

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



Seventeenth meeting of the Conference of the Parties
Johannesburg (South Africa), 24 September – 5 October 2016

Species specific matters

Elephants (Elephantidae spp.)

REPORT ON THE ELEPHANT TRADE INFORMATION SYSTEM (ETIS)

1. This document has been prepared by the Secretariat.
2. Resolution Conf. 10.10 (Rev. CoP16) on *Trade in elephant specimens* establishes the system known as the Elephant Trade Information System (ETIS), supervised by the Standing Committee, with the following objectives:
 - i) *measuring and recording levels and trends, and changes in levels and trends, of illegal elephant killing and trade in ivory and other elephant specimens in elephant range States, ivory consumer States and ivory transit States;*
 - ii) *assessing whether and to what extent observed trends are related to: measures concerning elephants and trade in elephant specimens taken under the auspices of CITES; changes in the listing of elephant populations in the CITES Appendices; or the conduct 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 elephant range States and, as applicable, countries involved in trade in elephant specimens, to implement and make use of MIKE and ETIS in managing elephants and enhancing enforcement.*
3. Concerning ETIS reporting, Resolution Conf. 10.10 (Rev. CoP16) provides that TRAFFIC, in collaboration with the CITES Secretariat, will produce a comprehensive analytical report with full explanatory and interpretive notes prior to each meeting of the Conference of the Parties. The CITES Secretariat is instructed to report on information collected through ETIS and the ETIS analysis at relevant meetings of the Standing Committee and at each meeting of the Conference of the Parties.
4. Comprehensive ETIS analyses have been submitted to the Conference of the Parties at its 11th, 12th, 13th, 14th, 15th and 16th meetings [CoP11, Gigiri, 2000, in document Doc. 11.31.1 (Annex 5); CoP12, Santiago, 2012, in document CoP12 Doc. 34.1; CoP13, Bangkok, 2004, in document CoP13 Doc. 29.2A; CoP14, The Hague, 2007, in document CoP14 Doc. 53.2; CoP15, Doha, 2010, in document CoP15 Doc. 44.1 (Rev. 1)A; and CoP16, Bangkok, 2013, in document CoP16 Doc. 53.2.2 (Rev. 1)].
5. The Annex to this document contains the comprehensive analytical ETIS report, prepared by TRAFFIC in collaboration with the CITES Secretariat, that is called for in Resolution Conf. 10.10 (Rev. CoP16). The Secretariat concurs with the general summary conclusions of the report. The recommendations by the Secretariat that are based on this report are detailed in documents CoP17 Doc. 24 on *National ivory action plans process* and 57.1 on *Implementation of Resolution Conf. 10.10 (Rev. CoP16) on Trade in elephant specimens*.

6. According to Resolution Conf. 4.6 (Rev. CoP16) on *Submission of draft resolutions, draft decisions and other documents for meetings of the Conference of the Parties*, the Conference of the Parties decided that any draft resolutions or decisions submitted for consideration at a meeting of the Conference of the Parties that have budgetary and workload implications for the Secretariat or permanent committees must contain or be accompanied by a budget for the work involved and an indication of the source of funding. As shown in the Annex to document CoP17 Doc. 57.5, funds have been secured from the European Union to implement ETIS up to 2018. Subsequently, additional external funding will be required.

Recommendation

7. The Conference of the Parties is requested to note this report.

The Elephant Trade Information System (ETIS) and the Illicit Trade in Ivory: A report to the 17th meeting of the Conference of the Parties to CITES

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TRAFFIC
27 May 2016

Introduction

Resolution Conf. 10.10 (Rev. CoP16) mandates “a comprehensive report to each meeting of the Conference of the Parties” from the Elephant Trade Information System (ETIS). This report is the sixth major assessment of the ETIS data to the CITES Parties, and constitutes TRAFFIC’s reporting obligations for CoP17 under the Resolution. Prior to submission to the CITES Secretariat, the document was reviewed by members of the MIKE-ETIS Technical Advisory Group. TRAFFIC would like to acknowledge with gratitude the funding support from the European Union’s programme entitled “Minimizing the Illegal Killing of Elephants and other Endangered Species”, the U.S. Fish and Wildlife Service’s African Elephant Conservation Fund and WWF for providing support for the operation and management of ETIS since CoP16, including the production of this report.

PART I: THE ETIS DATA

Number of Records:

On 25 January 2016, ETIS comprised 24,636 elephant product seizure records, representing law enforcement actions in 98 countries or territories since 1989. At this time, the year 2015 remains data deficient and is not considered in this assessment, which is mostly restricted to the eight-year period 2007 through 2014.

Figure 1: Estimated weight of ivory and number of seizure cases by year, 1989-2014 (ETIS, 25 January 2016)

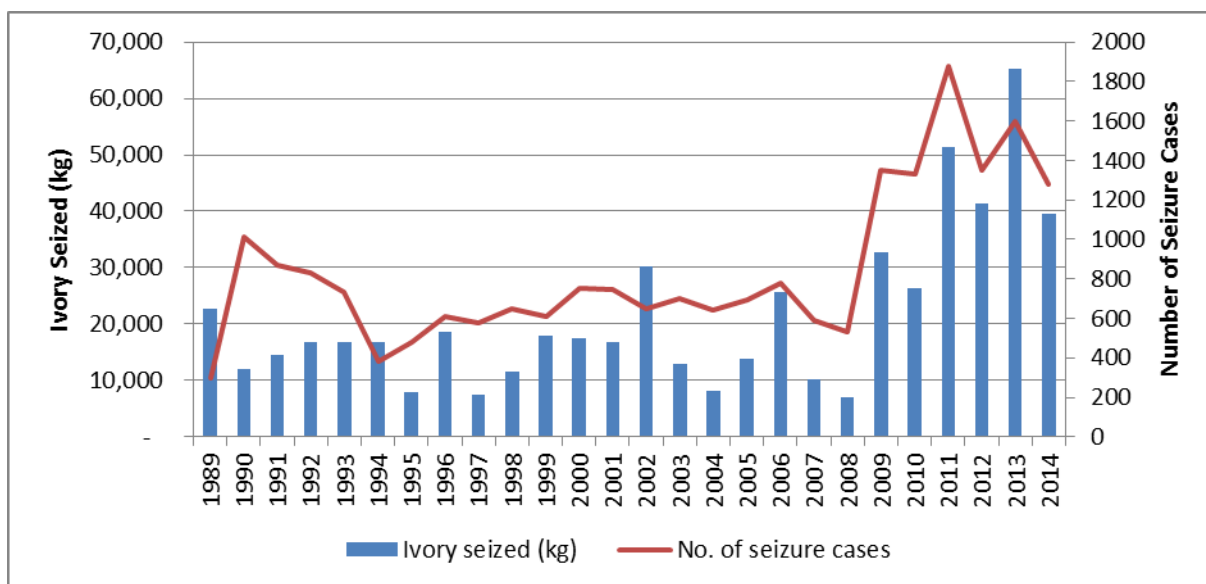


Figure 1 depicts the estimated weight of ivory represented by the seizure records reported to ETIS, along with the number of seizure cases for each year from 1989 through 2014. As emphasized in all previous ETIS analyses, inherent bias in the raw data prevent this representation from being interpreted either as a trend or as suggestive of absolute ivory trade quantities over time (Underwood *et al.*, 2013).

Weight of ivory represented in the seizures database:

For about half of the ETIS seizure records, the Parties did not specify the weight of the items seized, but only provide the 'number of pieces' by ivory type. Further, it is usually not known if 'pieces' concern whole tusks or cut pieces of raw ivory or, in the case of worked ivory, the specific type of product, which could range from a few grams to many kilograms. In other cases the weights reported to ETIS are believed to only represent an estimate and are not precise measurements. In this report, missing weight values were calculated by updating the model developed for the ETIS trend analysis submitted to the 66th meeting of the CITES Standing Committee using data from 2005 through 2015 in which both the number of pieces and weight by ivory type were given. The inherent uncertainty in weights gives rise to a number of data modeling challenges. Thus, it is worth reiterating that for analytical purposes, the weight category (and not the actual weight of each seizure) is regarded as the important consideration in the ETIS analytical framework.

Table 1: Estimated weight of ivory in raw ivory equivalent (RIE) terms represented by unadjusted ETIS seizure data, 2007-2014 (ETIS, 25 January 2016)

Year	Number of ivory seizure cases	Raw ivory weight (kg)	Worked ivory weight - RIE (kg)	Total (kg)
2007	588	8,549	1,604	10,153
2008	531	5,549	1,426	6,975
2009	1,349	27,410	5,273	32,683
2010	1,331	22,935	3,409	26,344
2011	1,875	45,285	6,168	51,453
2012	1,350	36,130	5,168	41,298
2013	1,598	58,067	7,104	65,171
2014	1,277	31,656	7,814	39,470
Total	9,899	235,581	37,966	273,547

Raw ivory equivalent (RIE) values are used for all ivory seizure data examined in this report, thus an estimate of wastage that occurs during the manufacturing process for worked ivory products is considered as part of the weight, allowing worked ivory values to be comparable to, and aggregated with, raw ivory (see CoP14 Doc. 53.2 Annex for a description of the method used for this calculation). Table 1 provides a summary of the estimated weight of ivory in RIE terms in this analysis. It is worth noting that in the four most recent years, 2011-2014, the largest quantities of ivory since 1989 have been seized, according to ETIS data.

Assignment of Country of Origin to Ivory Seizures Following DNA Assessment

At CoP16, a revision to Resolution Conf.10.10 (Rev. CoP16) recommended that the Parties collect ivory samples from seizures of 500 kg or more and send them to appropriate forensic-analysis facilities that have the capacity to reliably determine the origin of ivory samples. In particular, Decision 16.83 recommended that large-scale seizure cases that have occurred over the last 24 months from the date that the decision took effect (i.e. seizures which occurred from 12 June 2011 onwards), should retroactively collect samples and have them forensically assessed. Based on forensic examination of ivory from such seizures undertaken at the University of Washington's Centre for Conservation Biology and published in Wasser *et al.*, 2015, 23 ETIS seizure records in the period 2005-2014 have been modified to indicate the original source of the ivory. As ETIS accommodates multiple countries of origin for a seizure case, an estimate of the proportion of weight relating to each country of origin identified in the seizure has become an integral part of these records. Unfortunately, Decision 16.83 has been poorly implemented by the Parties as it appears that only 11 of the 61 ivory seizures (18%) reported to ETIS (that were 500 kg or over and fall within the designated time frame) have been assessed forensically and the results communicated to TRAFFIC for inclusion in ETIS for this analysis.

Table 2: Estimated number of large-scale ivory seizures (>500 kg) which have been forensically examined pursuant to Decision 16.83 and the results reported to ETIS

Year	No. of large-scale ivory seizures reported to ETIS	No. of forensically examined cases with results reported to ETIS
From June 2011	13	0
2012	14	2
2013	20	7
2014	14	2
Total	61	11

PART II: THE TREND ANALYSIS

Resolution Conf. 10.10 (Rev. CoP16) calls for ETIS to measure “*levels and trends, and changes in levels and trends*” concerning illegal trade in ivory. In the period 2007 through 2014, the ETIS database contained 9,899 seizure records that relate to raw or worked ivory. In terms of weight, these records range from one gram to 6,034 kg of ivory and the largest 1% of these seizure records represents 65% of the total estimated weight of the ivory seized during this period.

