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

Thirteenth meeting of the Conference of the Parties
Bangkok (Thailand), 2-14 October 2004

Interpretation and implementation of the Convention

Species trade and conservation issues

Elephants

MONITORING OF ILLEGAL TRADE IN IVORY AND OTHER ELEPHANT SPECIMENS

Executive summary

This summary addresses the objectives contained in Resolution Conf. 10.10 (Rev. CoP12) for the international monitoring system tracking illegal trade in elephant products, the Elephant Trade Information System (ETIS). It is based on the report in CoP13 Doc. 29.2, Annex, *The Elephant Trade Information System (ETIS) and the Illicit Trade in Ivory: A report to the 13th meeting of the Conference of the Parties* by T. Milliken, R.W. Burn, F.M. Underwood and L. Sangalakula. References cited in this summary are given in the main report.

PART I: THE DEVELOPMENT, MANAGEMENT AND CURRENT STATUS OF ETIS

ETIS database components: ETIS is a comprehensive information system featuring the following components:

a) *Seizures Database*: The seizures database forms the core component of ETIS and holds records of elephant product seizures that have taken place anywhere in the world since 1989. At 6 July 2004, the database held 9,426 records from 75 countries or territories.

b) *Law Enforcement Effort Database: CITES Legislation Project Score*: Using the results of the CITES National Legislation Project as a proxy measure for law enforcement effort at the national level, this database tracks the legislation rankings of the Parties through this ongoing CITES initiative.

c) *Law Enforcement Effort Database: Law Enforcement Effort Ratio*: As a second proxy measure of law enforcement effort, ETIS uses the ratio between the number of ivory seizures that a country itself makes versus the total number of seizures a country is involved in, including those made by other countries that implicate the country in question as either a country of origin, export, re-export or destination.

d) *Law Enforcement Efficiency Database*: *CPI Score:* Law enforcement efficiency is tracked using the Corruption Perception Index (CPI) of Transparency International which ranks countries on a scale of 10.0 (highly clean) to 1.0 (highly corrupt).

e) *Rates of Reporting Database*: *CITES Annual Report Ratio:* As a reflection of their commitment to provide information mandated by the Convention, one of the proxy measures for rates of reporting tracks the submission of CITES annual reports by the Parties against the number of years a country has been a Party to CITES, using a simple ratio subjected to an empirical logit transformation.

f) *Rates of Reporting Database*: *Data Record Score*: As different means of data collection have transpired over the years, each individual seizure record is scored as 1 (completely passive), 2 (some level of intervention) and 3 (active data collection). (In the report to CoP12, this database was referred to as the 'Data Collection Score Database', but that name is now used for g) below).

g) *Rates of Reporting Database*: *Data Collection Score*: In conjunction with f), this database tracks the background interventions that result in seizure information being reported to ETIS using a scoring system of 0 to 5. A new component since CoP12, it is believed to provide a better means for adjusting for bias in rates of reporting.

h) *Domestic Ivory Markets Score*: To understand the role individual countries play in the trade in ivory, domestic ivory markets around the world are tracked using a scoring system ranging from –3 to 18. Comparative scores track the relative scale of the retail-level market, the degree of regulation over such trade, and the status of ivory carving in 66 key countries.

i) *Background Economic Variables Database*: Country-specific economic variables, including population, gross national product (GDP), per capita gross national income (GNI), levels of inflation and aid per capita, are tracked annually in this database.

Data Collection: Since CoP12, TRAFFIC has received 1,913 records of elephant product seizures from 50 countries, of which 1,609 were input into ETIS and one rejected before the database was closed for the current analysis. The remaining 303 cases are pending further clarification before data entry can be undertaken. Another 17 other cases have been pending since CoP12 (see Table 1, CoP13 Doc. 29.2, Annex). Finally, 144 cases were received following the closure of the database for this analysis.

Outputs to the Parties: Covering the period 1 January 1989 to 29 September 2002, TRAFFIC produced the third series of ETIS Country Reports for 182 countries or territories, which were distributed to the Parties in April 2003 via the CITES Secretariat. TRAFFIC would like to express particular appreciation to the Governments of Argentina, Austria, India, Malta, Mauritius, Pakistan, Poland and Sweden for their thoughtful reviews and encouragement.

