that remain exclusively focused upon the Chinese mainland could be confounded to an appreciable extent by the involvement of Chinese nationals in the direct procurement of ivory in elephant range States in Africa. The ETIS data illustrate that Chinese nationals have been arrested, detained or absconded in at least 126 seizure cases – representing some 14.2 tonnes of ivory – which have occurred in, or originated from, 22 African elephant range States, including Botswana, Cameroon, Congo, Côte d'Ivoire, the Democratic Republic of the Congo, Equatorial Guinea, Ghana, Guinea, Kenya, Liberia, Malawi, Mali, Mozambique, Namibia, Nigeria, Senegal, South Africa, the Sudan, Uganda, the United Republic of Tanzania, Zambia and Zimbabwe. This is a relatively recent phenomenon as 87 % of these cases occurred in the most recent period since 1998. With an already strong and growing economic presence throughout Africa, Chinese nationals are now well positioned to exploit direct sources of illicit ivory in a manner that was not the case in the past. To ensure that current Chinese policy is well understood and that illegal trade in elephant ivory is considered a serious crime, it would be in China's interest to undertake a major public awareness outreach programme directed at the growing Chinese community based in African elephant range States. Future law enforcement strategies should also take this dimension of the illicit trade into consideration in order to remain effective.

Regrettably, it appears that the Democratic Republic of the Congo, Cameroon, Nigeria and Thailand have done very little to mitigate their roles as major entrepôt suppliers, transit countries, manufacturers and/or end-use markets in the illicit ivory trade. With perhaps only Cameroon exhibiting some degree of exception, probably the most salient unifying characteristic of these countries is that they all harbour highly visible domestic ivory markets and local ivory carving industries that do not appear to be part of any effective regulatory framework or regular law enforcement attention. Further, both Cameroon and Nigeria function as major entrepôt exporters of consignments of raw ivory collected throughout the entire Central African region. Similarly, ivory acquired in eastern and northern parts of the Democratic Republic of the Congo regularly moves into neighbouring East African countries for export abroad. Thailand (and China) serve as important end-use destinations in this regard. Since the first ETIS analysis issued in 2002, these countries have been highlighted as major players in the illicit trade in ivory. Subjected to Decision 12.39 in 2002 and Decision 13.26 in 2004, these countries have been under notice to demonstrate compliance with the requirements for internal trade in ivory found in Resolution Conf. 10.10 (Rev. CoP12) for at least four and half years now. With this analysis, it is once again evident that the situation in these countries remains a serious impediment to effective elephant conservation under the Convention.

A secondary level of concern arises with respect to the two clusters harbouring Hong Kong SAR, the Philippines and Singapore, and the 11 countries the United Arab Emirates, Benin, Djibouti, Gabon, Ghana, Macao SAR, Malaysia, Mozambique, Rwanda, the Sudan and Viet Nam. These clusters also exhibit similar problematic characteristics to the top tier countries described above, but with lower values in term of frequency and scale. They also show very poor values for law enforcement effort, and corruption is

often an issue of concern. Hong Kong SAR and Singapore have long been identified as key transit countries through which very large consignments of illegal ivory flow on occasion. The rapid emergence of the Philippines into this same group, coupled with clear evidence of corruption amongst local regulatory authorities at the port of Manila, probably demonstrates a calculated strategy to move illicit ivory through channels exhibiting weak law enforcement and governance values. Further, Malaysia enters the cluster analysis principally as a transit country, when the port of Pasir Gudang in Johor near Singapore was part of the trade route used for the largest seizure of ivory ever made in Japan in 2006. Again, the larger port in neighbouring Singapore may have been deliberately avoided in view of the major ivory seizure made there in 2002. And Macao SAR also emerges in the cluster analysis as another transit territory serving China, which is definitely linked to Hong Kong SAR and possibly to the Philippines as well. Of the African countries, Gabon and Ghana are becoming more significant as sources of ivory to international destinations. Mozambique and the Sudan, with significant domestic ivory markets of their own, are making some sporadic and welcomed ivory seizures locally, but overall efforts do not appear to represent a sustained crackdown. All of these countries need to be encouraged to assess their domestic ivory markets carefully and increase regulation, improve their law enforcement effort ratios and report seizure information to ETIS in a more timely manner. With the exception of Hong Kong SAR, most of the these countries and territories rarely make and report seizures to ETIS.

A third level of concern involves the two clusters holding Egypt and Taiwan (province of China) and the United Kingdom, South Africa and Zimbabwe. These countries and territories also need to be encouraged to assess current responses to illicit ivory trade issues. Egypt and Taiwan (province of China) collectively and individually show better than average law enforcement effort ratios in the period 1998-2006, but Egypt's domestic ivory market needs to demonstrate compliance with Resolution Conf. 10.10 (Rev. CoP12). On the other hand, law enforcement effort ratios have dropped for the United Kingdom and South Africa in the second period 1998-2006 compared to the earlier period 1989-1997. Indeed, only the United Kingdom remains at the 50 % point (previously it was 76 %), while the other two countries are significantly less at 44 % and 38 % respectively. Zimbabwe, which suspended legal sales of raw ivory from the government store to registered manufacturers in August 2005 following evidence of illegal local sales and exports, is undertaking a series of reforms to improve regulation of its domestic ivory market. These problems have compromised Zimbabwe's standing in this cluster analysis. By the same token, regulation of South Africa's domestic ivory market needs attention in view of the many worked ivory products traded as personal effects that are seized abroad.

And finally, the United States, Japan, Malawi and Zambia, Kenya and the United Republic of Tanzania all continue to be regularly challenged by the illicit trade in ivory. These countries by and large exhibit good law enforcement capabilities and are interdicting ivory far more often then it appears to elude them. Kenya and the United Republic of Tanzania remain major trade routes and the cooperation of Customs, port and wildlife authorities in these countries is essential for maintaining an effective law enforcement stance. Similarly, Malawi and Zambia are both important source and transit countries but, compared to Kenya and the United Republic of Tanzania, standards have clearly dropped in the period 1998-2006. Ivory trade matters need to receive greater attention on the national agenda. And the United States and Japan remain important destinations for illicit ivory, primarily as worked products in the case of the United States, but also as raw material for processing in Japan. This is a worrying development as it suggests that illicit consignments may either be leaking into the legitimate end of the domestic manufacturing industry or that parallel renegade operations may be taking root. Japan, in the interest of being a credible 'designated ivory importing country under CITES', needs to exhibit an uncompromising, exemplary stance in terms of law enforcement and monitoring its own domestic ivory market. Attempts to move 60,476 ivory name seal blanks into the country since 2002 illustrates the challenge Japan faces.

In response to the ETIS analysis at CoP12, the Parties agreed Decision 12.39 which initiated an intersessional CITES process, under the direction of the Standing Committee, to deal with the issue of domestic ivory markets that fail to comply with the requirements specified in Resolution 10.10 (Rev. CoP12). At CoP13, this decision was replaced by Decision 13.26 which established an *Action plan for the control of trade in African elephant ivory*. This action plan calls for all African Elephant range States:

– *to prohibit unregulated domestic sale of ivory, whether raw, semi-worked, or worked;*
– *to instruct all law enforcement and border control agencies to enforce such laws; and*

– *to engage in public awareness campaigns to publicise these prohibitions.*

The 'action plan' clearly targets Africa's unregulated domestic ivory markets by obliging all elephant range States to comply with CITES requirements for internal trade in ivory outlined in Resolution Conf. 10.10 (Rev. CoP12) or face the imposition of punitive sanctions, including the possible suspension of all international trade in CITES-listed species. Decision 13.26 also calls for the continued monitoring of "all domestic ivory markets outside Africa to ensure that internal controls are adequate and comply with the relevant provisions of Resolution Conf. 10.10 (Rev. CoP12) on trade in elephant specimens" and that "priority should be given to China, Japan and Thailand" in this regard.