A Note on Methods

This report is based upon the analytical framework for ETIS described in Underwood *et al.*, (2013) and Burn & Underwood (2013), with some refinements and revisions. This basic framework was also employed for the ETIS analysis to CITES CoP16, and two subsequent iterations of the trend analysis for the 65th and 66th meetings of the CITES Standing Committee. In this analysis to CoP17, the following changes are noted:

Time period of the analysis: Although the ETIS data span over 26 years, the CITES Parties are primarily interested in assessing contemporary (not historical) illicit ivory trade flows, especially what has transpired between intervals of the Conferences of the Parties. Previous ETIS analyses have repeatedly documented post-CITES trade ban trends and remain available for consultation in terms of assessing continuity and understanding longer-term trade patterns. To refresh briefly, in the previous analysis presented to CoP16 which covered the period 1996 to 2011, “*illegal ivory trade activity remained at or slightly above 1998 levels up to 2006. Thereafter, a gradual increase in illegal ivory trade activity commences, becoming progressively greater in each successive year, with a major surge in 2011*” (Milliken *et al.*, 2012). Thus, 2007 was seen as an inflection point and, in this analysis, becomes the commencement point for assessing trade over an eight-year period of time to 2014. Further, 2007 was the year before the second one-off ivory sale under CITES took place and was the year in which CITES CoP14 agreed the so-called “elephant compromise” that imposed, following the one-off sale, a nine-year moratorium on any future ivory trade proposals from those countries whose elephants were included in Appendix II of the Convention. Therefore, the first five years of the present analysis overlap with the CoP16 report, whilst the last three years introduce new data, bearing in mind that the years 2012 and 2013 were previously assessed in trend analyses presented at the 65th and 66th meetings of the CITES Standing Committee. Looking forward beyond CoP17, additional years to extend the trend for CITES Standing Committee meetings or other events that transpire before CITES CoP18 will be added to this data set.

Weight classes: Since CoP16, the ETIS analysis has described illegal ivory trade trends using three weight classes for raw and worked ivory separately: small (less than 10 kg), medium (10 kg to less than 100 kg) and large (100 kg or more). This categorization has generally worked well overall, except for the large worked ivory weight class as there are actually very few data representing seizures of this weight class. For example, there are fewer than four large worked seizures each year on average, and in some years none or only one case, making it a challenge to model trends accurately. Consequently, in this analysis, the medium and large worked ivory weight classes have been combined so that more robust analytical results can be produced.

Selection of countries: The ETIS analysis to CoP16 employed criteria based on numbers of seizures and/or weight thresholds to determine the countries in the analysis. The aim of the criteria was to describe the bulk of the trade, but to exclude countries that almost never make, or are implicated in seizures, as they are very difficult to model and in reality contribute very little to the analysis. The weight criterion is considered problematic given the uncertainty of weights and the use of weight categories. Thus, in this analysis, a scoring system based on weight classes was used to assess each country. In this regard, one point was given for every seizure (including those for which a country was implicated in the trade chain but the seizure was made

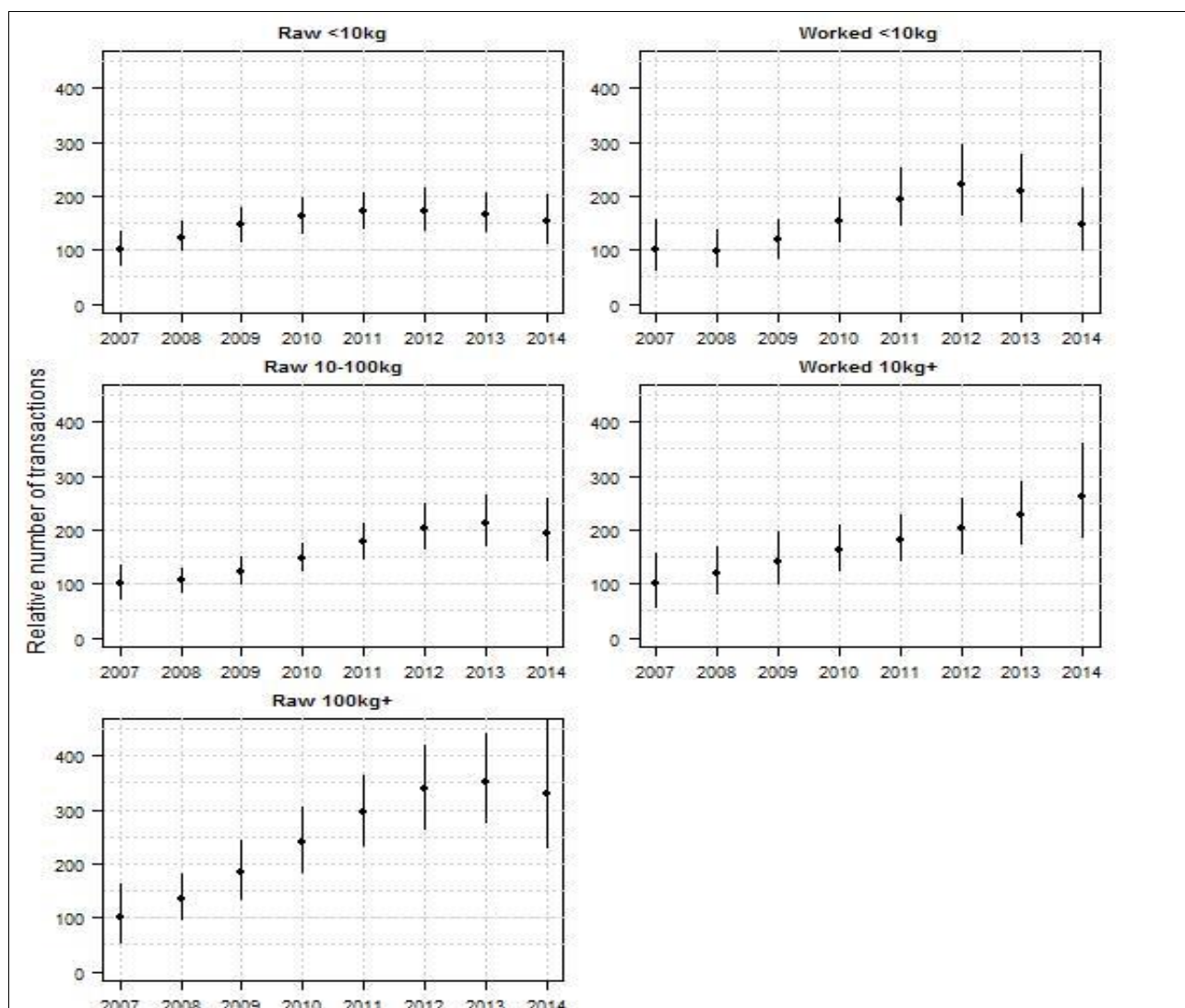
elsewhere) in the small weight class, 10 points for each seizure in the medium weight class and 100 points for each seizure in the large weight class. Countries needed to score at least 100 points over eight years of data to be considered. In this regard, 55 countries, accounting for 98% of the seizures by number and 99% by weight in the period 2007-2012, were examined in this analysis.

Bias adjustment of the ETIS seizure data: The raw ETIS seizure data presented in Figure 1 cannot be regarded as an accurate representation of the pattern of illegal trade in ivory because of inherent bias in the data. Bias arises owing to differences in the ability of countries, firstly, to make seizures and, secondly, to report the seizures they do make to ETIS. The modelling framework for addressing bias is described in Underwood *et al.*, (2013). Bias correction makes it possible to produce relative estimates of seizure and reporting rates for each country in each year which allows for meaningful comparisons to be made between countries over time. To achieve this, it is necessary to identify proxy variables that account for differences in seizure and reporting rates over time. In this analysis, the covariate that best describes variability in the seizure rate was the previous year's *law enforcement effort (LE) ratio* (see CoP15 Doc. 44.1 Annex for a description); in this report it is used as a proxy measure for the current year's law enforcement effort. In contrast to previous ETIS assessments, however, measures of governance did not prove useful in explaining variability, including *rule of law* from the World Governance Indicators of the World Bank (which demonstrated correlation in the CoP16 analysis but became far less important in the two follow-on trend analyses presented to CITES Standing Committee meetings). This may be because general governance indicators for countries at a national scale may not effectively reflect the more specific micro-environment through which wildlife trade crime unfolds; the reduced time period may also be a factor. Thus, in this analysis, a single covariate was used to determine the seizure rate. For the reporting rate, a combination of the *CITES Annual Reporting Score* (see CoP13 Doc. 29.2 for a description) and the *Data Collection Effort Score*, which is accorded to each individual seizure record to describe the process under which it was collected (i.e. targeted, prompted or passive). These bias adjusting factors were applied to the data to obtain relative indicators of numbers and weights of illegal ivory transactions by ivory type and weight class. By correcting for bias in the data and applying smoothing techniques, the trends that are presented in this report illustrate *relative* (not absolute) measures of the level of illegal ivory trade. In this way, changes in the seizures data which might result from improved law enforcement effort or better reporting are mitigated and the underlying pattern of the illicit trade is revealed more clearly.

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

The Transaction Index presented in Figure 2 depicts global illegal ivory trade activity by two ivory types, raw and worked, in five weight categories. Based upon bias-corrected data, each weight class figure provides a measure of the frequency of raw and worked ivory transactions occurring over the period, with 2007 set to 100 to constitute the baseline.

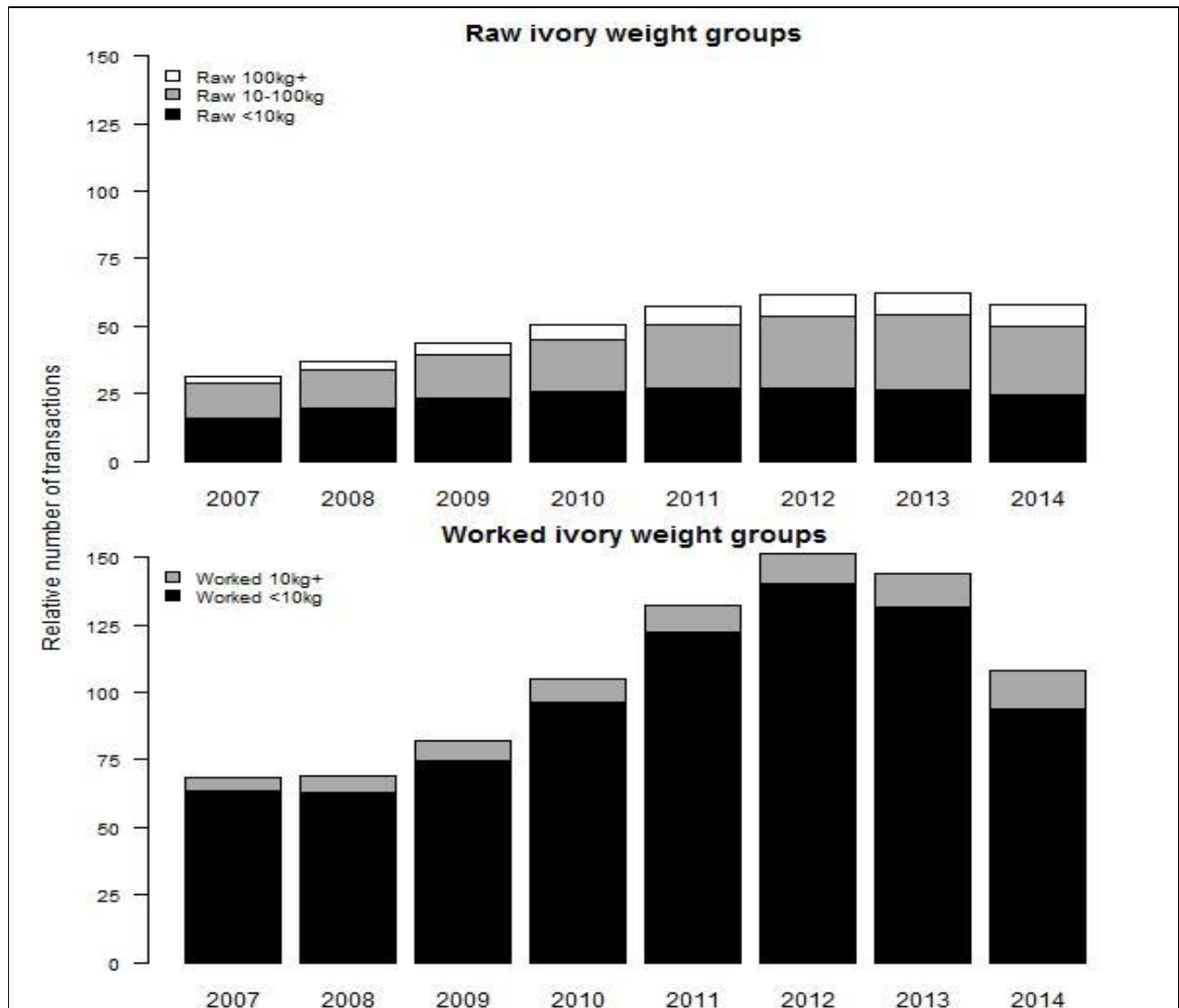
Figure 2: Trends in Transaction Index by ivory type and weight class with mean (bold dot) and 90% confidence intervals, 2007-2014 (ETIS 25 January 2016)