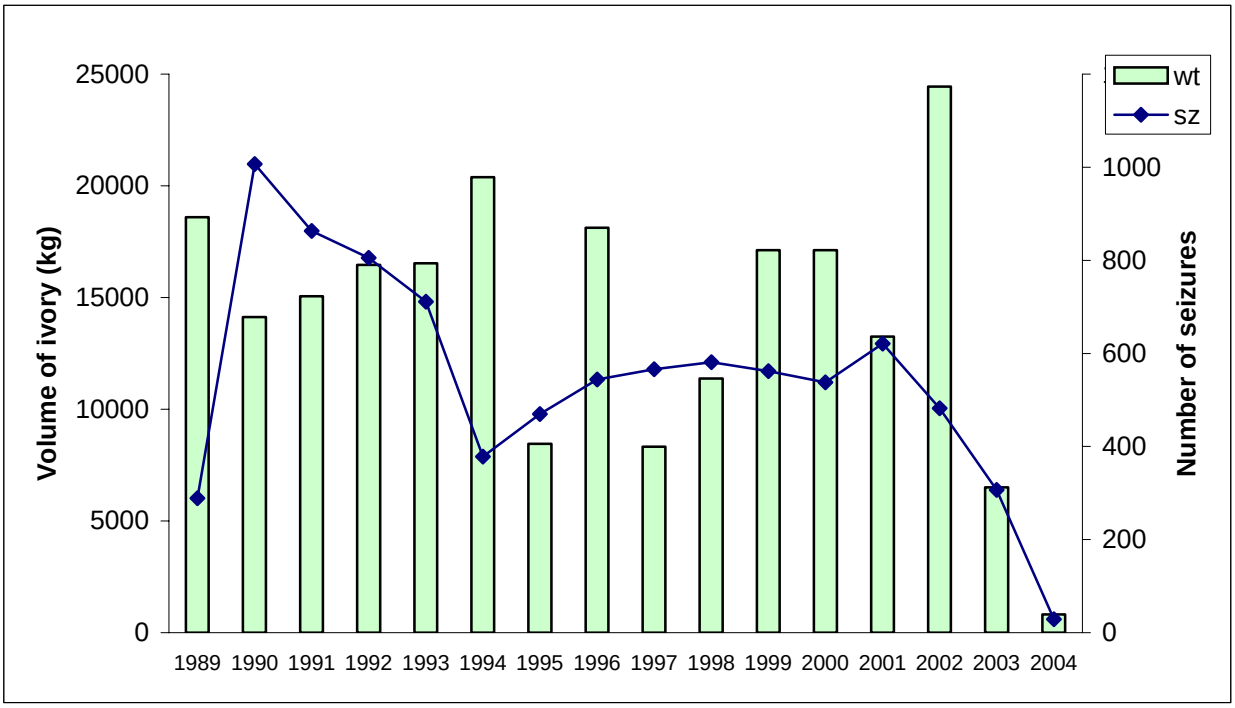
Capacity building and training: Capacity building workshops to support participation in ETIS have been held in the United Republic of Tanzania in 2002, China in 2003, and Ethiopia, Nepal (for CITES Parties in South Asia) and Taiwan, province of China, in 2004. It needs to be recognized that capacity building to enhance participation in ETIS remains a challenge in parts of the world, particularly in Africa and Asia. Workshop events are useful to develop formalized structures and procedures, and to define designated roles and responsibilities within specified agencies at the national level for better ETIS implementation.

Links with MIKE and the ETIS TAG: It is important for MIKE and ETIS to be linked to the best extent possible and considerable progress has been made since CoP12. With respect to data collection, a formalised approach has been developed to ensure that elephant product seizures that occur at MIKE sites in Africa and Asia are reported to ETIS. So far, 22 seizure cases from Botswana, Mali, Namibia, Zambia and Zimbabwe have been reported to ETIS by MIKE Sub-regional Support Officers. ETIS and MIKE have also agreed to share database components on economic variables and domestic ivory markets. In the future, analytical linkages will also be possible. Finally, the MIKE technical advisory group (TAG) has been expanded to include a designated sub-group to support the development of ETIS.

Funding: Since CoP12, the operation of ETIS has been supported almost entirely by the United Kingdom's Department of Environment, Food and Rural Affairs (DEFRA). The CITES Secretariat has also provided some funding for the production of this analysis, and the Rufford Foundation, the World Wide Fund for Nature (WWF) and the U.S. Department of State have supported capacity building activities for ETIS. TRAFFIC extends its warm thanks in this regard. Future funding arrangements for the core management and operation of ETIS are not secure and the Parties are encouraged to support efforts to place ETIS on a sound financial basis.

Number of records and rates of reporting: With 9,426 seizure records, ETIS continues to grow, and more countries are participating through the timely submission of seizure data (see Table 2, CoP13 Doc. 29.2, Annex). It should be noted, however, that certain countries, including many African and Asian Elephant range States and key transit or end-use countries, are either never experiencing any elephant product seizures, or are totally failing to report them to ETIS. In particular, Burundi, Cameroon, Cote d'Ivoire, the Democratic Republic of the Congo, Djibouti, Italy, Malawi, Nigeria, Portugal, Singapore, Sudan, Taiwan, province of China, Uganda and Zimbabwe are all encouraged, where appropriate, to compile and submit seizure records to ETIS.

Figure 1: Estimated volume of ivory and number of seizure cases by year, 1989-2004



Volume of ivory represented in the seizures database: Collectively, an estimated 226 tonnes of ivory have reportedly been seized throughout the world from January 1989 through June 2004 (see Table 5, CoP13 Doc. 29.2, Annex). Figure 1 graphically depicts the volume of ivory seized with the number of cases in ETIS since 1989. Data for 2003 and 2004, the two most recent years, are comparatively weak. This figure represents the 'raw' data and, as such, does not represent absolute trade volumes nor is it suggestive of trends over time.