By the 54th meeting of the Standing Committee, in October 2006, at least 19 African Elephant range States had submitted national update reports to the CITES Secretariat, while another 18 range States had failed to table anything. These reports are mandated under Decision 13.26 to help assess compliance of individual countries with the requirements of Resolution Conf. 10.10 (Rev. CoP12). Unfortunately, the contents of the reports at hand have remained confidential, even as summaries, so it remains unclear where particular range States stand in terms of meeting their regulatory obligations for internal trade in ivory. To date, no sanctions or punitive actions have been taken against any countries, even those with large domestic ivory markets that have failed to demonstrate compliance with CITES requirements.

PART IV: ASSESSMENT OF FACTORS GIVING RISE TO ILLICIT TRADE IN ELEPHANT IVORY

Resolution Conf. 10.10 (Rev. CoP12) mandates that ETIS assess "whether and to what extent observed trends are related to changes in the listing of elephant populations in the CITES Appendices and/or the resumption of legal trade in ivory". In this regard, we strive to answer the question:

> *What are the probable causes and factors behind any changes in the trend during this period of time and how do they relate to CITES?*

'Signals' or market forces?

The question of whether the observed trends in the illegal trade in ivory are related to events and decisions under CITES raises the perennial question of 'signals'. Indeed, one amendment proposal for elephants submitted at CoP14 asserts that "continued debate among CITES Parties about re-opening trade serves to fuel further demand", arguing that a 20-year moratorium is required "free from effects of any further CITES decisions on ivory trade" (CITES, 2007). The basic logic of the 'signal hypothesis' holds that intentions or actions to transfer elephant populations from Appendix I to Appendix II, or to change annotations to allow any kind of trade in ivory, produce 'signals' that a re-opening of trade in ivory is imminent. This, in turn, stimulates the illegal killing of elephants and illicit trade in ivory. As noted in the past, proposals to transfer specified populations of elephants from Appendix I to Appendix II of the Convention or to change annotations have been considered at each and every meeting of the Conference of the Parties since 1989, when all African Elephant populations were first placed in Appendix I. Unsuccessful initiatives transpired in March 1992 and November 1994, while downlistings of specific elephant populations or changes in annotations occurred in June 1997, April 2000, November 2002 and October 2004. A conditional one-off ivory sale also took place in June 1999. In the interim, annual meetings of the CITES Standing Committee have considered elephant issues on their agendas during all of the intervening years since at least 1997. All of these events have generated elephant-related media coverage to some extent and would have consequently produced 'signals'. It is not, however, possible to understand whether all of these 'signals' produce immediate or long-term consequences, if any at all. Further, it is not known whether such signals are necessarily negative in terms of their consequences. For example, it is quite conceivable that law enforcement officers in many locations may become more vigilant as a result of greater awareness of CITES events, news of elephants and ivory trade issues or publicity surrounding large-scale ivory seizures. Finally, CITES interventions into specific ivory markets through Decisions 12.39 and 13.26, for example, can also stimulate major responsive actions that have positive consequences as we have seen from the cases of Ethiopia and even China in this analysis.

Against this complicated backdrop, Figure 8 can be examined to see if the trend line shows increases of ivory seizures which follow a pattern roughly similar to major CITES events or not. Whether looking at the adjusted and smoothed trend line, or just the adjusted trend line, it can be seen that a downward trend characterized all years holding a major CITES event except one: only 1997 shows an increase in ivory seizures. This pattern in the data does not appear to buttress the conventional wisdom that

proponents of the 'signals hypothesis' routinely subscribe to, that is a substantial increase in illegal trade values should occur as a direct consequence of the publicity CITES events generate with respect to elephants and ivory trade. If the effects are delayed and subsequently felt in other years, and they are negative, then again there is no clearly definable pattern in the trend line.

In the end, the perceptions and motivational factors that lie behind the ivory seizure data remain essentially unobservable. Some insight, however, can be found in the regional ivory trade studies undertaken by Esmond Martin and Daniel Stiles. Their qualitative assessments of the perceptions of ivory manufacturers and retail sellers in various markets around the world about CITES events have not, since 2002, characteristically validated the 'signals hypothesis'. Their first study in Africa, conducted in 1999 just after the one-off ivory sales between three southern African countries and Japan had occurred, concluded that some African ivory dealers in certain markets mistakenly thought that this event might lead to the re-opening of the international ivory trade (Martin and Stiles, 2000). Since then, however, in other markets, the reactions have been decidedly different. The one-off ivory sale from southern Africa to Japan "did not cause the ivory trade to increase in South or South East Asia, as had been feared" (Martin and Stiles, 2002), and "ivory industry business personnel in China, Hong Kong and Taiwan did not believe that the 1999 southern African ivory auctions had a significant effect on either internal or external ivory demand" (Martin and Stiles, 2003). More recently, "vendors and craftsmen in Europe did not think that the 1999 sales of ivory from southern Africa to Japan had any effect on ivory demand in Europe" (Martin and Stiles, 2005). Perhaps there was some 'bump' effect due to publicity at the time the one-off sale occurred, but if so, it was a short-lived phenomenon in most ivory markets with little lasting impact.

In sum, there are many different kinds of 'signals', both positive and negative, that result from CITES decisions and events. Indeed, there have essentially been 'signals' of one kind or another throughout the entire period. It can be argued that, over the last two decades, the CITES dynamic stands as a constant background variable, giving rise to both negative and positive perceptions, interventions, responses and consequences. For these reasons it is very difficult to isolate the effects of various 'signals' under CITES and identify any clear pattern or relationship with the seizures data in ETIS.

If 'signals' from the CITES arena are not driving illicit trade in ivory, what is? The counter view is most firmly embedded in readily observable 'real life' market forces and postulates that economic factors are the principal drivers of illicit trade in ivory (Barbier *et al.*, 1990). As described above, 'signals' can influence markets in a variety of ways, but they are not 'the markets' themselves. Indeed, this analysis confirms for the third consecutive time that illicit ivory most typically flows to domestic ivory markets which lack effective law enforcement and regulatory controls commensurate with the illicit trade challenge at hand. In this regard, one could argue that ivory follows the 'path of least resistance' in order to realize economic returns in the most timely manner. Overall, these markets reflect tangible, highly visible and largely independent demand for ivory irrespective of events under CITES, and most current markets certainly have a history that predates the transfer of the African Elephant to Appendix I under the Convention (Cobb, 1989). In the final analysis, the ETIS data indicate that the combination of market forces and the degree of regulation and law enforcement acting upon these markets are the most important factors giving rise to illicit trade in ivory.