In general terms, the three figures for raw ivory seizures in Figure 2 are indicative of ivory supply from Africa, the principal source of elephant ivory today, whilst the two figures for worked ivory constitute a window on demand and ivory consumption by end-use buyers globally. The underlying dynamics of each weight class can be quite unique. For example, the small worked ivory weight class primarily relates to personal consumption of worked ivory products by tourists and other individual buyers, whereas the large raw ivory weight class is typically believed to concern many commercial-scale transactions involving high-level, organised criminal activity. Viewing the ETIS data through the prism of ivory types and weight classes affords a more nuanced, but not mutually exclusive, look at the different players, locations and dynamics operating along the ivory trade chain.

Figure 2 presents patterns of trade activity by ivory type and weight class, with the best estimate of trade represented by the bold dot and the vertical lines depicting 90% confidence limits. Overall, it can be seen that, in all weight classes except one, illicit trade transactions appear to have peaked in either 2012 or 2013 and then dropped slightly in 2014. However, the broadly overlapping confidence intervals caution against over-interpretation of these results and confirmation of whether a real downturn has definitively occurred will be known more clearly as data in subsequent years are analysed. This is especially true with respect to raw ivory transactions in all three weight categories. For worked ivory, the more robust reduction in the less than 10 kg weight class is largely offset by an apparent increase in the combined medium/large weight class, which stands in contrast to the other weight class trends in Figure 2.

Figure 3: Transaction Index combining weight classes by ivory type, 2007-2014 (ETIS 25 January 2016)



Looking at Figure 3, which aggregates the trend by ivory type, the overall decline in raw ivory transactions in 2014 is slight when compared to the decline exhibited for worked ivory trade activity. Raw ivory transactions involving large quantities of 100 kg or more remain a real concern, showing the least change when compared to the two other raw ivory weight categories (best seen in Figure 2). Large raw ivory shipments have been driving the increasing trend in illicit ivory trade throughout this entire period as they contribute the bulk of the total weight (see Figure 5). In Figure 2, 2014 represents only a marginal reduction in this weight class over the two previous years and the value still remains over three times greater than the activity transpiring in this weight category in 2007, the baseline year.

The greatest reduction in ivory trade activity for any weight class concerns small worked ivory transactions in 2014 that are less than 10 kg. At, and since, CITES CoP16 unprecedented publicity on illegal ivory trade and the status of African elephants has been a constant feature in the media of an increasing number of countries around the world, including major end-use markets in Asia; the reduction in small worked ivory transactions could possibly suggest that growing awareness and avoidance of ivory purchasing by potential consumers is beginning to occur. On the other hand, the increasing trend in medium/large worked ivory transactions could result from an increase in worked ivory production in Africa for Asian markets, as well as commercial movement of worked ivory stocks within Asia to more favorable locations for retail sales.

Figure 4: Transaction Index composite of all ivory types and weight classes with mean (bold dot) and 90% confidence intervals, 2007-2014 (ETIS 25 January 2016)

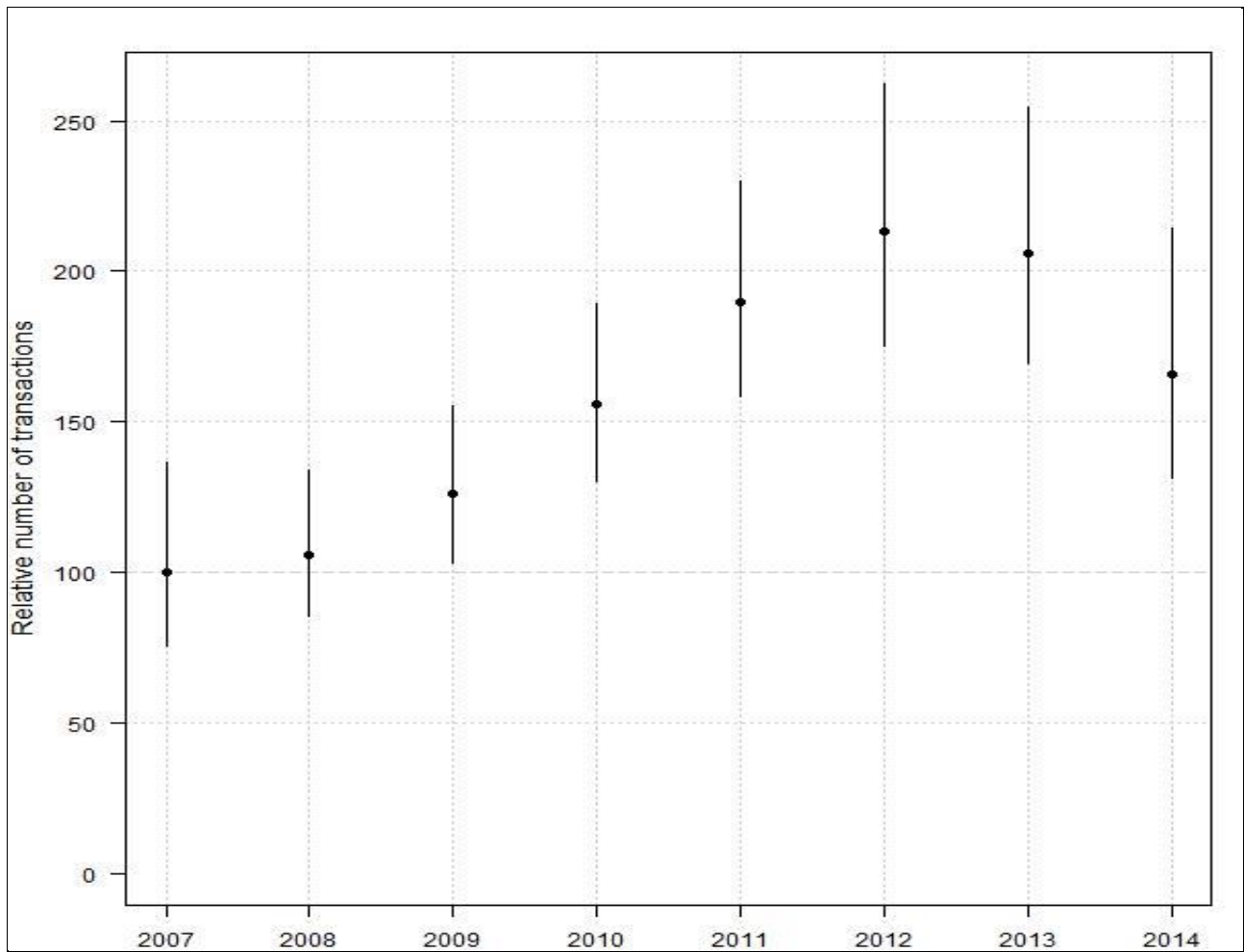


Figure 4 illustrates the overall trend in terms of illegal ivory trade activity globally where all ivory types and weight classes are consolidated. Although the previous trend analysis had 2013 as the peak year (see SC66 Doc. 47.1), this time 2013 appears to suggest a slight decline from 2012, and 2014 shows further decline in the relative number of ivory transactions. Whilst this is a positive development, the key point is that any decline is due to the small worked ivory class as illustrated in Figures 2 and 3, which actually contributes very little in terms of a reduction in the weight of ivory in illicit trade. Further, the large confidence interval in 2014 suggests uncertainty and the downward turn could potentially be confirmed or refuted in future iterations of the ETIS trend analysis. The overall picture for illegal ivory transactions is one of rapid increase from 2007 through 2012/2013 to record high levels and then the suggestion of a decline in 2014 that awaits further validation.

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

The Weight Index allows for the relative quantity of ivory in trade to be assessed by ivory type in weight classes. This index results from combining the Transactions Index with a model for assigning the weight to each seizure in each weight class. As previously emphasized, ETIS is not designed to provide illicit levels of ivory trade in absolute weight values, but the aggregated pattern of bias-adjusted data is indicative of the relative quantity of ivory being moved through illegal trade channels annually.