PART II: AN ANALYSIS OF THE SPATIAL ASPECTS OF THE ETIS DATA

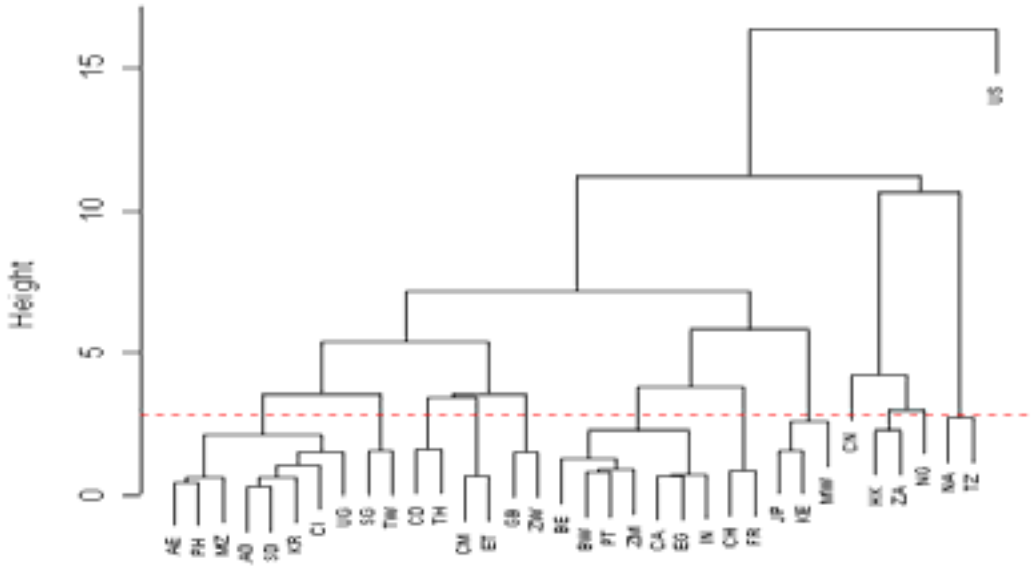
Background: At CoP12, a spatial analysis of the ETIS data was used to identify those countries or territories where management, protection and enforcement needs in terms of illegal trade in ivory are likely to be the greatest. The aim of this analysis is to fulfill the third objective for ETIS by answering 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: Using agglomerative hierarchical cluster analysis, it is possible to establish well-defined groups of countries or territories that exhibit similar patterns of seizure records, and to describe the main characteristics of these groupings. A detailed description of the methodology used is found in CoP13 Doc. 29.2, Annex, Part II. For the purposes of this summary, it is worth noting that a series of data reduction exercises reduced the focus of the analysis from 154 countries or territories to the 35 that account for the bulk of the ivory seizures. The data for these countries were adjusted to reduce bias that has resulted from uneven data collection effort between countries and between years, and variation in law enforcement effort, efficiency and rates of reporting data. The adjusted data were then used in a cluster analysis to address the two questions noted above.

Figure 2: The cluster analysis



The cluster analysis: Figure 2 shows the results of the cluster analysis. In this figure, the 'height' axis represents a relative measure of dissimilarity between clusters, and the degree of vertical separation between clusters is indicative of their differences. It is useful to visualise the configuration as a 'mobile' with all end points hanging to 0 on the height axis (even those such as the US, which appears at the top of the configuration). To obtain cluster groupings with a particular measurement of refinement, a horizontal line can be drawn at any point perpendicular to the height axis to 'cut' across the figure. The points where the vertical lines intersect with the horizontal line essentially 'cut' the 'mobile' into parts, giving rise to various clusters of countries which fall below the 'cut'. For this analysis, a 'cut' (represented by the dashed line) was made at approximately 2.5 units, resulting in 13 clusters, the same number of clusters derived in the CoP12 analysis.

Table 6: Summary statistics for the 13 groups of the cluster analysis, 1997-2002

		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]**	**Change in weight (kg)[3]**	**Mean CPI[4]**	**Mean LE/reporting ratio[5]**	**Mean market score[6]**
1	CD, TH	309	12,128	-471	2.1	0.07	15.0
2	NG	509	10,796	4,727	1.1	0.02	14.5
3	CM, ET	212	8,337	-1,564	2.4	0.15	12.8
4	CN	662	30,232	23,812	3.6	0.30	12.0
5	US	2,515	8,334	1,388	7.7	0.95	8.0
6	GB, ZW	584	4,025	-77	6.1	0.51	8.0
7	HK, ZA	610	20,759	-84	6.5	0.42	7.5
8	AE, AO, CI, KR, MZ, PH, SD, UG	57	3,135	257	3.1	0.09	6.8
9	SG, TW	114	13,545	-77	7.2	0.35	5.8
10	BE, BW, CA, EG, IN, PT, ZM	167	4,385	-98	5.2	0.64	4.5
11	JP, KE, MW	243	14,766	4,574	4.2	0.76	4.3
12	CH, FR	621	5,251	-1,167	7.9	0.88	3.5
13	NA, TZ	457	33,724	-19,756	3.7	0.91	-1.0

[1] *Frequency* is measured by the 'mean number of seizures' (i.e. the total number of all seizures for each country/territory divided by the number of entities in the cluster); high numbers indicate greater involvement; low numbers indicate lesser involvement.

[2] *Scale* is measured by the 'mean weight' (i.e. the total volume of ivory represented by all seizures for each 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 'change in weight' (i.e. the difference between the total weight in the early period, 1989-1996, subtracted from the total weight from the most recent period, 1997-2004); positive values indicate greater activity in the recent period; negative values indicate greater activity in the earlier 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 from 1989-2003 divided by the number of entities in the cluster); scores range from 1.0 to 10.0; low numbers indicate higher perceptions of corruption; high numbers indicate lesser perceptions of corruption.

[5] *Law enforcement effort, effectiveness, and rates of reporting* is measured, secondly, by the 'mean LE/reporting ratio' (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 to 1.00; low numbers indicate poor law enforcement effort; high numbers indicate good law enforcement effort.

[6] *Internal ivory trade* is measured by the 'mean market score'; scores range from –3 to 18; high numbers indicate large-scale, unregulated domestic ivory markets and carving industries; low numbers indicate smaller, highly-regulated domestic ivory markets and carving industries.