The implication of large-scale ivory seizures

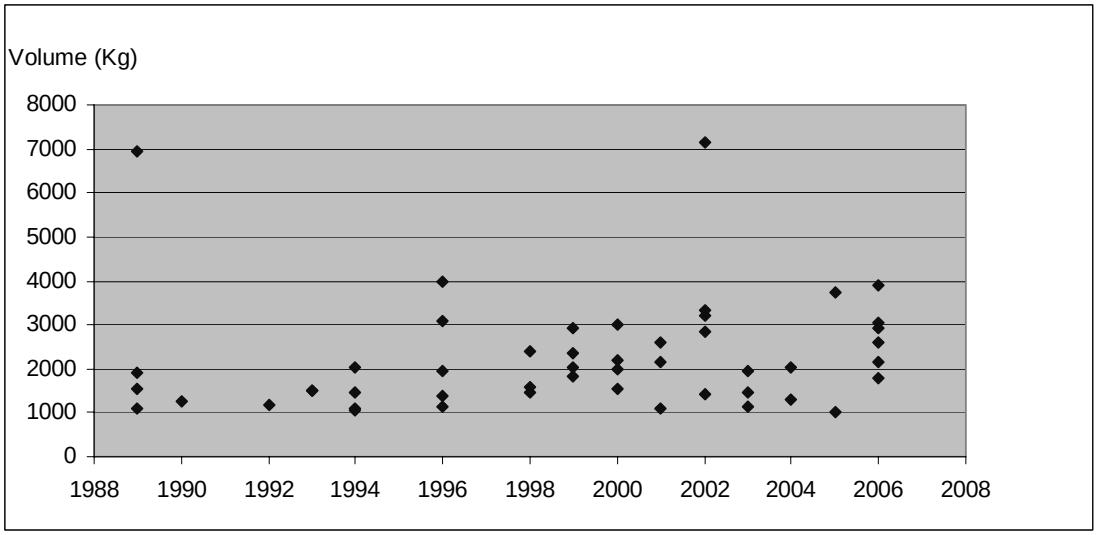
Large-scale ivory seizures are relatively infrequent events, so they inevitably generate major media coverage locally, if not more widely throughout the world. A series of substantial confiscations of illicit ivory in East Asia in 2006 led some observers to speculate about the status of ivory trading around the world. It was subsequently reported that "illegal ivory trade recently intensified to the highest levels ever reported" and that illegal trade in ivory "has once again escalated to the devastating levels that occurred before the 1989 CITES ivory trade ban" (Wasser *et al.*, 2007). Neither statement can be corroborated using the ETIS data. In terms of raw ivory seizure data, 2002 represents the year where the highest volume of ivory was seized and reported to ETIS, followed by 2006 with a raw ivory equivalent weight value that is about 25 % less than the value for 2002 (Table 2). Perhaps more significantly, as the trend analysis demonstrates, adjusting the raw data to account for inherent bias suggests that the year 1989, for example, actually corresponds to a far greater volume of ivory in illicit trade. Although 2006 clearly represents a current escalation in illicit ivory trade over the period that immediately preceded it, levels have not yet reached the scale that were seen in 1989 and the early 1990's, or even in 1998 and 1999

(Figure 8). Finally, prior to the CITES trade ban, especially before the introduction of the CITES export quota system in 1986, ivory exports from Africa "had been running at up to 1000 tonnes (t) a year in the mid-1980s" (Caldwell and Luxmoore, 1990), which clearly constitute far greater volumes of ivory than current levels of illicit trade.

By defining large-scale ivory seizures as those which involve one tonne of ivory (using raw ivory equivalent weight values) or more, there are 49 such seizures in ETIS. Although by number these seizures correspond to not even one-half of one percent of the total number of ivory seizure cases in ETIS, collectively they total 110,145 kg of ivory, which is slightly more than one-third of the total volume of ivory represented by the ETIS data (Table 2). In other words, 0.4 % of the seizures represent 34 % of the volume of ivory seized, demonstrating the huge influence large-scale ivory seizure events exhibit in the data overall.

Figure 10 depicts the year and the weight of these seizure cases. It can be observed that although large-scale seizures have occurred throughout the period addressed by ETIS, they have become far more frequent and somewhat larger in scale in the period 1998-2006. In fact, 17 large seizures occurred in the period 1989-1997, while 32 occurred thereafter. The total weight represented by these seizures also more than doubled from 34,061 kg in the early period, to 76,084 kg in the nine years from 1998 onwards. For nine of the 49 seizures, the origin of the ivory remains unknown, but in all other cases, the ivory is identified as originating in African Elephant range States. Only 15 of these seizures were made in African countries, but only four in the later period since 1998, indicating that law enforcement effort may be declining within Africa overall. On the other hand, transit and consuming countries in Asia could be improving their ability to detect illicit ivory.

Figure 10: Large-scale ivory seizures > 1 tonne (ETIS 5 March 2007)



Assessing the movements of large-scale ivory shipments is an instructive means to illuminate principal end-use markets. Thirty of the 49 largest ivory seizures in ETIS were destined for China, Japan, Philippines, Macao SAR, Taiwan (province of China) or Hong Kong SAR, (the remaining 19 were either unknown or went to six other destinations – Egypt, Ethiopia, Portugal, Uganda, United States and Viet Nam – a single time only). Table 5 shows that the vast majority of this ivory went into trade during the most recent period and was destined for China or the territories of Macao SAR, Hong Kong SAR and Taiwan (province of China). Indeed, as has been discussed elsewhere in this report, the ivory trades of all of these entities are now believed to be inextricably intertwined with the ivory industries of the Chinese mainland. If viewed as an aggregated whole, this group accounts for nearly two-thirds of this trade, and only the Taiwan component appears to be less active in more recent years. Japan, the Philippines and Thailand also represent major destinations, although the Philippines is not usually recognized as a significant end-use market and may simply be a temporary transit country for export to other destinations most likely from within the group.

Table 5: Reported destination of ivory in 30 large-scale ivory seizure cases (ETIS 5 March 2007)

Country/Territory	Total Volume (kg)	Period 1 1989-1997	Period 2 1998-2006	Comments
China	26,409	0	26,409	End-use market
Japan	11,304	1,249	10,055	End-use market
Philippines	8,900	0	8,900	Transit country?
Thailand	4,410	0	4,410	End-use market
Macao SAR	3,903	0	3,903	Trade linked to China
Taiwan (province of China)	10,675	7,031	3,644	Trade linked to China
Hong Kong SAR	2,600	0	2,600	Trade linked to China
Total	**68,201**	**8,280**	**59,921**	

The role of organized crime and rapidly globalizing markets

It goes without saying that large-scale ivory seizures involve large volumes of ivory so their impact upon elephant populations can be highly significant. But beyond scale, they are also indicative of greater sophistication and criminalization in terms of illegal ivory trade dynamics. The drift towards greater levels of organized crime in the illicit trade in ivory in recent years is an extremely worrying development. The creation of efficient systems for the illicit procurement and trade of large volumes of ivory requires greater finance, better planning, organization and intelligence, investment in secure facilities for storage and staging purposes, and the ability to exploit trading links and networks between sources and end-use markets effectively and covertly (Cook *et al*., 2002). As sustained – albeit illegal – enterprise, organized crime syndicates often rely upon high levels of collusion, corruption and protection between private sector operators and different government institutions, particularly those with regulatory and law enforcement functions at important trade bottlenecks such as at major border crossings or at seaports (Gastrow, 2001a and 2001b). There is also evidence to suggest that local military, political or economic elites often become involved due to the perceived lucrative nature of the trade (Mubalama and Mushenzi, 2004), and that official staff of local foreign embassies may, on occasion, also provide services or 'cover' to facilitate arrangements. Finally, illicit trade in natural resources can arise as an illegitimate 'spin-off' enterprise in conjunction with other development activities such as major construction or road building projects or timber, mining or oil exploitation operations that occur in proximity to sources of elephant ivory. Acquiring illicit ivory directly in source countries usually involves a fairly modest investment in comparison to the price the commodity potentially sells for on home markets, thus middlemen traders stand to make considerable off-shore profit if successful.

It appears that the increase of organized crime in the illicit trade in ivory has gone hand-in-hand with the globalization of markets. In particular, access to and exploitation of Africa's natural resources are inducing greater levels of foreign investment and trade from a wider range of players than at any previous time in the continent's history. European and North American companies have long had economic footholds on the African Continent, but China, the Republic of Korea, Malaysia and Taiwan (province of China), for example, and even India which has a long history of trade with Indian Ocean coastal States, are all rapidly expanding their economic activities in Africa. China, whose investment reached USD 50 billion in 2006 (Council of Foreign Relations, 2007) and was expected to increase to USD 110 billion by 2010 (Bello, 2007), is the paramount player. Such investment is accompanied by increasingly large numbers of foreign nationals taking up residence in Africa, often living in rather insular communities and staying on a fairly permanent basis (Gastrow, 2001b). While the presumption is that the majority of these individuals remain focused on legitimate economic activities, some do become engaged in illegal activities associated with the exploitation of natural resources, including ivory (Gastrow, 2001b). According to the ETIS data, individuals from the following countries and territories have been arrested with commercial volumes of ivory in Africa: China, the Democratic People's Republic of Korea, India, the Philippines, Portugal, the Republic of Korea, the Russian Federation, Taiwan (province of China) and the United Kingdom.