Figure 5: Weight Index combining weight classes by ivory types with 90% confidence intervals, 2007-2014 (ETIS 25 January 2016)

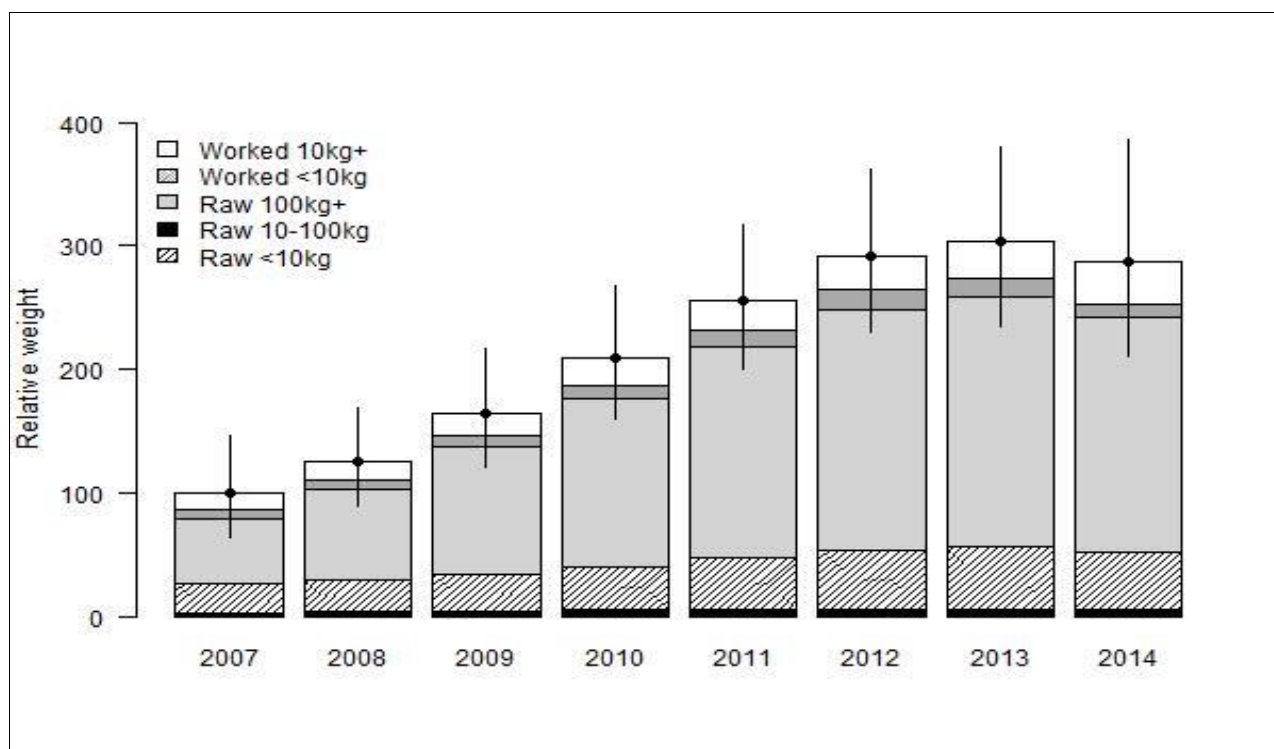
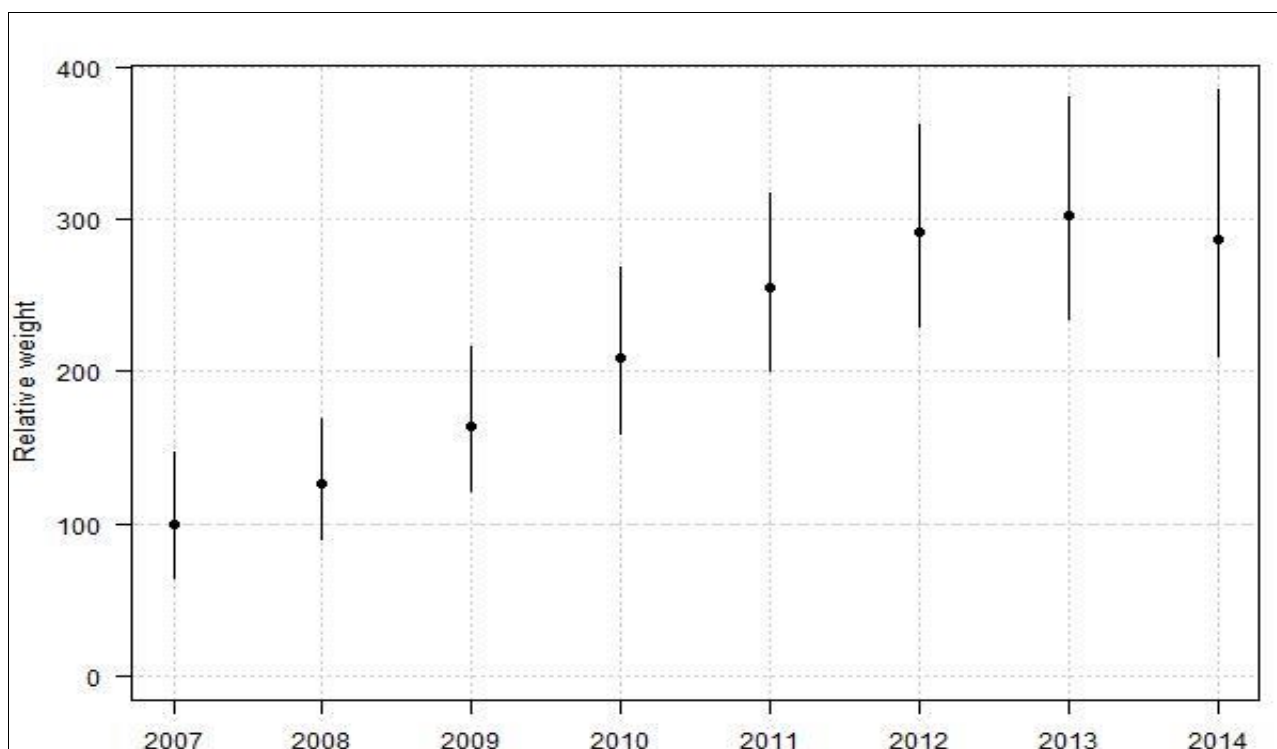


Figure 5 presents the pattern in the weight data showing the relative contributions of each of the five weight classes. It is evident in the figure that the large raw ivory weight class accounts for the greatest quantity of ivory in illicit trade, followed by the medium raw ivory weight class. The most frequent ivory seizure transaction (as illustrated in Figure 3) entails worked ivory products weighing less than 10 kg, but when measured as an aggregated weight by year, this weight class accounts for a very small proportion of the total weight (Figure 5). In this regard, large numbers of small seizures are important when measuring illicit trade activity overall as low-scale activity is the foundation of the ivory trade at both supply (i.e. acquisition and trafficking of tusks from an illegal killing incident) and demand sides (i.e. individual consumer purchases) of the trade chain. However, such seizures actually contribute very little to the total estimated weight. Understanding the relative weight values of raw ivory trade in particular is important for assessing impact upon elephants and relating ETIS results to MIKE data on the illegal killing of elephants.

Aggregating all weight classes, Figure 6 presents an estimate of the relative weight totals by year with 90% confidence limits represented by the vertical lines. In most respects, the pattern of trade mirrors the Transaction Index (see Figure 4), but the suggestion of decline in 2014 is far less pronounced in the Weight Index given the fact that the least change in terms of illicit ivory trade activity has occurred with respect to large ivory seizures. In this regard, it is again noted that the actual level of trade could conceivably be at any point along the confidence interval, with the greatest probability being the mean point which is marked as the bold dot. With that in mind, whether trade quantities have really decreased remains to be seen in future trend analyses. The salient takeaway is that, since 2012, the quantity of ivory in illegal trade has remained fairly constant at the highest levels ever recorded in assessments of the ETIS data since 1989; these trade levels are roughly three times greater than 2007 quantities, the base line for this analysis.

Figure 6: Weight Index composite of all ivory types and weight classes with mean (bold dot) and 90% confidence intervals, 2007-2014 (ETIS 25 January 2016)



In summary, the illegal trade in ivory has progressively escalated since CoP14 in 2007 and the trend through 2014 strongly indicates that, globally, illicit trade in ivory remains at unacceptably high levels. However, the suggestion of the beginning of a downturn is evident in 2014, albeit mostly in the context of small worked ivory seizures, with a large confidence interval. It needs to be appreciated that only a 20-month period of time following the conclusion of CITES CoP16 is captured in this trend analysis. At that meeting, the Parties agreed far reaching interventions in the form of an oversight process directed at key countries and entailing the development of National Ivory Action Plans (NIAP) to address a range of issues that potentially facilitate illicit trade in ivory and undermine the success of law enforcement effort. As most NIAPs were finalised in late 2013, this analysis only covers a single full year of implementation. Thus, it is not possible to adequately assess the impact of the NIAP process in the present analysis.

PART III: THE CLUSTER ANALYSIS

Resolution Conf. 10.10 (Rev. CoP15) mandates ETIS to establish “an information base to support the making of decisions on appropriate management, protection and enforcement needs”. In this regard, the ETIS data are assessed to identify those countries/territories most prominently implicated in the illicit trade in ivory so that appropriate interventions can be considered pursuant to the Convention. This is achieved using agglomerative hierarchical cluster analysis, whereby countries and territories are grouped in a dendrogram to form a series of defined clusters that share similar patterns in the seizure data. The characteristics of these groupings can be described to elucidate underlying trade dynamics and factors. Cluster analysis allows the ‘background noise’ in the data to be removed and the most important players and their roles in the illicit trade in ivory to be revealed.

Forming the clusters:

In this cluster analysis, 55 countries or territories were compared. Data were the totals from 2012 through 2014 for each of the following bias-adjusted variables:

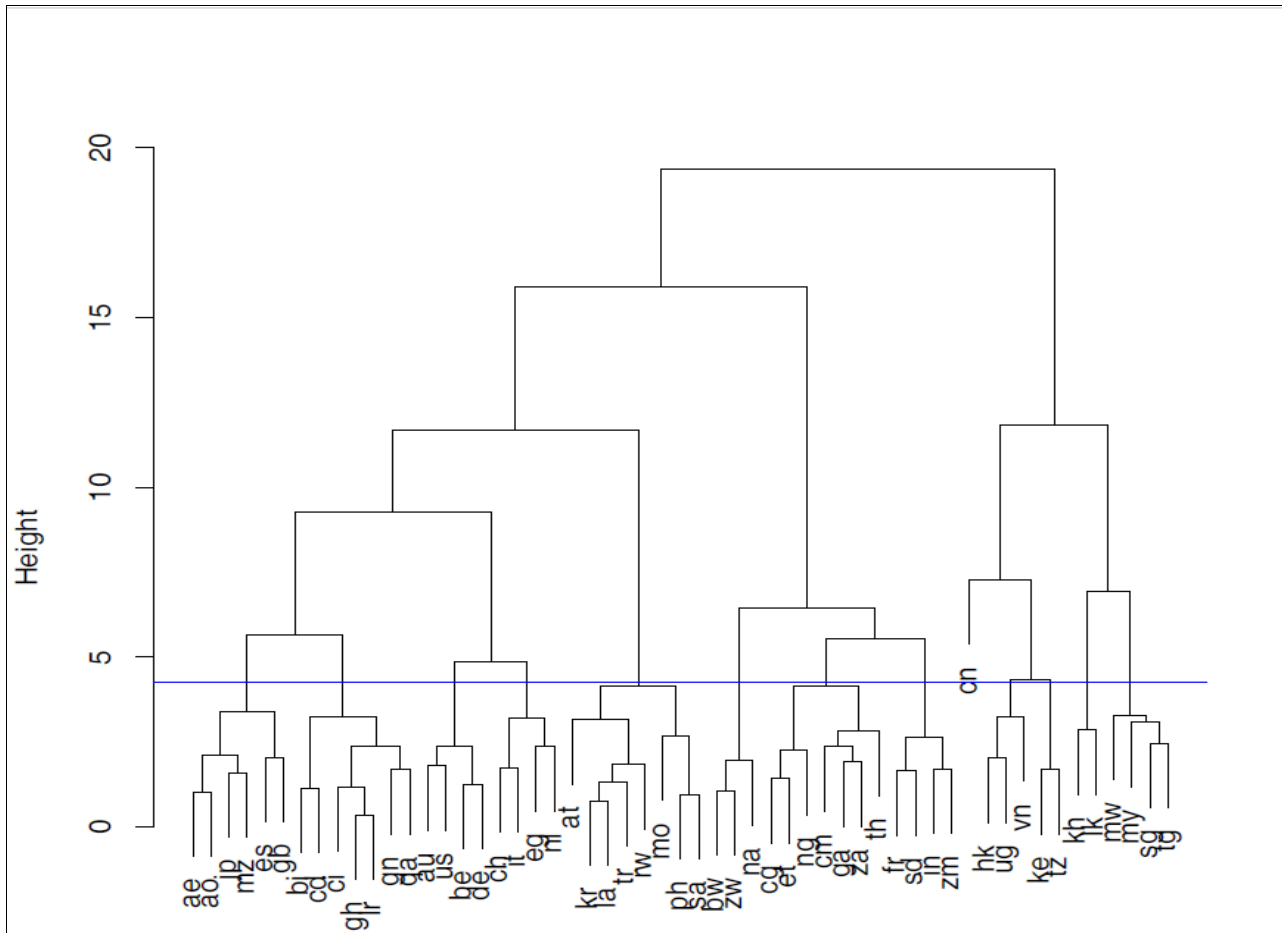
the Transaction Index by ivory type by weight class;

- the total number of seizures over one tonne (raw and worked combined);
- total weight of seizures over one tonne (raw and worked combined);
- total number of ‘seizures out’ (i.e. seizures in which a country has been

implicated as part of the trade chain but did not make the seizure itself); and

- total weight of 'seizures out'.