Discussion of the results: Table 6 presents aggregated summary statistics for the 13 groups, allowing the trade characteristics of each cluster to be assessed more fully. Arranged according to the 'mean market score', the following can be said about these groups:

Group 1 – Democratic Republic of the Congo (CD) and Thailand (TH): These countries, both elephant range States, show mid-range variables for frequency and scale. Involvement in the illicit ivory trade shows slightly more activity in the earlier period, 1989-1996, than more recent years as indicated by the negative value in the 'change in weight' column, however, these results partially reflect poor reporting to ETIS. Law enforcement is a serious issue as noted by the very low CPI score and law enforcement effort ratio, indicating very high perceptions of corruption and lax law enforcement effort. The domestic ivory market score is the greatest of any cluster, suggesting that local markets remain very active and are poorly regulated.

Group 2 – Nigeria (NG): Nigeria, an African Elephant range State, is regularly involved in illicit trade in ivory, the scale of this trade is considerable, and it appears to be increasingly active in the recent period. As Nigeria has supplied very little seizure data to ETIS, involvement in the trade is almost entirely revealed through data presented by other nations. Nigeria demonstrates the highest perception of corruption and the lowest level of law enforcement effort of any country assessed in the analysis. Nigeria also holds the second highest score for its domestic ivory market, which could be growing.

Group 3 – Cameroon (CM) and Ethiopia (ET): Cameroon and Ethiopia, both elephant range States, demonstrate middle to lower-range variables for the frequency and scale measures for involvement in illicit ivory trade. This trade also appears to have decreased in the most recent period, with a negative value for 'change in weight'. This result should be interpreted with some caution, however, as Cameroon has not submitted any seizure data to ETIS for over three years and the data for Ethiopia are also weak for recent years. The perception of corruption is an important concern, given the low CPI score, and the law enforcement effort ratio remains very poor. Domestic ivory markets are of concern in both countries.

Group 4 – China (CN): For frequency and scale, China has the second highest values in the analysis. China also has the highest positive value for 'change in weight', indicating that most records of illicit ivory trade are from 1997 onwards. These findings support conclusions reached in the ETIS analysis to CoP12. At the same time, China's CPI and law enforcement effort scores have improved, the latter markedly, rising from 6% to 30% since 2002. This clearly indicates that the Chinese authorities are making progress in curtailing illicit trade in ivory, and that they are reporting these efforts to ETIS.

China's domestic ivory market score has also dropped (given the current scale of the domestic ivory market score), but still remains comparatively high.

Group 5 – United States of America (US): The United States ranks highest in terms of 'mean number of seizures', but only ninth in terms of scale, indicating a large number of very small ivory seizures. The positive value in the 'change in weight' column, suggests that the United States has been experiencing an increasing challenge since 1997. There is a very low perception of corruption in the country and an excellent law enforcement effort ratio. The domestic ivory market score has increased to some extent, primarily over concerns about regulation of the internal market.

Group 6 – United Kingdom (GB) and Zimbabwe (ZW): Zimbabwe, an African Elephant range State whose population is in Appendix II of the Convention, and the United Kingdom fall in the middle range in terms of frequency, but overall have a very low value for scale, suggesting frequent, small-scale ivory seizures involving these countries. Zimbabwe can legally export 'ivory carvings for non-commercial purposes' under CITES, but these 'personal effects' are often ineligible for import into other countries with stricter domestic measures. The low negative value in the 'change in weight' column indicates that the scale of the illegal trade has been nearly equal over both periods. The CPI score indicates generally low perceptions of corruption, while the law enforcement effort ratio is at the mid-point, but is confounded due to the Zimbabwe situation. The domestic ivory market score is also in the mid-range.

Group 7 – Hong Kong SAR (HK) and South Africa (ZA): Paired together in the cluster analysis in the CoP12 report, since then, Hong Kong SAR and South Africa show an increase against both the frequency and scale measures. The 'mean change in weight' variable, which was strongly negative in 2002, has been reduced to the point that it now suggests that involvement in illicit ivory trade has been nearly equal in both periods of time. There is a low perception of corruption, but the law enforcement effort ratio remains below the mid-point. The domestic ivory market score is in the mid-range when aggregated for the two countries.

Group 8 – United Arab Emirates (AE), Angola (AO), Cote d'Ivoire (CI), Republic of Korea (KR), Mozambique (MZ), Philippines (PH), Sudan (SD) and Uganda (UG): This cluster of eight countries is the largest and consequently is a 'catch-all' group. The frequency and scale measures are the lowest of any cluster, indicating most countries are infrequently implicated in ivory seizures that have fairly modest weight values. None of these countries, however, contribute ivory seizure data to ETIS on a regular basis. The positive value in the 'mean change in weight' column suggests a more active trade since 1997. The very low values for CPI and law enforcement effort ratio are cause for concern. The mid-range score for domestic ivory markets suggests that at least some countries have active markets, especially Cote d'Ivoire, Mozambique, Sudan and possibly Angola.

Group 9 – Singapore (SG) and Taiwan, province of China (TW): Singapore and Taiwan, province of China, demonstrate a low number of seizures, but show a mid-range value for scale. The 'change in weight' variable also indicates that involvement in illicit trade has been fairly equal in both time periods. In fact, there were much stronger negative values for the period of activity measure in the ETIS analysis for CoP12, indicating that illicit trade in ivory is perhaps becoming more active. Singapore has not reported any seizure data since CoP12, which partially explains the poor law enforcement effort ratio. The CPI score shows a very low perception of corruption and the domestic ivory market score is also low.