Foreigners in Africa, especially those with links to important end-use ivory markets such as China, can be well-positioned to engage in illicit trade in ivory. A decade ago, the increasing involvement of Asian

nationals in Africa's ivory trade was already being noted. In an ivory trade study published in 1995, "the frequency with which South Koreans and Taiwanese have been linked to many seizures" at the time was identified as "an important post-ban phenomenon" (Dublin *et al.*, 1995). Further, it was acknowledged that "there is a growing risk that an Asian-run but Africa-based processing industry could develop into high-volume enterprise", with instances of such emergent activity being documented in Cameroon, Gabon, Côte d'Ivoire, Kenya, Malawi and the United Republic of Tanzania (Dublin *et al.*, 1995). In fact, about 20 % of the 49 large-scale ivory seizures noted above comprised not only raw ivory, but also significant quantities of semi-worked or worked ivory products coming from Africa. With the increased frequency of such seizures, it would now appear that such operations have become more fully entrenched within Africa and that they now have developed capabilities to move large consignments of raw ivory directly to Asian ivory processing centres. These developments stand as a serious long-term challenge to the successful implementation of the CITES 'action plan' pursuant to Decision 13.26.

Assessing the issue of governance

The World Bank defines 'governance' as "the manner in which power is exercised in the management of a country's economic, social and natural resources for development". As such, governance issues often play a defining role in determining the success of government policy, including those linked to CITES implementation at the national level. This is especially true in African and Asian elephant range States where wildlife use and trade issues often lack dedicated attention, and instances of illegal killing and exploitation are not necessarily regarded as serious crime. From the outset, ETIS has recognized the need to factor in an independent, time-based, country-specific measure of governance into the analysis of the ivory seizure data. In this regard, ETIS has relied upon the Corruption Perception Index (CPI) of Transparency International as a proxy measure for assessing law enforcement effort and efficiency, as well as rates of reporting, with respect to the ivory seizure data. In the second ETIS report presented at CoP13 in 2004, the CPI score was significantly correlated to the law enforcement effort ratio in the cluster analysis (at 0.67 with a P value of < 0.01). This indicated that in countries where there is a high perception of corruption, there is generally speaking a poor law enforcement effort ratio. In other words, such countries rarely make ivory seizures relative to the number of occasions they are implicated in illicit trade in ivory.

Although the CPI score was not significantly correlated with the law enforcement effort ratio in the current analysis, the issue of governance with respect to ivory trade deserves fundamental attention. It needs to be appreciated that there are governance implications at all levels of the ivory trade and negative impacts can be felt concretely in many different ways, including:

– failure to make ivory seizures;
– failure to report ivory seizures;
– failure to establish or implement effective ivory stock management systems;
– failure to amend or improve legislation governing ivory trade issues; and
– failure to investigate and prosecute ivory trade offenders.

Capacity and staffing issues, along with the lack of resources, are most frequently cited as the foremost reasons why many countries do not regularly participate in ETIS. This may be the case in certain instances, but it is equally clear that governance issues can also stand as major factors underscoring a country's lack of engagement with ETIS. It is remarkable that, over the 18-year period of time which ETIS spans in this analysis, many African Elephant range States have seldom, if ever, reported making any ivory seizures in spite of persistent and repeated efforts to collect data from the relevant authorities. It is worth noting that for most countries included in Table 6, information on in-country ivory seizures has often come from secondary (but credible) non-government sources, rather than the CITES authorities themselves, according to the ETIS data.

Table 6: Selected African Elephant range States which rarely report ivory seizures presented by total weight of all seizures (ETIS 5 March 2007)

Countries	No. seizures reported 1989-2006	No. seizures implicated in 1989-2006	Total weight of all seizures (kg)	National elephant population estimate 2007*	Law enforcement effort ratio	Seizure weight to live elephant population ivory ratio**
Gabon	6	67	6,660	70,637	0.08	0.01
Côte d'Ivoire	6	188	4,002	965	0.03	0.44
Mozambique	9	131	2,994	26,088	0.06	0.01
Congo	4	106	2,628	22,102	0.04	0.01
Ghana	2	98	2,160	1,429	0.02	0.16
Rwanda	5	37	1,570	117	0.12	1.43
Central African Republic	4	38	1,523	3,334	0.10	0.05
Benin	0	38	783	1,223	0.00	0.07
Mali	1	42	518	654	0.02	0.08
Senegal	0	82	465	10	0.00	4.95
Equatorial Guinea	0	50	384	1,330	0.00	0.03
Togo	0	45	275	65	0.00	0.45

* Based on data in Blanc *et al.*, 2007 where elephant numbers in the 'Definite', 'Probable', 'Possible' and 'Speculative' categories have been aggregated to produce indicative national totals.

** Estimating average tusk size of each living elephant at 5.0 kg and each elephant producing 1.88 tusks to total 9.4 kg. Seizure weight to live elephant population ivory ratio = seizure weight / (national elephant population x 9.4). It is recognized that this is a very crude measure of estimation.

Failure to make or to report ivory seizures by individual countries does not necessarily mask their involvement in the illicit trade in ivory as they are often identified in the context of seizures made elsewhere. The 12 countries in Table 6 have all made and reported less than 10 seizures over the 18-year period, but all have been implicated in many times more ivory seizure cases as the countries of origin, export or re-export, or destination. All of these nations have very poor law enforcement effort scores, with over 90 % of the seizures with which they are involved being made elsewhere in the world. For Gabon, Côte d'Ivoire, Mozambique, the Congo, Ghana, Rwanda and the Central African Republic, for example, significant volumes of ivory, sometimes several tonnes, have been involved in these illicit transactions. Although a crude and indicative means of assessment, looking at the ratio between the volume of ivory estimated on the live elephant population against the volume of ivory seized in the ETIS data, it seems completely improbable that the ivory trades from all of these countries involve locally obtained tusks exclusively. Where the ratio has a value of more than one, meaning that the weight of the seized ivory represented in ETIS is greater than the total weight of the ivory found on all living elephants in the country, there seems little doubt that ivory from other external sources is moving in and out of these countries with little impediment from the authorities. This is certainly true for Senegal, Rwanda and Côte d'Ivoire (Courouble *et al.*, 2003; United Nations, 2001), and probably also true for Togo and Ghana. But in the final analysis, is it possible that these countries interdict ivory so rarely? Or is the lack of seizure data in ETIS an indication of serious deficiencies in governance at the national level?

Failure to make seizures can be a serious indication of governance issues, including corrupt practices at key trade bottlenecks. One study of the ivory trade in West Africa alleged that complicity of ivory dealers, airline staff and Customs officers at the international airports in Senegal and Côte d'Ivoire regularly facilitated the entry into the country of ivory consignments from Central Africa, and similar practices were also documented in Nigeria (Courouble *et al.*, 2003). In some countries, Senegal and Nigeria for example, deputized wildlife officials (who might be inclined to implement CITES regulatory measures) were strictly barred from operating at ports of exit and entry altogether, or were systematically

denied access to key areas at the ports where cargo and luggage could be inspected (Courouble *et al.*, 2003). In such cases, collusion and protection rackets between private sector dealers and officialdom served to thwart any effective application of CITES or other national wildlife trade laws to prevent illicit trade in ivory. An internal report issued in February 2002 by the wildlife department agent stationed at Côte d'Ivoire's international airport in Abidjan stated:

> *Customs authorities refuse any kind of collaboration. All pieces of luggage containing ivory are systematically diverted by an active network composed, among others, of the Customs, the Police and [airline] staff. When ivory is found during a control of the Water and Forest agents, it is seized by the Customs under the argument that it is their prior responsibility and the ivory is returned to the owner* (Unpublished government report quoted in Courouble *et al.*, 2003).