Figure 7: The cluster analysis (ETIS 25 January 2016)



Key: AE-United Arab Emirates; AO-Angola; AT-Austria; AU-Australia; BE-Belgium; BI-Burundi; BW-Botswana; CD-Democratic Republic of the Congo; CG-Congo; CH-Switzerland; CI-Côte d'Ivoire; CM-Cameroon; CN-China; DE-Germany; EG-Egypt; ES-Spain; ET-Ethiopia; FR-France; GA-Gabon; GB-United Kingdom; GH-Ghana; GN-Guinea; HK-Hong Kong SAR; IN-India; IT-Italy; JP-Japan; KE-Kenya; KH-Cambodia; KR-Republic of Korea; LA-Lao People's Democratic Republic; LK-Sri Lanka; LR-Liberia; MO-Macao; MW-Malawi; MY-Malaysia; MZ-Mozambique; NA-Namibia; NG-Nigeria; NL-Netherlands; PH-Philippines; QA-Qatar; RW-Rwanda; SA-Saudi Arabia; SD-Sudan; SG-Singapore; TG-Togo; TH-Thailand; TR-Turkey; TZ-Tanzania; UG-Uganda; US-United States; VN-Viet Nam; ZA-South Africa; ZM-Zambia; ZW-Zimbabwe

The result is the mobile-like dendrogram depicted in Figure 7, which is formed by those components that exhibit similar characteristics grouping together. A horizontal line was drawn just below the 5 degree mark, resulting in the formation of clusters at the point of intersection with the vertical lines that hold the countries/territories being assessed. The end points of all groups should be considered as falling on the 0 point of the vertical 'height' axis. Previous ETIS analyses have resulted in 12 or 14 clusters being formed; this time 13 clusters result, comprising between one and eight entities in each grouping.

The degree of vertical separation between various clusters or their individual components is gauged by the distance traveled along the vertical axis, which provides a relative measure of dissimilarity. For example, in Figure 7, the 42 countries that begin on the far left-hand side with United Arab Emirates (AE) and end with Zambia (ZM) share the greatest distance from the 12 countries that begin with China (CN) and end with Togo (TG) on the far right-hand side of the dendrogram as it is necessary to travel the entire vertical axis from about the 2 degree mark to the 19 degree mark in order to connect any of the components that fall in these two distinct groups; this constitutes a critical division in this cluster analysis. At best, key cluster groups exhibit a fairly unambiguous logic in terms of their underlying attributes and serve the purpose of prioritisation for focusing follow-up interventions. Unfortunately, not all groups reveal a clear cohesion and typically some residual groups are formed that demonstrate more diversity and weaker resolution in terms of definable characteristics. Generally speaking, such groups comprise less important components of the analysis, but

could contain individual entities that might emerge into more prominent clusters in the future. Finally, it needs to be appreciated that using other sets of variables could lead to different grouping of countries, but in the interest of consistency with the CoP16 analysis the same variables have been used so that comparisons can be made.

Table 3: Summary statistics for the 13 cluster analysis groups based on seizure data reported by the Parties without bias adjustment, 2012-2014

		<i>Measure of Frequency</i>	<i>Measure of Scale</i>	<i>Measures of Law Enforcement Effort Efficiency and Rates of Reporting</i>		<i>Measure of Organized Crime</i>	<i>Measure of Internal Ivory Trade</i>
Group	Countries or territories	Mean no. of seizures ¹	Mean weight (kg) ²	Mean Rule of Law ³	Mean LE ratio ⁴	Proportion of large-scale ivory seizures to mean weight ⁵	Mean market score ⁶
1	MW, MY, SG, TG	30	12,308	0.29	0.35	0.95	3.6
2	KH, LK	11	3,220	-0.57	0.63	0.83	4.8
3	KE, TZ	299	35,786	-0.59	0.87	0.66	-1.5
4	HK, UG, VN	188	20,863	-0.05	0.77	0.76	5.3
5	CN	1,997	41,257	-0.43	0.96	0.56	7.0
6	FR, SD, IN, ZM	110	1,609	-0.05	0.81	0.00	2.9
7	CG, ET, ZA, NG, CM, GA, TH	180	5,079	-0.61	0.43	0.51	5.4
8	BW, ZW, NA	67	2,705	-0.23	0.73	0.00	2.3
9	AT, KR, LA, TR, RW, MO, PH, SA	9	1,100	0.32	0.30	0.98	4.8
10	AU, US, BE, DE	251	731	1.03	0.87	0.00	4.0
11	CH, IT, EG, NL	37	601	0.01	0.61	0.00	3.0
12	BI, CD, CI, GH, LR, GN, QA	41	690	-0.67	0.03	0.00	6.1
13	AE, AO, JP, MZ, ES, GB	105	2,960	0.47	0.33	0.90	6.3

- (1) *Frequency* is measured by the 'mean number' of reported seizures in the period 2012-2014 (i.e. the total number of all seizures which were made by, or have implicated, each country/territory in the group 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' of reported seizures in the period 2012-2014 (i.e. the total weight of ivory represented by all seizures which were made by, or have implicated, each country/territory in the group divided by the number of entities in the cluster); high numbers indicate greater weights of ivory; low numbers indicate lesser weights of ivory.
- (3) *Law enforcement effort, effectiveness, and rates of reporting* is measured, firstly, by the mean World Bank governance indicator for *rule of law* (i.e. the total *rule of law* score for each country in the period 2012-2014 divided by the number of entities in the cluster divided by the number of years); scores range from -2.5 (weakest governance performance) to 2.5 (strongest governance performance).
- (4) *Law enforcement effort, effectiveness and rates of reporting* is measured, secondly, by the 'mean LE/reporting ratio' in the period 2012-2014 (i.e. the total number of in-country seizures divided by the total number of seizures which were made by, or have implicated, each country/territory in the group 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).
- (5) *Involvement of organised crime* is measured by taking the proportion of the mean weight in reported seizures that represent large-scale seizures (i.e. those seizures which are equal to or greater than 800 kg of ivory (RIE) weight in which a particular country/territory either made or was implicated in) in the period 2012-2014; high values

indicate the presence of organised crime in the movement of ivory; low values indicate the absence of organised crime in the movement of ivory.

- (6) *Internal ivory trade* is measured by the 'mean market score'; scores range from -2.5 (no or very small, highly-regulated domestic ivory markets) to 12 (large, unregulated domestic ivory markets).

Describing the results:

Table 3 presents aggregated summary statistics for the 13 groups which serve to highlight various characteristics of the illicit ivory trade exhibited by a particular cluster. For single country clusters, the statistics reflect the data for that particular country only, but for clusters comprised of two or more countries, the statistics represent the mean of all of the constituent components. The explanatory variables presented are the same as those used in the CoP16 report, with one exception, to facilitate meaningful comparisons if necessary. The one exception concerns the period of activity measure which was not used this time as all cluster groups were more active in the period 2012-2014. It should also be noted that the CoP16 report used seizures of 800 kg or more as the indicator measure for assessing ivory movements that are assumed to link to organized crime (whilst the clusters themselves were formed using seizures over one tonne of ivory or more as a bias-adjusted variable); this also reflects what was done in the CoP16 report. Finally, whilst the World Bank's *rule of law* measure did not prove to be useful in effecting bias adjustment in this analysis, it is nonetheless presented here as a governance measure in its own right and again serves to maintain continuity with the ETIS report submitted to CoP16. Finally, it should be noted that the numerical order of the cluster groups is not a ranking of importance.

The following can be said about each group in this cluster analysis:

Group 1 – Malawi (MW), Malaysia (MY), Singapore (SG), Togo (TG): Malaysia was identified in the CoP16 cluster analysis as a 'country of primary concern' given its role as a major transit hub in the illegal ivory trade. This time neighboring Singapore has similarly emerged in the same role, and is joined by Togo and Malawi, which both serve as ivory entrepôt or exit points within West and Southern Africa, respectively. These four countries fall together in a cluster for the first time as a result of developments that have occurred since 2012. Overall, these countries rarely made and reported ivory seizures to ETIS, and were infrequently implicated in the seizures made by others, as evidenced by the very low measure for frequency. However, the seizures they did make, or were implicated in, usually were very large, giving the group the fourth largest weight value in this analysis. Of note, this cluster had the greatest proportion of total weight relating to seizures of 800 kg or more, suggesting that the bulk of the illicit ivory traffic moving through and from these countries was higher-level organised criminal activity. The collective mean *rule of law* as a measurement of governance is clearly in positive territory, but the value is skewed by the impact of Singapore which had the fourth best national score of any country in this entire cluster analysis. Comparatively speaking, a score for Malawi and Togo together would become a negative value that falls between Groups 2 and 4, indicating that the prospect of trade governance failure was a much more worrying concern in these African source countries than is otherwise suggested by the aggregated statistic. Equally, the mean law enforcement ratio is rather poor for this group, suggesting that considerable quantities of illicit ivory traffic probably move through these countries without being detected. The domestic ivory market score is low with little evidence of significant trade, however, neither Malawi nor Togo have been surveyed in recent years. On the other hand, it is known that the Singapore ivory market has declined substantially (Webber *et al.*, 2013) and Malaysia has long been recognised as not having an internal ivory market (Martin & Stiles, 2002).

Group 2 – Cambodia (KH), Sri Lanka (LK): Like the first cluster, this group also emerges as a result of new developments in the post-CoP16 analysis, in particular, each making one very large seizure that was in transit to undisclosed end-use destinations. Otherwise, reporting to ETIS has been generally poor for both countries and very few seizures appear to have occurred in, or otherwise implicated, either of these countries beyond a few additional records comprising small worked ivory products with very low weight values. This is evidenced by the low values for mean number of seizures but greater values for mean weight of the seized ivory, a result that mirrors the situation for Group 1 but on much reduced scale. Most of the seizure data concern two large ivory movements, the hallmark of organised crime. The mean *rule of law* score is a negative value, indicating that governance issues can be problematic but, in terms of ivory interdiction, the mean law enforcement ratio suggests better performance. The domestic ivory market value hits the upper mid-range level overall, but the score mostly results from a developing situation in Cambodia in which an increase in ivory product availability has been observed at the country's leading tourist destination in Siem Reap (unpublished TRAFFIC data, 2015).

Group 3 – Kenya (KE), Tanzania (TZ): This cluster comprises the two East African countries through which the greatest illegal ivory trade flows out of Africa have transpired since 2009, according to the seizure data in ETIS, which stands behind both nations being identified as 'countries of primary concern' in the analysis to CoP16.