Group 10 – Belgium (BE), Botswana (BW), Canada (CA), Egypt (EG), India (IN), Portugal (PT) and Zambia (ZM): With seven countries, this is the second largest group and another 'catch-all' cluster. The frequency and scale measures indicate fairly infrequent involvement in the trade, while the 'change in weight' variable suggests that the earlier period, 1989-1996, was only marginally more active than the trade in the more recent period. While the perception of corruption could be an issue in some of these countries on occasion, the law enforcement effort ratio is far better than average. As an aggregate, the domestic ivory market score is low, but there is considerable variance amongst individual countries, with Egypt having the largest internal ivory market.

Group 11 – Japan (JP), Kenya (KE) and Malawi (MW): This cluster includes two African Elephant range States and a major consumer of ivory in Asia. These countries have a fairly low value for the frequency measure, but a large value for scale, indicating that many seizures entail substantial volumes of ivory. For

the 'change in weight' variable, a high level of illegal trade activity is seen in the most recent period, 1997-2004, which is not surprising given that Malawi and Japan were both implicated in the largest ivory seizure within this period. As an aggregated value, the low CPI value suggests that there is a high perception of corruption, but this results primarily from the effect of the Malawi and Kenyan scores. The aggregated law enforcement effort ratio, however, is much better. The domestic ivory market score is low, but variance between these countries is exceptionally great, with Japan featuring the largest market.

Group 12 – Switzerland (CH) and France (FR): The high value for frequency, but the low value for scale suggests a lot of very small ivory seizures. The rather strong negative value for 'change in weight' means that the earlier period, 1989-1996, has been far more active than the recent period. With the highest CPI value, corruption is not a significant issue, and this is complemented by a very high law enforcement effort ratio. The low domestic ivory market score also indicates that the internal ivory trade in these countries is relatively small.

Group 13 – Namibia (NA) and Tanzania (TZ): These countries, important African Elephant range States, have a mid-point value for frequency, but the highest value of all for scale, indicating a large number of high-volume ivory seizures. The negative value for 'change in weight' is the largest in the analysis and indicates that the period 1989-1996 was far more active than later years. The CPI value is low, but the law enforcement effort ratio, the second highest in the analysis, is extremely good. The very low domestic ivory market score is indicative of countries that have almost no internal ivory markets.

The case of Burundi and Djibouti: In the ETIS analysis to CoP12, both Burundi and Djibouti were amongst the 31 countries identified in the 13 clusters. In this analysis, neither country features in the clusters noted above and both were eliminated in the data reduction exercises described in the methodology. This seems to have resulted from the fact that, since CoP12, neither country has reported any ivory seizures themselves and both were only otherwise implicated in four very small seizures. As such, both countries appear to be rather dormant in the illicit trade in ivory at this time and have been eclipsed by other players in this analysis.

Correlated relationships which drive illicit trade in ivory: In terms of the most problematic variables supporting illicit trade in ivory, there is a highly significant negative correlation between the domestic ivory market score and the law enforcement effort ratio (see Table 7, CoP13 Doc. 29.2, Annex). The second strongest correlation is found between the degree of corruption as measured by the CPI and the law enforcement effort ratio. And finally, there is also a positive correlation, albeit of far less significance than the other variables, between the mean change in weight and the domestic ivory market score.

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

- Illicit trade in ivory continues to be most directly related to the presence of large-scale, poorly regulated, domestic ivory markets in Asia and Africa. In such places, if there is a high perception of corruption, there is also likely to be poor law enforcement effort. And, to some extent, such markets have become more active since 1997.

- On the basis of cluster analysis, Cameroon, China, the Democratic Republic of the Congo, Ethiopia, Nigeria and Thailand are most highly implicated in the illicit trade in ivory, and have held this distinction since CoP12. Since then, only China has demonstrated significant and commendable improvement of its law enforcement effort in dealing with a serious illegal ivory trade problem. To a lesser extent, Ethiopia and Thailand have also made some effort to deal with outstanding issues, but further progress is needed, and may be inhibited by an inadequate legal framework from which to act. There is almost no perceptible change in the situation in the remaining African countries where illegal ivory trade problems remain paramount.

- Other countries or territories, including Angola, Cote d'Ivoire, Hong Kong SAR, Japan, Kenya, the Republic of Korea, Malawi, Mozambique, Philippines, Singapore, South Africa, Sudan, Taiwan, province of China, Uganda, United Arab Emirates, United States, United Kingdom and Zimbabwe, play lesser but still important roles in the trade. Varying levels of commitment are found within this group. Some clearly need to report ivory and other elephant product seizures to ETIS and strive to

improve law enforcement effort. Others, with active domestic ivory markets, need to ensure compliance with CITES requirements more forcefully.

– The issue of unregulated domestic ivory markets continues to require special attention. In this regard, Decision 12.39 should be reaffirmed and the intersessional process under the direction of the Standing Committee should continue to be developed. The decision at the 50th meeting of the Standing Committee to expand the scope of Decision 12.39 within Africa is seen as a positive development.

– African and Asian Elephant range States, key transit nations and end-use market countries that never, or only rarely, report elephant product seizure information to ETIS, should ensure compliance with their obligations under CITES. TRAFFIC should be encouraged to assist such countries to more fully participate in ETIS.