In Mozambique, in flagrant violation of the Convention, trade in worked ivory products has been noted in the departure lounge area of Maputo's international airport since as early as 1993 and government authorities have repeatedly been informed and urged to take action, including letters from the CITES Secretariat (Milliken *et al.*, 2006), but as recently as November 2006 TRAFFIC researchers continued to find ivory available for sale, suggesting preferential treatment for certain retail dealers (Patterson, in prep.). It must be appreciated that the failure to make ivory seizures in many countries can reflect serious deficiencies in governance.

Failure to report ivory seizures to ETIS can also be linked to issues of governance. The act of reporting ivory seizures to superiors within government regulatory agencies, to other government authorities and, finally, to ETIS is fairly routine practice in certain parts of the world. In some countries, however, there is a conscious effort to refrain from disclosure of such seizures at all levels so as to avoid future accountability and transparency. In these cases, it is recognized that the act of disclosure may actually foreclose on future options for individual or group profit. In Senegal, for example, it was observed by government wildlife staff that:

> *If, and when [ivory seizures] do occur, Customs do not communicate any information on such seizures, and there are strong suspicions that any ivory seized is subsequently diverted and either sold on the local market or returned to the owners in question (Courouble et al., 2003).*

Benefiting from the subsequent marketing of seized ivory or receiving compensation for its return to illicit traders represent forms of corruption that directly undermine attempts to curtail the illegal trade in ivory.

Failure to establish or implement effective ivory stock management systems remains a reality in many, if not most, African elephant range States. In Resolution Conf. 10.10 (Rev. CoP12), elephant range States are encouraged to mark all tusks in a standardized manner and to follow the provisions outlined in the CITES Ivory Trade Control Procedures Manual. Those countries whose elephant populations have been transferred to Appendix II have had to demonstrate robust and effective ivory stock management systems with capabilities of establishing the provenance of each and every piece of ivory under government control. In this regard, ivory that is derivative from seizures is differentiated and held separately from those stocks of certifiable national origin. Such systems clearly promote another layer of accountability and transparency in the control of ivory. In some countries, however, there are no official systems for managing stocks of ivory and this state of laxity allows for corrupt practices to flourish. For example, ivory tusks, which were seized by government wildlife personnel on 20 January 1998 in or around the Lopé Faunal Reserve in Gabon as part of the Wildlife Conservation Society's engagement with the MIKE pilot project in Central Africa, were subsequently labelled as 'Ivindo' with a discreet number (L. White, in litt. to T. Milliken, December 2005). Some of these same tusks were then later identified as part of a consignment of 330 ivory tusks seized in Guangzhou, China, on 18 March 1999. It was subsequently ascertained that from Lopé the confiscated tusks had been sent as evidential exhibits to the provincial courts in Makokou, Gabon where the prosecution of the offenders took place and from there apparently 'leaked' back into illicit trade on a journey to China.

In fact, in the absence of ivory stock management systems, ivory often 'leaks' from official government stockpiles into illegal trade. The entire ivory stock of Pemba, Mozambique, for example, possibly as much as 1.5 tonnes, 'disappeared' in early 2006 (J.C. Vasquez, CITES Secretariat, pers. comm., 2007). Inevitably, ivory stock theft cases represent 'inside jobs' and the involvement of local government officials. TRAFFIC has previously documented ivory stock thefts in Cameroon, Ethiopia, Gabon, Côte

d'Ivoire, Nigeria, Rwanda and the United Republic of Tanzania (Milliken, 1997; Milledge and Abdi, 2005), and it has been reported that official stocks of ivory in the Democratic Republic of the Congo and the Congo (Brazzaville) were also lost during periods of civil unrest and war (K. Hillman Smith, pers. comm., 2000; A. Turkalo, pers. comm., 2002). Unfortunately, there can be resistance to investing in ivory stock management systems if it means that current opportunities for corruption will be curtailed.

Failure to amend or improve legislation governing ivory trade issues can also be related to governance issues. The basic CITES requirements for internal trade in ivory are clearly delineated in Resolution Conf. 10.10 (Rev. CoP12), calling for:

– the registration of all importers, manufacturers, wholesalers and retailers dealing in raw, semi-worked or worked ivory products;

– the introduction of "recording and inspection procedures to enable the CITES Management Authority and other appropriate government agencies to monitor the flow of ivory within the State";

– the instigation of "compulsory trade controls over raw ivory" and the introduction of a "comprehensive and demonstrably effective reporting and enforcement system for worked ivory"; and

– the dissemination of public awareness materials, "particularly in retail outlets, informing tourists and other non-nationals that they should not purchase ivory in cases where it is illegal for them to import it into their own home countries".

Although the provisions of Resolution Conf. 10,10 (Rev. CoP12) for internal trade in ivory have been a recommended requirement for many years, the review and ranking of countries pursuant to the CITES Legislation Project under Resolution Conf. 8.4 (National laws for implementation of the Convention) does not take these conditions into consideration. Under this initiative, since 2000, Thailand has been accorded the highest ranking, Category 1 which holds that "legislation is believed generally to meet the requirements of implementation of CITES". In fact, Thailand does not implement the requirements for internal trade in ivory outlined in Resolution Conf. 10.10 (Rev. CoP12) and conflicts and loopholes within national legislation provides readily exploited avenues for ivory of illicit African origin to be traded as if it originates from domesticated Asian elephants in Thailand (Stiles, in prep.). Thailand has been on record since the 50th meeting of the Standing Committee in March 2004 that an action plan would be developed to implement the CITES requirements (CITES, 2004), but no such action plan has yet been presented as a public document and the reasons for the long delay have not been adequately explained. In the meantime, the country is still ranked in Category 1 under the CITES legislation project. Similarly, the Democratic Republic of the Congo and Egypt since 2003, and Senegal since 2006 have all been accorded Category 1 rankings, but these countries all have significant domestic ivory markets that largely fail to implement the CITES requirements for ivory trade. This discrepancy needs to be addressed.

Although it is usually clear where problematic loopholes and legislative deficiencies exist, there can be a reluctance on the part of the authorities to actually take mitigating steps to affect legal reforms that will strengthen law enforcement capabilities and allow compliance with CITES. In some instances, governance issues can stand behind the lack of inertia. Powerful political and economic elites in some countries are believed to be amongst the owners of retail outlets which offer ivory products locally. Beyond individuals, economic associations of traders, industry groups or curio market vendors can exert powerful political influence, undermining attempts to implement CITES and national wildlife trade controls. In 1990, a crackdown on ivory trade at the major tourist market in Maroua, Cameroon, ended within an hour due to massive protests instigated by local politicians (Dublin *et al.*, 1995). Similarly, in Senegal, it was found that "as a consequence of the activities of powerful lobbies and the existence of corruption, there is an apparent absence of political will on the part of the wildlife authorities in charge to try to correct the situation" and that "Senegal's ivory traders are extremely well organized and seem to have a web of protection and support around their activities" (Courouble *et al.*, 2003).

Failure to investigate and prosecute ivory trade offenders is a chronic and often systemic issue in many countries. In Senegal, for example, it was found that "political, religious or financial pressures are exerted on government officials to abandon any potential prosecution and return the seized products to the perpetrators of the infraction" (Courouble *et al.*, 2003). Similarly, in the Democratic Republic of the

Congo, one study lamented that "the reported immunity from prosecution of big buyers because they enjoy political protection makes prosecution of poachers unlikely" (Mubalama and Mushenzi, 2004).

In many range States, wildlife departments do not have their own prosecutors and depend upon those from other branches of government to do the job for them. Such officials often have little understanding of wildlife crime, much less loyalty to those parts of government that deal with environmental issues. It goes without saying that corruption can subvert the judicial system and the sound application of the rule of law in many countries around the world. In such cases, sentencing usually fails to provide an effective deterrent. In a high-profile ivory seizure case in 2004 in Malawi, for example, a magistrate in a lower court initially fined a convicted ivory trader a mere USD 55, even though she had been found in possession of ivory valued at USD 14,000 and a wildlife department veteran had sustained severe physical injuries at the time of her arrest (Mkoka, 2004).