Kenya and Tanzania regularly submit large numbers of seizure cases to ETIS, and overall made about six times more seizures themselves than those reported by other countries in which they were implicated; numerous cases made inside and outside of these two countries involve large quantities of ivory. It is, therefore, not surprising that this cluster has the second highest values for the mean number of seizures and the mean weight of ivory seized. Two-thirds of the ivory for which Kenya and Tanzania either seized themselves or were implicated in since 2012 represented large-scale consignments, indicating a strong presence of organised criminal activity behind the trafficking from these countries. In terms of governance, the mean *rule of law* score is the third most problematic in this analysis, indicating that corruption could be a significant factor in the trade. But this worrisome result could be offset by the law enforcement effort ratio of this group, which is tied for the second best score in this analysis. Further, the domestic market score for Kenya and Tanzania is the lowest in this assessment which points to active suppression of local trade in ivory curios given the large tourist industries found in both countries.

Group 4 – Hong Kong SAR (HK), Uganda (UG), Viet Nam (VN): This group comprises countries and territories that were all identified in the previous CoP16 analysis as ‘countries of primary concern’, with Hong Kong SAR (a Special Administrative Region of China) and Viet Nam cited primarily as major transit conduits for large quantities of ivory and Uganda as an important entrepôt/export centre in East Africa with clear links to Central African ivory trade flows. This group exhibits a high value for the mean number of seizures during the period 2012-2014. Indeed, both Hong Kong SAR and Uganda have greatly increased the number of seizures being made and reported to ETIS during this period, whereas the number of seizures made and reported by Viet Nam has actually declined; equally, Viet Nam and Uganda were more frequently implicated in seizures made by others, whilst Hong Kong shows considerable decline in this respect. This group exhibits the third highest value for weight, indicating that numerous seizures continue to be large-scale events. Over three-quarters of the weight of the ivory seized involved shipments that are over 800 kg of ivory, which points to the involvement of organised criminal groups. Although a slight negative value, the governance measure for *rule of law* falls in the middle, whilst the law enforcement effort ratio is fairly robust, indicating reasonably good law enforcement performance. The measure for internal trade in ivory is relatively high owing to the ongoing legacy of Hong Kong SAR’s ivory trade from previous decades (Martin & Vigne, 2015) and growing evidence of ivory processing in Viet Nam, especially for cross border ivory markets primarily catering to Chinese tourists (Liu, 2015).

Group 5 – China (CN): As before on every occasion, China falls into a single country cluster as the attributes of its ivory trade remain uniquely dissimilar to all other countries under consideration. In the CoP16 analysis, China was identified as a ‘country of primary concern’. Once again, China has the highest values for the mean number of seizures and the mean weight of ivory seized, according to seizures data, with the country continuing to be a major destination for illicit ivory. The proportion of seizures that involved large movements of ivory, and hence the presence of higher-level organised crime, has decreased somewhat to about half of the weight of ivory seized when compared to previous assessments. Looking at governance measures, the *rule of law* indicator is well below average and could signal problematic challenges, however, China’s law enforcement effort ratio is the highest in this analysis suggesting dedicated performance overall in terms of interdicting illicit ivory. The high number of non-criminal seizures with low weight values indicates ongoing commitment in terms of policing people and cargo coming into China. China’s domestic ivory market score is the highest in this analysis and comes at a time when the legal ivory trading system has been criticised for regulatory abuse (Vigne and Martin, 2014; 2011b), and illicit internet and social media trade beyond physical markets has come into greater focus as a problematic law enforcement challenge (Xiao & Wang, 2015). Since 2002, successive ETIS analyses have identified the Chinese market as the key driver behind illicit trade in ivory, a finding that remains true in this current assessment as well.

Group 6 – France (FR), Sudan (SD), India (IN), Zambia (ZM): There is nothing intuitive about this mixed grouping of a European country, two African Elephant range States and the South Asian country that holds the largest Asian Elephant population; however, all four countries were part of the same cluster in the CoP16 analysis. In terms of reporting to ETIS, India is the exception and it is noteworthy that no data has been received from the India government for some nine years, yet evidence of illegal ivory trafficking was regularly reported in local media in that country. Falling in the middle in terms of the mean number of seizures, and showing a low mean weight value, this grouping is not particularly noteworthy. Further, none of the seizures have involved large ivory consignments of 800 kg or more so there is little to suggest active organised criminal activity. Assessing governance, the mean *rule of law* measure shows a negative value which could signal corruption problems, but the very high law enforcement effort ratio seems to indicate generally good performance where ivory trade is concerned. Finally, with a very low market score, this group of countries does not appear to play an obvious problematic role at the retail level, but no market surveys in Sudan have transpired in recent years.

Group 7 – Congo (CG), Ethiopia (ET), Nigeria (NG), Cameroon (CM), Gabon (GA), South Africa (ZA), Thailand (TH): All countries in this group are African Elephant range States, with the exception of Thailand, an Asian Elephant range State. In the CoP16 analysis, Thailand was identified as a major end-use market for ivory and, together with South Africa, was noted as a ‘country of primary concern’. All other countries in the group were considered ‘countries of secondary concern’ in the CoP16 report. Indeed, that Thailand and South Africa now fall in this cluster represents a positive shift since 2012. Congo, Cameroon and Gabon are all considered to be important sources of ivory, much of which is illegally exported by Nigeria, a regional entrepôt. It is worth noting that 60% of the seizure data reported to ETIS on seizures occurring in these three countries since 2012 has come from the EAGLE Network (Eco-Activists for Governance and Law Enforcement). Ethiopia is in this cluster given its role as a major air transport hub connecting Africa with Asia. Overall, Ethiopia accounts for 70% of the number of seizure records reported to ETIS by this group. Collectively, this group falls in the upper middle range in terms of frequency and scale, but the mean weight variable is artificially lower than it should be in that much of the raw ivory generated in these countries loses its identity as it moves along the trade chain. The governance values for this group are problematic with the *rule of law* score being the second poorest of any group in this analysis, whilst the law enforcement ratio is seriously inflated given Ethiopia’s good performance in terms of making and reporting ivory seizures to ETIS. Removing the positive influence of Ethiopia from this cluster, the law enforcement effort ratio sinks to the second lowest position in this analysis because most countries in the group are rarely making seizures. In terms of large-scale ivory movements, about half of the seizures appear to have involved organised criminal elements, which is a greater value than was the case in the CoP16 analysis for most of these countries. The domestic ivory market score is also relatively high, largely owing to the situation in Nigeria and Thailand, although the Thai market has experienced major decline following implementation of new legislation (TRAFFIC, in prep.). Other former markets, such as Congo, Cameroon, Ethiopia and Gabon have taken active measures to suppress local ivory markets and appear to be sustaining this challenge with relative success (Martin and Vigne, 2009; Sone Nkoke *et al.*, in prep.).

Group 8 – Botswana (BW), Zimbabwe (ZW), Namibia (NA): As in the CoP16 analysis, three of the four African Elephant range States whose elephant populations were transferred to Appendix II in 1997 fall in the same group. These countries regularly report data to ETIS. In terms of all data which implicate these countries in an ivory seizure, this southern African grouping reflects middle range values in terms of mean number of seizures and the mean weight of ivory seized. The measure for assessing the presence of organised crime stands at zero which is indisputably a good sign. Governance indicators are mixed, however, with the *rule of law* score problematic and suggesting the presence of corruption, but the relatively high law enforcement ratio partially mitigates that concern. Indeed, as before, Zimbabwe is the country that pulls the *rule of law* score down, indicating far greater governance challenges exist in that country, but it is worth noting that Namibia’s scores have also dropped too. The domestic ivory market score is low, reflecting the complete absence of a market in Botswana and a very low level of trade in Namibia. Again, Zimbabwe is the exception with the tenth largest ivory market of any country in this analysis.

Group 9 – Austria (AT), South Korea (KR), Lao PDR (LA), Turkey (TR), Rwanda (RW), Macau SAR (MO), Philippines (PH), Saudi Arabia (SA): This residual grouping features a very eclectic range of entities. It includes the Philippines which was identified in the CoP16 analysis as a ‘country of primary concern’ primarily owing to its role as a transit destination for large consignments of ivory from Africa. The fact that this country now falls within this cluster points to a major shift in that country’s contemporary connection to evolving ivory trade dynamics. Indeed, like the Philippines, ‘occasional’ transit countries could be an underlying theme of this group as South Korea, Lao PDR, Turkey, Macau SAR and Saudi Arabia have all played this role in at least one recent large ivory seizure case. In terms of frequency, this group almost never made and reported seizures, and was rarely otherwise involved in the trade chains of seizures reported by other countries. Thus, this group has the lowest mean number of seizures, however, interdictions typically involve the large ivory weight class. The governance indicator for *rule of law* is relatively high, but there is considerable variability within the group, with most entities providing positive scores, however, Lao PDR, the Philippines and Rwanda contribute negative scores. On the other hand, the law enforcement ratio is second poorest score overall in this analysis which is probably why these countries are chosen as pathways for large-scale movements of ivory that are orchestrated by organised crime syndicates; indeed, almost all of the weight of ivory seized represented shipments of 800 kg or more. Consequently, some countries in this group could emerge (or re-emerge, in the case of the Philippines) as important transit points in the future. The mid-range market score is mostly driven by the situation in Lao PDR, which appears to be growing (Krishnasamy, in prep.), and the Philippines; neither of these markets are believed to comply fully with the requirements of Resolution Conf. 10.10 (Rev. CoP16).

Group 10 – Australia (AU), United States (US), Belgium (BE), Germany (DE): This group of relatively wealthy countries pretty much demonstrates positive attributes across the board in this analysis. The frequency and scale measures point to a large number of mostly low weight seizures, indicating the persistent interdiction of worked ivory ‘personal effects’ products from returning tourists and other similar seizures. This group

collectively displays commendable governance values with the highest scores for *rule of law* and the second highest law enforcement ratio. The cluster is also not implicated in any large-scale ivory seizures indicating a general absence of higher level organised criminal activity. The domestic ivory market score is in the lower middle range, reflecting the situation in the United States and Germany where active domestic ivory trade in mostly pre-Convention and antique items occurs.

Group 11 – Switzerland (CH), Italy (IT), Egypt (EG), Netherlands (NL): This group of European nations and Egypt has a very modest mean number of seizures and the mean weight value is the lowest in this assessment. The governance indicators are mid-range with the *rule of law* score barely positive but a more robust law enforcement ratio, although the latter score is somewhat compromised by the fact that Italy has not reported any ivory seizures to ETIS in over six years. Since 2012, there is no evidence of involvement in large-scale flows of ivory. The domestic ivory market score is the third lowest in this analysis with a general absence of trade activity in the three European countries, but Egypt harbours one of the largest unregulated ivory markets that reportedly fails to meet the requirements of Resolution Conf. 10.10 (Rev. CoP16) (Martin & Vigne, 2011).

Group 12 – Burundi (BI), Democratic Republic of the Congo (CD), Côte d'Ivoire (CI), Ghana (GH), Liberia (LR), Guinea (GN), Qatar (QA): The Democratic Republic of the Congo, Côte d'Ivoire, Ghana, Liberia, and Guinea are all African Elephant range States but with very small extant elephant populations. Historically, Burundi was a major ivory entrepôt in Central Africa, whilst Qatar enters the cluster as an important Middle Eastern air transport hub connecting Africa with Asia. These countries almost never made and reported ivory seizures to ETIS, indeed, only eight cases for seven countries over the three-year period, 2012-2014, but they were collectively implicated in 281 seizures made in other countries. Both the mean number of seizures and the mean weight are modest for this group. None of the seizures data, however, seemed to involve movements of ivory over 800 kg in a single shipment. This group has the worst scores in terms of the governance indicators: the mean *rule of law* is the lowest of all groups, as is the law enforcement effort ratio. The domestic ivory market score, however, is the third highest in this analysis, with markets in the Democratic Republic of the Congo, Côte d'Ivoire and Guinea being especially problematic.