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

Background: This analysis fulfils the first and second objectives for ETIS by addressing the following questions:

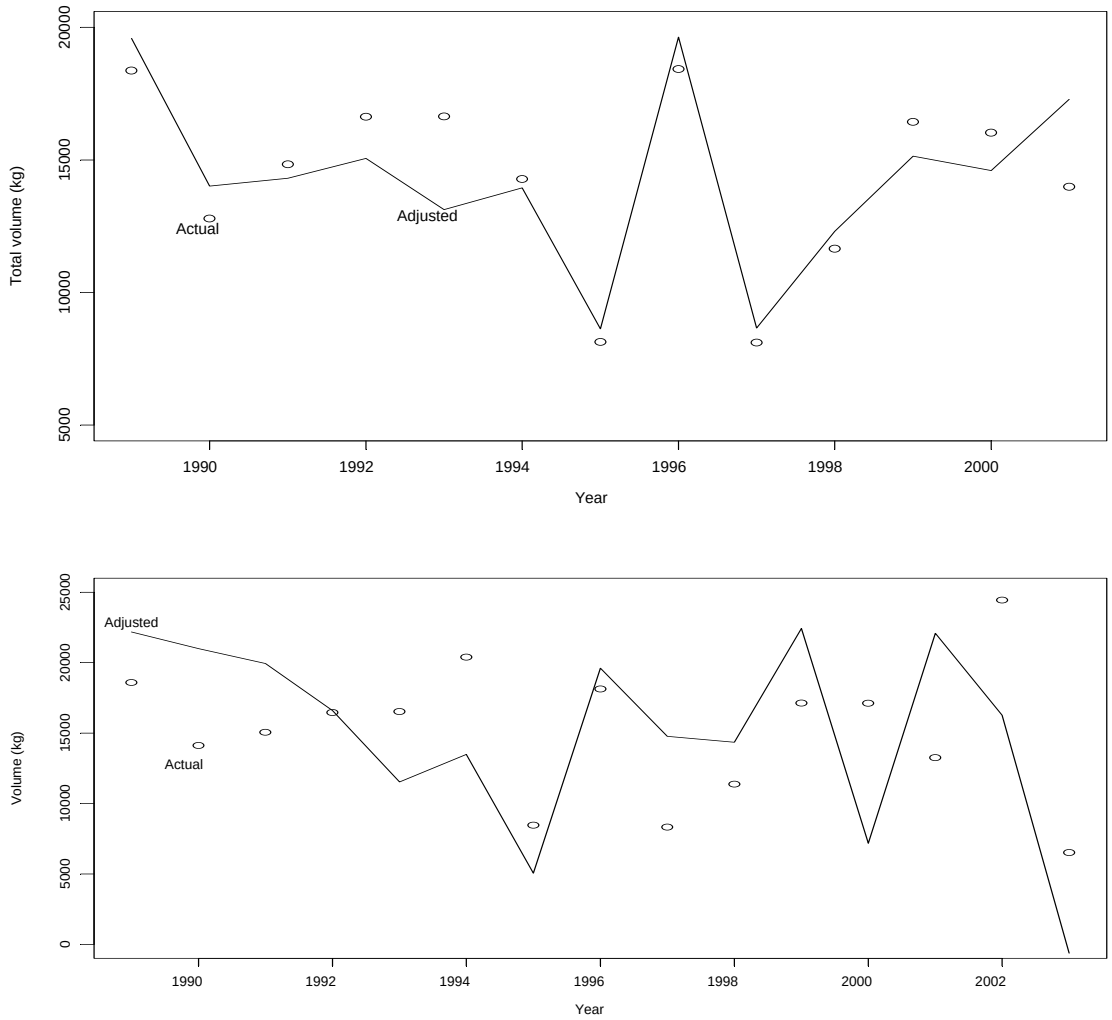
– *What is the trend in the illicit trade in ivory since 1989 to the present and how has it changed over the years?,* and

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

It is worth recalling the basic conceptual framework of ETIS. It must be appreciated that it is not possible to observe the actual level of illegal trade in ivory that occurs globally each year. Consequently, ETIS will never be able to express absolute values for the illegal trade in ivory. But, as illicit trade in ivory unfolds, a certain number of transactions are detected and seized and, of these, a certain number are reported to ETIS. Again, it is not possible to know the exact number of ivory seizures that occur throughout the world each year. Over time, however, as the data build up, an information base is established which affords a 'window' through which it is possible to view illegal trade in ivory in a credible manner. Although this view is inherently imperfect because of bias in the data, it can be substantially improved if independent proxy measures are found to assess such things as law enforcement effort, efficiency and rates of reporting. These variables are key factors that introduce 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 reduce the various forms of bias, and improve the precision of the result. By making such adjustments, it then becomes possible to produce trends that are believed to reflect, in a general manner, relative levels of illicit trade in ivory over the period of time under consideration. This is what ETIS strives to achieve.

Methodology: A detailed description of the methodology is presented in CoP13 Doc. 29.2, Annex, Part III. In this summary, it is sufficient to know that the year 2004 was eliminated at the outset as the data are incomplete. The initial analysis concerned all data from the period 1989-2003 and represented 72 countries. These data were adjusted to reduce bias and then used in an initial analysis. The scope of the trend was further reduced to the period 1989-2002, as the data for 2003 were seen to be comparatively incomplete and could not be used with confidence to project a trend. Thus, data for 2003 were also eliminated in the final result.