When foreign nationals are involved, local diplomatic officials often exert pressure on host country authorities to drop charges or otherwise assist their citizens to avoid prosecution altogether. Where pressures are sustained, sometimes African governments have little choice but to acquiesce to greater economic or political forces in the interest of other national objectives. In one recent case in Zimbabwe involving two Chinese citizens, ambiguous or false information from an official diplomatic institution concerning the status of the individuals in question as accredited ivory traders was tabled as part of their defence. It is often difficult for wildlife authorities to overcome effectively such pressures and move forward with successful prosecutions.

Cases involving foreign nationals are more likely to represent high-volume consignments and the activities of well-organized criminal networks that link bases in source countries in Africa with end-use markets in Asia. It is regrettable that many, if not most, of the high-profile, large-scale ivory seizure cases which have occurred over the last nine years have not resulted in successful prosecutions. The largest ivory seizure in ETIS, the infamous Singapore case which involved 532 raw ivory tusks or pieces and 40,180 semi-worked ivory blocks, was primarily sourced in Zambia (Wasser *et al.*, 2007), containerized for export in Malawi, then moved through Mozambique to a South African seaport for shipment to Singapore and later, possibly, to Japan. One recent update on the status of this case lamented the general failure in terms of successful prosecutions:

> *Despite initial cooperation amongst the various investigating agencies, the subsequent coordinating efforts of the Lusaka Agreement Task Force and an apparent wealth of evidence, the case of the 2002 Singapore ivory seizure continues to founder. There have still been no major prosecutions to date and as far as EIA is aware, there have been no prosecutions in either Malawi or Zambia. The only prosecution remains that of a Singapore national in 2003* (Rice, 2007).

In fact, the same general circumstances seem to characterize most large-scale ivory seizures which have occurred within most African elephant range States over the last nine years.

PART V: CONCLUSIONS AND RECOMMENDATIONS

Conclusions of the trend analysis

This report has produced an updated trend which is believed to represent the general pattern of illegal trade in ivory over the period 1989-2006. With respect to the trend analysis, the following conclusions can be made:

– When adjusted to reduce bias and smoothed to indicate the underlying trend more clearly (Figure 6), the seizure data in ETIS indicate a sharply declining trend in the volume of ivory seized globally from 1989 through 1995. This is then followed by an equally sharp increase to 1998, which then gives way to a more gradual decline through 2004. The trend line then again begins to swing sharply upward over the next two years, indicating that illicit trade in ivory is once again increasing but still remains somewhat below the levels experienced in 1998 and 1999.

– The trend in this report (Figure 6), showing a period of gradual decline between 1999 and 2004, to some extent mirrors the smoothed and adjusted trend that was initially presented for the years 1989-2003 in the ETIS analysis to CoP13 as a tentative result (Figure 7). In that analysis, when the year 2003 was removed as 'data deficient', a steady upward trend from 1995 through 2002 emerged,

erasing any sense of decline in the illicit trade in ivory. The gradual decline in the current result for CoP14 is based upon an additional 2,006 seizure records for the years 2003 through 2006. In fact, the decline may be far less pronounced than that depicted in Figures 6 and 8 in future analytical iterations of the ETIS data as more seizure records for the years 2005 and 2006 become available.

– The fact that the trend line shows a clear and noteworthy increase in levels of illicit trade in ivory from 2004 onwards is cause for concern, especially as it develops in the wake of Decision 13.26 and following steps to implement the *Action plan for the control of trade in African elephant ivory* since CoP13. Decision 13.26 is the Convention's principal vehicle for closing unregulated and illicit domestic markets, particularly those in Africa and Asia, and its implementation has been a formal agenda item at successive meetings of the Standing Committee since CoP13. The increasing trend is a clear signal that measures taken to date to implement Decision 13.26 have not been sufficient to demonstrate any positive impact.

Conclusions of the spatial analysis

With respect to the spatial analysis, the following conclusions can be made:

– On the basis of agglomerative hierarchical cluster analysis, the five countries most heavily implicated in the illicit trade in ivory are Cameroon, China, the Democratic Republic of the Congo, Nigeria and Thailand. All of these countries featured in the ETIS analyses for CoP12 and CoP13 as countries of concern. Only China continues to demonstrate significant progress in addressing illicit ivory trade issues. This is most impressively seen in the much improved law enforcement effort ratio that has moved from 6 % in 2002 to 58 % in the current analysis. China's introduction of domestic ivory market controls have also served to reduce the scale of the market. In sharp contrast, there appears to have been very little improvement in the situation in the Democratic Republic of the Congo, Thailand, Cameroon and Nigeria where serious illegal ivory trade problems remain to be tackled.

– A secondary group of countries and territories – Benin, Djibouti, Gabon, Ghana, Hong Kong SAR, Macao SAR, Malaysia, Mozambique, the Philippines, Rwanda, Singapore, the Sudan, the United Arab Emirates and Viet Nam – were also identified as playing important roles in the illicit ivory trade. Representing a mix of producers, transit country and end-use markets, these countries currently fall within clusters which exhibit poor law enforcement effort and potentially could become more prominent problematic players in the illicit trade. Another group of countries or territories which also need to be monitored closely include Egypt, Japan, Kenya, Malawi, Taiwan (province of China), South Africa, the United Kingdom, the United Republic of Tanzania, the United States, Zambia and Zimbabwe. While these countries or territories generally demonstrate better law enforcement effort, the illicit ivory trade challenge remains persistent and sustained vigilance is required.

– As was the case with all previous analyses of the ETIS data, there is a highly significant negative correlation between the domestic ivory market score and the law enforcement effort reporting ratio. This indicates that illicit trade in ivory continues to be most directly related to the presence of large-scale, inadequately regulated, domestic ivory markets in Asia and Africa. In such places, law enforcement effort is lax commensurate with the scale of the illicit trade challenge, allowing markets to function with little regulatory oversight or impediment.

– The issue of inadequately regulated domestic ivory markets continues to require special attention. Decision 13.26, adopted at CoP13 to address this issue specifically, needs to remain in force and be more strictly implemented than in the past. There is sufficient justification to consider the imposition of punitive sanctions on those countries or territories which are failing to mark progress in implementing the requirements for internal trade in ivory under Resolution Conf. 10.10 (Rev. CoP12).

– Ethiopia stands as an exemplary example of how committed action to fully implement the requirements of the CITES action plan can lead to measurable improvement in the cluster analysis of the ETIS data. This result needs to be sustained. Ensuring that seizures which are made are included in ETIS serves to improve the law enforcement effort ratio – and hence the status of individual countries – in the ensuing analyses of the ETIS data.

Conclusions of assessment of factors giving rise to illicit trade in elephant ivory

With respect to assessing the causes of illicit trade in elephant ivory, the following conclusions can be made:

– The hypothesis that CITES elephant discussions and decisions produce 'signals' which lead to increasing illicit trade in ivory can not be validated using the ETIS data. The timeline of elephant issues and events under CITES, when viewed against the trend in illicit trade, does not exhibit any predictable relationship or pattern to support the assumptions of the 'signal hypothesis'.

– In contrast to signals, illicit trade in ivory is most directly related to tangible market forces and the degree of effective law enforcement. This analysis confirms for the third consecutive time that illicit ivory most typically flows through and into domestic ivory markets which lack effective law enforcement and regulatory control. In this regard, ivory currently follows the 'path of least resistance' in the expectation of realizing economic returns in the most timely manner.