Group 13 – United Arab Emirates (AE), Angola (AO), Japan (JP), Mozambique (MZ), Spain (ES), United Kingdom (GB): This cluster comprises a residual grouping of countries that play markedly differing roles in the ivory trade. Angola and Mozambique are African elephant range States and ivory exporters in various forms, whereas the United Arab Emirates is one of the world's leading transport hubs connecting Africa to Asia. Japan is a longstanding end-use market, including a participant in both of the one-off ivory sales under CITES since the 1990 trade ban, whilst the contemporary ivory trades to the United Kingdom and Spain typically involve non-commercial seizures from tourists. It is worth noting that only the United Arab Emirates and the United Kingdom have regularly provided seizure data to ETIS since 2012 and they collectively accounted for two-thirds of all seizures reported by this group. With the exception of the United Kingdom, all of these countries are far more likely to be implicated in seizures that are made elsewhere. For this cluster, both the mean number of seizures and the mean weight of ivory seized fall right in the mid-range of this analysis. Worryingly, this cluster has the third highest value for the proportion of seizures that involved 800 kg of ivory or more, the indicator that signals the involvement of organised crime in the trade. This latter result is primarily due to the fact that, in 2012, the second largest ivory seizure ever recorded in ETIS was shipped from Lome, Togo to Algeciras, Spain for transshipment on to Malaysia. Overall, the governance indicator for *rule of law* is extremely positive, however, the contribution of individual countries is highly variable for such an eclectic group. *Rule of law* scores are very positive for the United Arab Emirates, Japan, Spain and the United Kingdom, but very negative for Angola and Mozambique. This group ranks the third lowest in terms of law enforcement ratio and only the United Kingdom seems to contribute decidedly positive values to the collective score. This group also has the second highest domestic ivory market score as all countries except the United Arab Emirates and Spain have significant markets. Indeed, Angola's market is arguably the largest in Africa (Martin & Vigne, 2014), whilst Mozambique's domestic market is also problematic (Huang, 2013). Japan, with a local carving industry, albeit one in decline (Kitade & Toko, 2016), is still one of Asia's largest ivory markets, whilst the United Kingdom by virtue of an historical legacy of once being the greatest ivory importing nation on earth also has a sizeable market for antique and pre-Convention worked specimens (Martin & Stiles, 2005; Wilson *et al.*, in prep.).

Assessing the results of the cluster analysis:

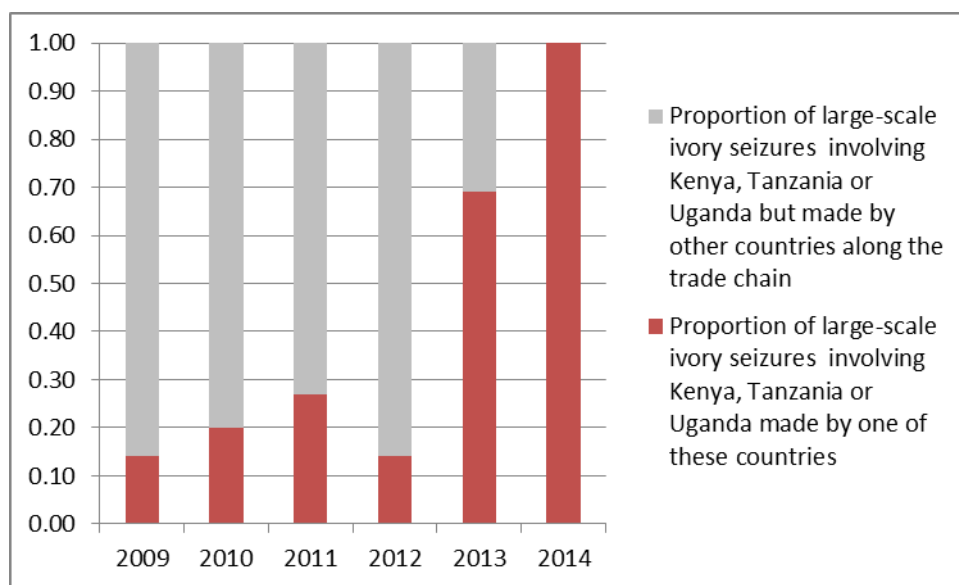
'Countries of primary concern'

Looking at Figure 7 and the explanatory statistics in Table 3, Groups 1, 3, 4 and 5 are the priorities of greatest concern in the illicit trade in ivory in this analysis. Accordingly, **China, Hong Kong SAR, Kenya, Malawi, Malaysia, Singapore, Tanzania, Togo, Uganda and Viet Nam** collectively account for the greatest quantity of illegal ivory in trade, according to the seizures data in ETIS. The countries in all four of these groups have been

highly implicated in illicit ivory trade movements over the last three years and were part of the trade chains in 94% of the large-scale ivory seizures reportedly made that represent higher-level criminal activity since 2009. Six of these countries, plus Hong Kong SAR, were previously identified as first-tier priorities in the analysis to CoP16 and are already part of the NIAP process which is unfolding under the direction of the CITES Standing Committee. On the basis of this analysis, Malawi, Singapore and Togo now emerge as countries which the Parties could consider for inclusion in the CITES oversight process to address illegal trade in ivory.

African 'countries of primary concern': Since the CoP16 analysis, organised criminal elements operating in **Kenya, Tanzania and Uganda** have continued to move large quantities of ivory into, between, and out of these three East African countries, which collectively constitutes the greatest illicit ivory trade flows out of Africa in the period 2009 through 2014. Most of this traffic is directed through Indian Ocean seaports, but air transport is also a factor in the trade. Tanzania has been the source of the greatest portion of this ivory and the Tanzanian government has subsequently reported a 60% decline in the country's elephant numbers since 2009, with major population collapses noted for the Selous-Mikumi, Ruaha-Rungwa and Moyowosi-Kigosi ecosystems (the first two locations being MIKE sites) (Nyalandu, 2015). In addition, ivory from Mozambique, Kenya, Malawi, Zambia and the Democratic Republic of the Congo was also part of this traffic, according to forensic research to determine ivory origin (Wasser, *et al.*, 2015). Since 2012, corruption issues have continued to be a major problem in all three countries, with various reports documenting serious governance shortfalls at ports of entry and exit, within government institutions charged with protecting wildlife, and by political and economic elites in these countries, including ivory stock thefts, and various judicial failings such as ordering the release of seized ivory or suspects on bail, or imposing mediocre penalties (Vogt, 2015; Anon., 2014a; EIA, 2014; Kahumbu, 2014; Musene, 2013; Wildlife Direct, 2013).

Figure 8: Law enforcement ratio for large-scale ivory seizures which involve Kenya, Tanzania and Uganda as part of the trade chain (ETIS 25 January 2016)



Since these countries have become part of the NIAP process, it would appear that some progress is being made. Assuming that countries further along the trade are continuing to make seizures and correctly identify the trade chains for the seizures they make, Figure 8 shows that, since 2013, Kenya, Tanzania and Uganda seem to have met with greater success in interdicting large-scale movements of ivory prior to export abroad. Moreover, criminal suspects have been arrested in conjunction with some of these seizures. Of note, Chinese nationals have been arrested in all three countries (one of whom was extradited to China from Kenya), and a Kenyan suspect, who had been placed on INTERPOL's global 'Red List', was arrested in Tanzania and extradited back to Kenya (but successful prosecution of this high-profile case is still pending); these developments demonstrate instances of effective regional and international law enforcement collaboration. Kenya has increased penalties for wildlife trafficking in national legislation (Wildlife Direct, 2013), and courts in Tanzania recently rendered the highest penalties ever for ivory trafficking in Africa with two Chinese nationals each sentenced to 30 years in prison or fines of nearly USD25 million dollars (Ally, 2016). This all bodes well for the future and, if the pattern of active engagement seen in the data since mid-2013 can be further sustained, these countries will certainly improve their standing in future ETIS analyses.

Togo and **Malawi** are noted as priority countries of concern for the first time in this report. Togo has emerged as a leading ivory entrepôt and exporter since 2012 in spite of being in a region with very few extant

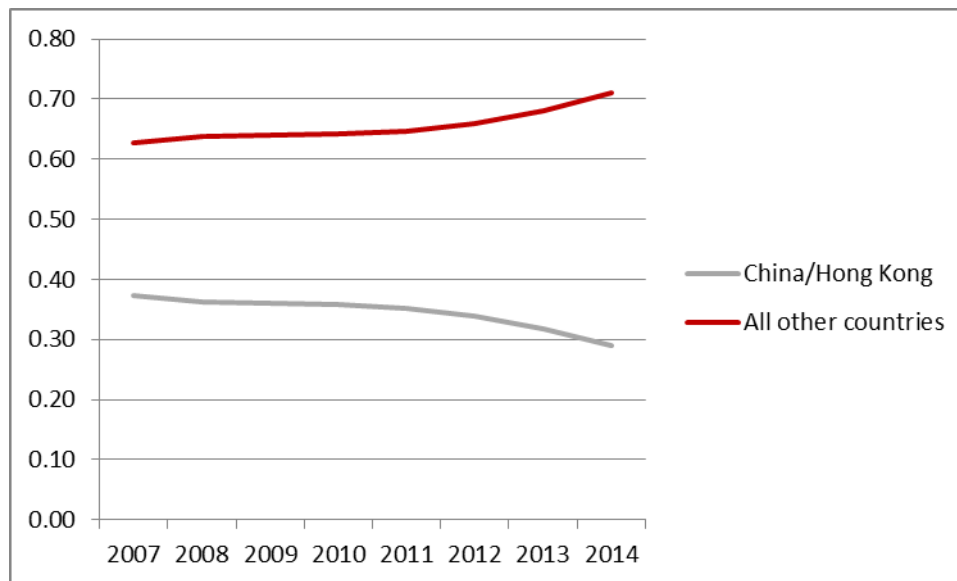
populations of elephants and almost no elephants at all nationally (AED, 2013). Indeed, Togo's ivory trade is entirely predicated upon elephant attrition in Central African forests, East African savannahs and, to a lesser extent, remnant populations in other parts of West Africa (Wasser, *et al.*, 2015). The second largest ivory seizure ever reported to ETIS, involving over six tonnes, was exported from the country's major seaport in Lome. The Parties may now wish to include Togo in the NIAP process. Malawi's prioritisation in this analysis is primarily based on a single large-scale ivory seizure that links with Tanzania, but Malawi has a history of being an ivory entrepôt and exporter in Southern Africa. For example, the largest ivory seizure ever made and reported to ETIS, involving over seven tonnes of ivory, was exported from Malawi in 2002; it is worth remembering that local Asian criminal syndicates were identified in the case, but none were ever arrested and prosecuted (EIA, 2002). As progress is made in shutting down the East African ivory trading hub, a shift to Malawi is very possible and clearly something to guard against. For this reason, the Parties might consider whether Malawi should become part of the NIAP process.