Figure 6: Comparing adjusted trend line 1989-2001 in ETIS analysis to CoP12 (upper; ETIS Data at 28 August 2002) with current analysis 1989-2003 (lower; ETIS data at 6 July 2004)



The unsmoothed trend: Figure 6 (lower) shows the adjusted total volume of ivory seized in relation to the unadjusted data points (rendered as small circles), which correspond to the 'raw' data presented in Table 5 (also see Figure 3, CoP13 Doc. 29.2, Annex). The trend line shows a general decline in the volume of ivory seized from 1989 through 1995, followed by a sharp increase in 1996, which then declines modestly over the next two years. From 1998 through 2002, fairly wide fluctuation in the volume of ivory seized are seen, until finally dropping off rather dramatically in 2003. The same figure (upper) also shows the adjusted trend presented to CoP12 covering the period 1989-2001. Contrary to the analysis presented at CoP12, in the current effort, from 2001 onwards, the trend suggests a major decline in the volume of ivory seized around the world (also see Figures 4 and 5, CoP13 Doc. 29.2, Annex). This result is heavily influenced by the data for 2003, however, it can be argued that this year is 'data deficient' for various reasons. In the interest of caution, it is felt that it is only possible to present a reliable trend for the period 1989-2002.

Using data for those years, and removing the severe fluctuations through conventional statistical smoothing techniques, a smoothed adjusted trend is presented in Figure 7 (also see Figure 8, CoP13 Doc. 29.2, Annex). This trend shows a decline to 1994 and then a gradual increase from 1995 to the present. In this figure, the smoothed adjusted trend is shown against the actual data (circles) and the adjusted trend before smoothing (the dashed line). In many respects, the smoothed adjusted trend in Figure 7 closely mirrors the result that was presented to CoP12 (see Figure 9, CoP13 Doc. 29.2, Annex). The principal difference between the two results is that the trend in the current analysis shows an earlier, but far more gradual, increase from 1995 onwards. This trend, however, covers an additional year (2002) and is based on 1,088 more ivory seizure records than the result for CoP12.

Figure 7: Smoothed adjusted trend 1989-2002 with actual and adjusted volume of ivory in 'raw ivory equivalent' terms (6 July 2004)

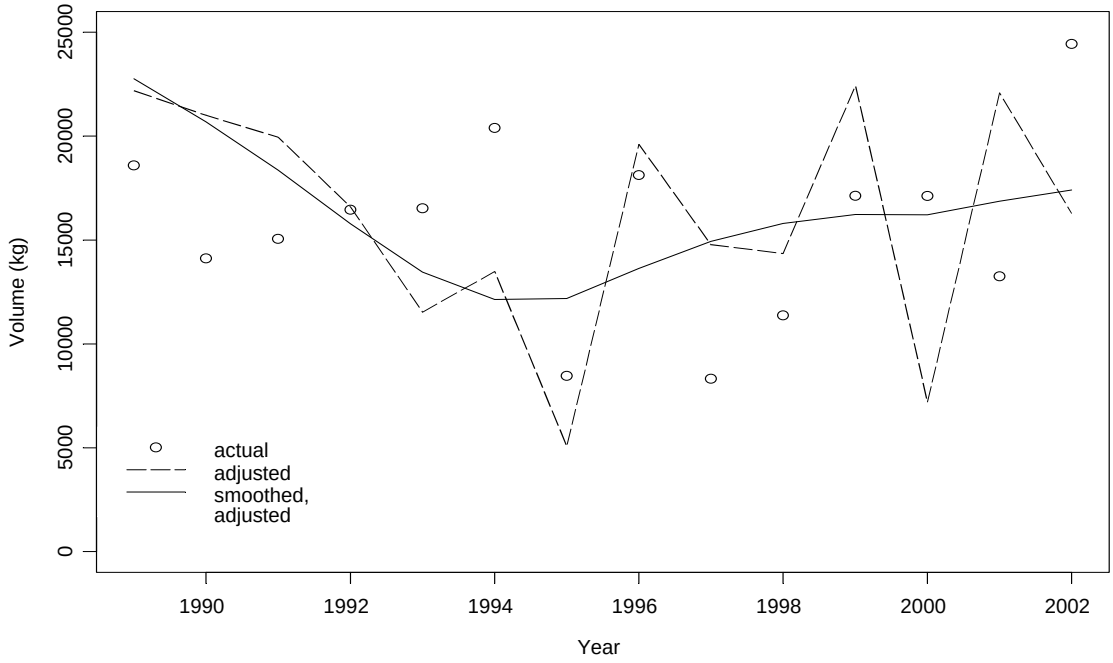
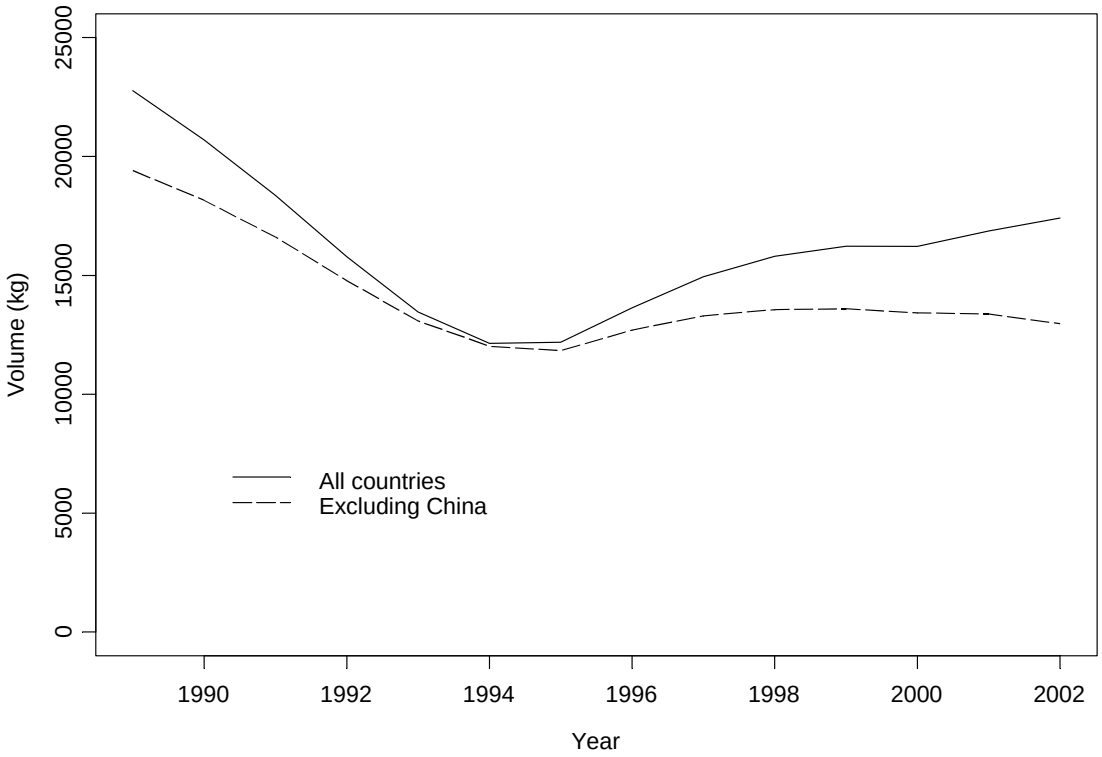