– Defined as any seizure representing one tonne of ivory or more, the occurrence of large-scale seizures has become far more frequent and larger in scale in the recent period 1998-2006. It is remarkable that less than 0.5 % of the ETIS seizure records account for 34 % of the total weight of the ivory represented by the ETIS data. Nearly two-thirds of the 110 tonnes of ivory represented by the 49 largest seizures was destined for China, Hong Kong SAR, Macao SAR and Taiwan (province of China), which now functions largely as an integrated market. Japan, the Philippines and Thailand also represent important other destinations, although the Philippines is not thought to be a significant end-use market at the present time.

– Large-scale ivory seizures are indicative of the involvement of organized crime operations which link source countries with end-use markets. Such operations are typically based upon greater levels of finance, organization and corruption, and often opportunistically have links to local political, economic or military elites. This development presents a major challenge to national and international efforts to inhibit illicit trade in ivory.

– The increasing frequency of large-scale ivory seizures as evidence of the growing involvement of organized crime coincides with a period of rapid globalization of African market and trade dynamics. Asian involvement in the procurement, processing and shipping of illicit consignments of raw and worked ivory from Africa to Asian markets has probably never been greater. Addressing this development effectively in terms of awareness and law enforcement strategies, will require collaborative efforts of both producing and consuming countries.

– The issue of governance and the ivory trade deserves greater attention as a root cause of illicit trade dynamics. There are governance implications at all levels of the ivory trade, including whether or not seizures are made, seizures are reported, ivory stock management systems are developed, legislation is amended or improved, or ivory trade offenders are investigated or prosecuted. Unless governance issues are firmly addressed at the national level, successful implementation of the CITES action plan will be seriously compromised in Africa.

Recommendations

The trend in illicit trade in elephant ivory is once again increasing and is most strongly correlated to the presence of large-scale domestic ivory markets that are poorly regulated. Some countries, such as China, are actively engaged in trying to reduce the volume of ivory being traded outside of the national control system. This is encouraging as China continues to be the single most important country in the illicit ivory trade equation and potentially holds the key for realizing a downward trend in illicit trading. To achieve that goal, the law enforcement response needs to remain commensurate with the challenge at hand. Unfortunately, with the exemplary exception of Ethiopia, most other countries are failing to address illicit trade in ivory effectively and have demonstrated little, if any, progress towards ensuring compliance with the requirements for internal trade in ivory articulated in Resolution Conf. 10.10 (Rev. CoP12) and Decision 13.26, the *Action plan for the control of trade in African elephant ivory*. If ETIS is to demonstrate a downward trend in the illicit trade in ivory in the future, it is imperative that these CITES mechanisms are more broadly and more effectively implemented at the national level in key countries. Towards that end, ETIS recommends the following:

– Decision 13.26, the *Action plan for the control of trade in African elephant ivory* should remain in force and be strengthened. In particular, the process needs to be made more transparent and accountable. Sensitive law enforcement information should (of course) remain confidential, but the status of compliance with the requirements of Resolution Conf. 10.10 (Rev. CoP12), particularly details of legislation and market control systems, should be reported on a country-by-country basis to the Standing Committee in the Secretariat's regular update reports so that progress can be monitored and verified *in situ* as appropriate. Where progress is incremental or non-existent, the imposition of sanctions should be considered as currently stipulated in the action plan.

– As four of the countries most heavily implicated in illicit ivory trade, Cameroon, the Democratic Republic of the Congo, Nigeria and Thailand have shown little evidence of effective implementation of the provisions for internal ivory trade in Resolution Conf. 10.10 (Rev. CoP12) since CoP12. These countries should be considered as priorities with respect to the implementation of Decision 13.26.

– Because China aspires to be recognized as a 'designated ivory importing country' under CITES, but remains the paramount destination for illicit ivory globally, continued oversight attention should be maintained pursuant to Decision 13.26. Noting significant improvement over previous analyses of the ETIS data, China should be encouraged to continue to implement and enforce its domestic ivory trade control policy strictly, including effective public relations and law enforcement actions against illegal acquisition, processing and sales of ivory products both within and outside of the country.

– Given Japan's tentative endorsement as a 'designated ivory importing country' under CITES for the still-pending one-off sale of ivory from three southern African countries as agreed at CoP12, continued oversight attention should also be maintained pursuant to Decision 13.26. Noting that illegal trade in ivory to Japan has increased in recent years over previous analyses of the ETIS data, Japan should be encouraged to continue to implement and enforce its domestic ivory trade control policy strictly, including effective public relations and law enforcement actions against illegal acquisition, processing and sales of ivory products in the country.

– Other countries of concern in the cluster analysis should be carefully monitored in the context of the Decision 13.26 process, particularly those with significant domestic ivory markets and those which function as major trade entrepôt. Where compliance with the requirements of Resolution Conf. 10.10 (Rev. CoP12) is found to be lacking, time-frames should be established against which progress should be measured, including consideration of the imposition of punitive sanctions.

– Asian and African elephant range States, transit countries and end-use consumers, in particular those countries which have never or only rarely reported ivory or other elephant product seizure information through the CITES process, should be encouraged to improve their participation in ETIS, review their national law enforcement data and send information on seizures in a timely manner in the future. TRAFFIC should continue to provide updates on the data collection efforts of ETIS to the CITES Standing Committee and draw attention to countries that are failing to meet their obligation to CITES in this regard.

– Compliance with the requirements for internal ivory trade in Resolution Conf. 10.10 (Rev. CoP12) needs to be factored into the CITES Legislation Project pursuant to Resolution Conf. 8.4 (National laws for implementation of the Convention). No country with a significant domestic ivory market should be eligible for inclusion in Category 1 ("legislation that is believed generally to meet the requirements for implementation of CITES") unless they fully comply with CITES requirements for internal trade controls for ivory.

– Capacity-building events to improve implementation of the Convention and law enforcement for wildlife trade issues should include modules which promote participation in ETIS and address ivory trade issues. Donors should be encouraged to provide funds for such events in priority countries.

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NUMBER OF IVORY SEIZURES IN ETIS BY COUNTRY BY YEAR (5 MARCH 2007)

Region/country/territory	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Total
Africa																				
Algeria	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Benin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Botswana	1	-	-	-	-	-	3	1	-	1	4	5	9	4	14		9	18	-	69
Burkina Faso	-	-	-	-	-	1	0	0	0	-	-	-	-	-	-	-	-	-	-	1
Burundi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Cameroon	-	-	3	-	3	2	-	-	-	-	-	12	1	-	-	4	2	5	-	32
Cape Verde	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Central African Republic	-	-	-	-	-	-	-	-	1	-	-	-	-	1	1	1	-	-	-	4
Chad	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	3
Comoros	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Congo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	1	-	-	4
Côte d'Ivoire	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	6
Democratic Republic of the Congo	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	3	-	6
Djibouti	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	2
Egypt	-	-	-	-	-	-	-	-	-	-	3	10	6	21	-	1	-	-	-	41
Equatorial Guinea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Eritrea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Ethiopia	-	1	1	3	10	12	5	5	4	17	16	12	3	8	9	15	78	-	-	199
Gabon	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	1	3	-	-	6
Gambia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Ghana	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	2
Guinea	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Guinea Bissau	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Kenya	-	1	1	17	20	7	24	8	6	2	10	33	32	29	36	18	47	48	-	339
Lesotho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Liberia	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-	-	-	0
Libyan Arab Jamahiriya	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Madagascar	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	0
Malawi	22	12	27	26	25	4	9	2	1	1	4	1	4	2	5	2	7	0	-	154
Mali	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1