Figure 10: Smooth adjusted trend 1989-2002 with all countries and with China data removed



Assessing the trend - the role of China: In the ETIS analysis for CoP12, the role of China in the illicit trade in ivory was identified as the single most important influencing factor in the upward trend from 1999 through 2001. In Figure 10, the smoothed adjusted trend for the period 1989-2002 is shown both with and without the data for China. Without the influence of Chinese demand, the trend is essentially flat, showing very little change from 1996 to 2002. This result continues to confirm the findings of the ETIS analysis to CoP12 that identified China as the single most important country in the ivory trade today. Supporting that view is another major study of ivory markets in Asia that reported "China has emerged as the main ivory manufacturing centre for all Asia, surpassing Hong Kong and Japan" (Martin and Stiles,

2003). These observers also reported that the 1999 ivory auctions under CITES did not have "a significant effect on either internal or external ivory demand" in China (Martin and Stiles, 2003). If illicit trade in ivory is to be reduced in the future, China will need to play a significant role in bringing this reduction about. China has already been commended in this report for making a concerted attempt to curtail illegal ivory trade.

Assessing the trend - the issue of 'signals': In order to address the relationship of observed trends to events under CITES, the issue of 'signals' needs to be assessed. The basic logic of this hypothesis holds that 'signals' are produced indicating a resumption of ivory trade every time there is a proposal to transfer elephant populations to Appendix II, or to change the annotations of those populations already in Appendix II to allow commercial trade in ivory. This, in turn, stimulates the illegal killing of elephants in range States and illicit trade in ivory. Proposals to transfer specified populations of elephants from Appendix I to Appendix II of the Convention were considered at the Conference of the Parties in 1992, 1994, 1997, 2000 and 2002. In 1997, three African Elephants populations were placed in Appendix II and, in 1999, raw ivory was legally traded between three African countries and Japan. In 2000, another elephant population was transferred to Appendix II and, in 2002, another one-off conditional sale of raw ivory was approved for three countries, but this transaction has yet to occur. With this in mind, Figure 6 shows that in the years 1992, 1997, 2000 and 2002, the volume of ivory seized actually declines from previous years, in one case, 2000, quite markedly. Only 1994 shows an apparent increase. In 1999, the year raw ivory was actually traded, the volume of ivory seized increased substantially, but then fell sharply the next year. Overall, the pattern described above does not support the 'signals' hypothesis.

Conclusions of the trends analysis: This analysis has produced a trend representing the illegal trade in ivory for the period 1989-2002, and assessed changes in the trend over the period in question. The following conclusions can be made:

- When adjusted to reduce bias and smoothed to indicate the underlying trend more clearly, the data show that the volume of ivory seized declined from 1989-1994, then gradually increased from 1995 onwards, though never to the levels of prior to 1992. This trend closely reflects that presented in the ETIS analysis to CoP12, but the increase in recent years is more gradual than was previously reported.

- The ivory market in China continues to be the most important influence on the trend. If Chinese demand is removed, the trend line is essentially flat from 1994 onwards, indicating that this single market alone accounts for the increase in illegal trade in ivory in recent years. China's continuing commitment to effective law enforcement, however, could induce a reversal of this trend in the future.

- It is not possible to demonstrate any relationship between the volume of ivory seized from 1989 through 2002 and key events under CITES. In most, but not all, years in which a Conference of the Parties was held, there was an apparent decline in the volume of ivory seized. On the basis of other qualitative information, it is also not possible to relate the emergence of Chinese demand for ivory to events under CITES.

- The prospect of a downward trend in ivory seizures is strong, but will only occur if serious attention is placed on the regulation of domestic ivory markets, particularly those in Asia and Africa. The ivory seizure data in ETIS continues to demonstrate a strong correlation between illegal trade in ivory, domestic ivory markets and poor regulation. In this regard, China and Thailand in Asia, and Cameroon, Democratic Republic of the Congo, Ethiopia and Nigeria in Africa, are the most important countries. Of these countries, only China appears to be acting decisively to curtail the illicit movement of ivory into local markets and to destinations abroad.