Region/country/territory	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Total
Mauritania	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Mauritius	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-	-	-	0
Morocco	-	-	-	-	-	1	3	1	-	-	-	-	1	-	-	-	-	-	-	6
Mozambique	-	-	-	-	-	-	-	-	-	-	1	1	-	1	1	2	3	-	-	9
Namibia	24	31	44	40	69	69	71	50	58	22	25	21	17	14	13	11	12	8	-	599
Niger	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
Nigeria	8	2	2	-	-	-	-	-	-	-	-	-	-	0	0		-	-	-	12
Reunion	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	1	1	-	4
Rwanda	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	2	1	1	-	5
Sao Tome and Principe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Senegal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Seychelles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	0
Sierra Leone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
Somalia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
South Africa	3	7	47	40	47	22	16	26	49	62	63	13	9	25	14	10	2	6	-	461
Sudan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	10	-	11
Swaziland	0	-	-	-	-	-	-	-	-	1	-	-	1	1	-	-	-	-	-	3
Untited Republiic of Tanzania	34	20	41	25	29	21	11	19	17	10	5	6	13	29	13	10	7	40	-	350
Togo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Tunisia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Uganda	-	3	-	1	-	1	1	-	1	-	1	3	2	3	3	1	-	4	-	24
Zambia	17	16	21	17	9	10	6	3	4	1	-	1	-	3	17	26	13	23	-	187
Zimbabwe	3	11	11	4	10	1	13	1	26	34	35	12	7	-	5	-	17	17	1	208
Subtotal	112	104	198	175	222	151	163	117	167	155	167	135	107	148	134	107	204	184	1	2,751
Asia																				
Afghanistan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Bangladesh	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Brunei Darussalam	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Bhutan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	0
Cambodia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
China	-	-	-	-	2	3	1	3	-	3	11	30	75	74	62	73	65	32	1	435
Hong Kong SAR	-	19	14	18	11	8	11	14	8	5	4	9	4	4	1	5	5	4	1	145
India	-	-	8	4	0	1	2	11	11	12	12	28	25	7	57	2	6	5	4	195
Indonesia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Iran	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0

Region/country/territory	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Total
Israel	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	1	-	3
Japan	3	7	2	1	1	6	46	39	23	18	18	8	14	9	9	6	7	6	-	223
Jordan	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
Kuwait	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Lao People's Democratic Republic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Macau SAR	2	1	0	7	3	3	3	2	-	-	-	-	1	2	1	0	0	0	-	25
Malaysia	0	0	0	11	2	0	0	-	-	1	-	-	2	-	1	1	-	-	-	18
Mongolia	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	0
Myanmar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Nepal	1	-	-	-	-	-	-	-	-	-	1	2	-	-	-	1	1	-	-	6
Pakistan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Philippines	-	-	-	-	-	-	-	1	3	1	-	0	0	-	-	-	3	1	-	9
Qatar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	4	-	6
Republic of Korea	0	0	0	0	2	0	1	-	1	-	-	4	-	-	-	1	-	-	-	9
Saudi Arabia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Singapore	0	1	1	1	3	2	1	-	-	-	-	-	-	2	-	-	-	1	-	12
Sri Lanka	-	-	-	-	-	-	-	-	1	-	3	-	-	-	-	-	-	-	-	4
Syrian Arab Republic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Taiwan (province of China)	-	-	1	1	6	13	10	10	11	15	13	7	-	-	-	-	1	2	-	90
Thailand	-	-	-	3	3	9	5	4	1	1	1	1	2	16	1	8	-	-	-	55
United Arab Emirates	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1		-	-	-	2
Uzbekistan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Viet Nam	-	-	-	-	-	-	-	-	-	1	-	1	2	-	-	1	-	2	-	7
Yemen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Subtotal	6	28	26	46	33	45	80	84	59	57	66	91	125	114	133	98	90	58	6	1,245
Europe																				
Albania	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Austria	0	0	0	0	0	0	0	0	6	8	2	1	6	0	-	2	-	-	-	25
Azerbaijan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Belarus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	0
Belgium	21	9	23	32	43	55	36	57	24	12	8	14	10	31	27	19	12	8	-	441
Bulgaria	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Croatia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Cyprus	-	-	-	-	-	-	-	1	2	-	-	1	-	-	-	-	-	-	-	4
Czech Republic	-	-	-	-	-	-	-	-	-	4	1	-	-	-	-	-	-	-	-	5

Region/country/territory	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Total
Denmark	1	5	3	6	7	5	5	1	1	10	3	2	1	2	6	6	5	1	-	70
Estonia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
Finland	-	-	-	-	-	-	-	-	-	-	1	-	-	1	2	-	-	-	-	4
France	2	85	79	116	91	-	1	-	1	1	25	136	82	51	25	7	37	27	-	766
Georgia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Germany	0	0	98	115	47	1	-	49	62	52	49	49	38	33	39	29	59	39	-	759
Greece	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Hungary	-	-	-	-	-	-	4	3	1	3	0	2	5	4	1	1	-	2	-	26
Iceland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Ireland	-	-	-	-	-	-	-	-	1	0	0	0	0	0	0		-	-	-	1
Italy	0	1	2	2	49	2	2	-	4	1	-	8	7	34	23	7	6	1	-	149
Kazakhstan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Latvia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0
Liechtenstein	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Lithuania	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Luxembourg	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
Macedonia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Malta	0	0	0	0	-	0	-	1	1	0	0	0	0	0	0	1	-	-	-	3
Monaco	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	0
Montenegro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0
Netherlands	-	-	-	1	-	1	-	4	1	1	2	30	19	31	31	2	3	-	-	126
Norway	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	3	-	-	-	6
Poland	-	-	-	-	-	-	-	-	-	-	9	3	4	2	4	5	-	2	-	29
Portugal	3	17	8	15	16	0	-	-	-	-	1	10	16	4	33	43	32	3	-	201
Republic of Moldova	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	0
Romania	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Russian Federation	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
Serbia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0
Slovakia	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	-	3
Slovenia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Spain	9	54	6	2	7	1	12	36	5	21	14	24	21	15	17	10	10	7	-	271
Sweden	-	-	-	-	-	-	-	-	1	2	4	-	1	1	-	-	1		-	10
Switzerland	133	64	26	8	4	5	7	5	50	37	55	35	47	29	44	19	-	-	-	568
Turkey	-	-	-	-	-	-	-	-	-	-	0	0	0	-	-	-	-	-	-	0
Ukraine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0

Region/country/territory	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Total
United Kingdom of Great Britain and Northern Ireland		170	118	44	26	1	4	57	7	55	12	11	32	27	32	15	26	24	-	661
Subtotal	169	405	363	341	290	71	71	215	167	208	188	326	290	267	286	169	192	114	0	4,132
North America																				
Canada	0	0	0	0	0	1	-	1	-	21	19	9	22	15	24	23	-	-	-	135
Mexico	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	2
United States of America	-	452	264	234	172	112	199	218	194	221	182	227	185	157	148	172	174	3	-	3,314
Subtotal	0	452	264	234	172	113	199	220	195	242	201	236	207	172	172	195	174	3	0	3,451
Oceania																				
Australia	-	-	-	-	-	-	-	45	89	70	46	39	34	-	54	109	93	87	-	666
Fiji	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
New Zealand	10	31	18	16	-	-	-	8	-	-	-	7	30	10	-	-	-	-	-	130
Papua New Guinea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Palau	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Samoa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Vanuatu	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
Subtotal	10	31	18	16	0	0	0	53	89	70	46	47	64	10	54	109	93	87	0	797
Central and South America and the Caribbean																				
Antigua and Barbuda	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Argentina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Bahamas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Barbados	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Belize	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Bolivia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Brazil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		-	-	-	0
Chile	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Colombia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Costa Rica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Cuba	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Dominica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Dominican Republic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Ecuador	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
El Salvador	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Grenada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Guatemala	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0

Region/country/territory	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Total
Guyana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Honduras	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Jamaica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Nicaragua	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Panama	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Paraguay	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Peru	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1
Saint Kitts and Nevis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Saint Lucia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Saint Vincent and the Grenadines	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Suriname	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	0
Trinidad and Tobago	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Uruguay	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Venezuela (Bolivarian Republic of)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Subtotal	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
Grand Total	**297**	**1,020**	**869**	**812**	**717**	**380**	**513**	**689**	**677**	**733**	**668**	**835**	**794**	**711**	**779**	**678**	**753**	**446**	**7**	**12,378**