Asian 'countries of primary concern': As in every ETIS analysis since 2002, **China** continues to be the main end-use destination for ivory from Africa, but in the most recent analysis it is apparent that significant quantities of raw and worked ivory have also been seized coming from Japan (Anon., 2015b). Since 2005, China has allowed a domestic ivory trade subject to strict regulation which has previously been described in SC53 Doc. 20.1; noncompliance with certain provisions has been a serious issue spurring illegal trade in recent years (Vigne & Martin, 2011b; 2014). Following CoP16, the Chinese government clarified the necessity for accredited ivory dealers to have and publicly display ivory product certification cards for all retail inventory and that such cards must be given to consumers at the time of purchase. Since 2013, law enforcement actions in China stand behind at least seven manufacturers and 27 accredited retailers losing their licences (Anon., 2014b). More fundamentally, the Chinese government seems poised for major policy changes: in May 2015, the Chinese government announced it was working to "eventually halt" commercial processing and sale of ivory and its products. In September 2015, China's intentions were more firmly revealed during a State visit of Chinese President Xi Jinping to the United States where it was jointly announced that both countries would "*commit to enact nearly complete bans on ivory import and export, including significant and timely restrictions on the import of ivory as hunting trophies, and to take significant and timely steps to halt the domestic commercial trade of ivory*" (Anon., 2015a). Prior to the U.S. visit, on 26 February 2015, China imposed a one-year trade ban on the import of ivory carvings acquired after CITES took effect in 1975, including all worked ivory trade that might transpire in conjunction with Namibia and Zimbabwe's annotation to the Appendix II listing of their elephant populations. Later in the year, further measures prohibited the import of elephant trophy imports through 15 October 2016; both of these trade bans, and a ban on pre-Convention ivory carvings, were then subsequently extended through December 2019 (SFA, 2016). Awareness raising activities, including two highly-publicized ivory destruction events, and various demand reduction initiatives, are presently unfolding in China. Dedicated law enforcement to interdict ivory coming into China and to ferret out illicit ivory trade in the Chinese market and through the internet has also continued, including some novel partnerships with NGOs and private sector players. Evidence from on-going market monitoring suggests that illegal channels for retail ivory trade are progressively moving away from physical markets to e-commerce through the internet using courier delivery services to move products to consumer; more recently, exclusive social media platforms that function on an invitation-only basis are gaining prominence as an important means of conducting illegal ivory trade in China (Xiao & Wang, 2015; Guan & Xu, 2015). **Such trade obviously presents difficult law enforcement challenges not just for China but for countries all over the world. Further, active cross-border wildlife markets in Viet Nam, Myanmar and Lao PDR** have developed primarily for Chinese consumers with little apparent interference from the authorities in these neighbouring countries (Ammann, 2016; Liu, 2015; Nijman & Shepherd, 2014; 2012).

Hong Kong SAR, identified at CoP16 as a priority of 'primary concern', continues to function primarily as a transit intermediary for ivory destined for the Chinese mainland, but also harbours one of the world's largest domestic ivory markets, a legacy of the thirty-year period prior to the CITES trade ban when, as a British colony, the territory hosted the largest ivory carving industry in the world. Recent ivory market studies in Hong Kong SAR have noted that local ivory carving has completely collapsed since the reversion of Hong Kong SAR back to China in 1997, but large stocks of worked ivory products remain in numerous retail outlets in the city (Martin & Vigne, 2015). Ivory consumption by Hong Kong SAR citizens appears to be minor and possibly reflects a Chinese community where a high degree of demand reduction has been achieved as an enduring attribute of local culture; in recent years, mainland Chinese buyers are reported to dominate retail ivory sales, but import back to China without permits is illegal (Martin & Vigne, 2015). Allegations that Hong Kong SAR's domestic market is engaged in large-scale "illegal ivory laundering" linked to current elephant poaching in Africa (Lo & Edwards, 2015), however, cannot be confirmed through assessment of ETIS data. In the meantime, Hong Kong SAR authorities have announced steps to improve law enforcement and trade regulation on various fronts. The ETIS data, however, suggest that the number of seizures made by Hong Kong SAR authorities in the period 2012-2014 has more than tripled over the previous three-year period, demonstrating increased attention to policing air cargo and passengers arriving in the city. Further, the government of Hong Kong SAR,

like the Chinese government, has suggested that a total ivory trade ban may be imposed in the near future, but precise plans and a time table have yet to be articulated.

Figure 9: Proportion of bias-adjusted ivory trade activity involving China and Hong Kong SAR compared to trade activity for all other countries (Mean values of the ETIS Transaction Index, 25 January 2016)



The many proactive actions taken by the authorities in China and Hong Kong SAR since CoP16 are not yet showing consequential impact sufficient to displace their positions as priorities of ‘primary concern’ in this analysis. However, deeper assessment of the ETIS Transaction Index suggests some measure of positive change. In this regard, the proportion of trade activity that concerns China and Hong Kong SAR collectively, against that for all other countries, has not grown further and has dropped below 30% for the first time in 2014 (Figure 9). Recalling that broad confidence intervals fall around these mean values, nonetheless there is a suggestion that further expansion of the Chinese ivory market has been somewhat arrested and decline could potentially become more rapid under the right set of circumstances. The greatest impediment to major improvement seems to rest on the fact that Chinese nationals remain prominently engaged in the procurement of illegal ivory in African source countries. At the present time, Asian criminal networks, often in collaboration with local political and economic elites, completely dominate the supply of raw ivory out of Africa. This is exacerbated by increasing evidence of direct Chinese involvement in Africa-based ivory processing operations in many countries, including Angola, Congo, Côte d’Ivoire, Democratic Republic of the Congo, Mozambique, Nigeria, South Africa and Zimbabwe, with production (primarily bangles, name seals and chopsticks) being shipped to Asia using courier companies as well as individuals who sometimes carry contraband on their bodies using purposefully built clothing. Finally, Chinese nationals based in Africa are identified in most market surveys as active ivory consumers in Africa’s unregulated ivory markets (Martin & Vigne, 2014; 2013; Huang, 2013). All of this connection to the supply side of the equation directly serves to undermine the positive commitment being made on the Chinese home front to curtail illegal ivory commerce. The scale of the presence of Chinese nationals in Africa’s ivory trade stands as a unique development and certainly was not, with some very limited exception, a salient feature in the illegal ivory trade landscape of the pre-CITES trade ban period. Failure to address this issue within Africa will certainly compromise progress moving forward.

Viet Nam, another country identified as a ‘country of primary concern’ at CoP16, continues to serve as a transit country for ivory destined for China, according to Vietnamese authorities. Most of these seizures have been made at the port of Haiphong near Ha Noi, but in more recent years Phouc Long ICD Port in Ho Chi Minh City and Da Nang in Central Viet Nam have made numerous seizures; if this ivory is destined for China using overland travel, these ports greatly increase the distance to the border with China. Other evidence, however, suggests that local ivory processing in Viet Nam has been escalating over the last three years (Vigne & Martin, in prep.), and is being found for sale in considerable quantities in places such as Buon Ma Thuot City in Dak Lak province in the central highlands that have not previously been identified as locations for significant domestic ivory trade (Nguyen & Willemsen, 2015). Of particular concern are a series of villages in the vicinity of Hanoi that reportedly support a growing cross-border market in wildlife products with China with relative impunity (Liu, 2015; Ammann, 2016). The open display of ivory (and other wildlife products such as rhino horn) in these markets indicates a lack of targeted law enforcement action in Viet Nam; indeed, not a single ivory seizure case reported to ETIS by Viet Nam in this period concerns law enforcement action in the market place.

Another issue of increasing concern is the number of Vietnamese nationals being apprehended in or coming from Africa with ivory, including instances that appear to be orchestrated by criminal syndicates operating in Angola, Mozambique, South Africa and Togo, according to ETIS seizure data.

There is no contemporary evidence of any significant domestic ivory trade transpiring in **Malaysia** (Martin & Stiles, 2002), whilst **Singapore's** former local market has declined further in recent years (Webber *et al.*, 2013). As such, both countries serve exclusively as transit countries in the trade chains that link African suppliers with Asian end-use markets. In the analysis presented at CoP16, and again in this one, Malaysia remains the leading transit destination for large ivory consignments. The scale of the trade directed to Malaysia remains a serious concern and has increased in the more recent period, although law enforcement authorities in the country have made fewer seizures than was the case in the period 2009-2012. The trade through Singapore, possibly now being used as an alternative to Malaysia, has also grown far more prominent in the recent period 2012-2014. For this reason, Singapore now joins Malaysia as a 'country of primary concern' in this analysis. Thus, the Parties should consider whether Singapore should be included in the NIAP process. In this regard, both countries need to focus upon risk assessment, intelligence gathering and targeting with respect to containerised sea and air cargo moving between Africa and prominent destination locations in Asia; the use of controlled deliveries and sniffer dogs is another important consideration for supporting effective law enforcement.

'Countries of secondary concern'

It is considered that Groups 2 and 7 constitutes the priorities of 'secondary concern' in this analysis. Accordingly, **Cambodia, Cameroon, Congo, Ethiopia, Gabon, Nigeria, Sri Lanka, South Africa** and **Thailand** fall in these clusters.

African 'countries of secondary concern': The three Central African countries, **Gabon, Congo** and **Cameroon**, are the source of the most significant quantities of ivory going into trade from the Central African region; the bulk of the ivory that has been subjected to DNA testing in conjunction with ivory seizures associated with Togo and Nigeria, has been sourced to these three countries (Wasser *et al.*, 2015). It is believed that small vessels often transport this ivory to Togo or use land routes through Cameroon into Nigeria. The domestic ivory markets in Gabon, Congo and Cameroon, that were still active in successive studies in 2007 and 2009, are now much diminished and have gone underground in the face of active suppression in all three countries (Sone Nkoke *et al.*, in prep.). Beyond law enforcement risks, local carvers are reportedly being displaced by Chinese ivory trading networks due to their inability to offer competitive prices for raw ivory; indeed, in Congo, the "vertical integration from source, through transformation/carving, transportation and marketing by the same Chinese [players] has considerably reduced the importance of local carvers in the ivory business" (Sone Nkoke *et al.*, in prep.). According to ETIS data, commercial consignments of worked ivory products from Congo have been seized in Asia with increasing frequency since 2012. It should also be noted that reporting seizure data to ETIS has generally improved, often with assistance from the EAGLE Network, especially with respect to Cameroon and Gabon. With few elephants of its own, **Nigeria** is, after Togo, the second most prominent ivory exporting nation on the western side of the African continent, functioning as a major ivory entrepôt that draws in ivory from Central Africa and, increasingly, as far away as East Africa. Nigeria also harbours a large unregulated domestic ivory market (Martin & Vigne, 2013), and processing of ivory products for commercial-scale export to China (primarily bangles and name seals) using courier services or individual carriers is a regular feature of this trade. Any further increase in trade is likely to shift Nigeria into a more prominent position in a future ETIS analysis, but it is encouraging to note that the National Environmental Standards and Regulations Enforcement Agency in Nigeria has, for the first time, been sending regular ivory seizure data to ETIS. **Ethiopia** functions mainly as an important air transport hub connecting Africa with Asia, thus many small and medium-sized ivory consignments repeatedly transit through the country from other parts of Africa. Indeed, 87% of Ethiopia's seizure cases in 2014 (91 out of 105 cases) involved Chinese nationals transiting the country, and in China's ETIS dataset for 2014 one-third of the 240 seizure cases involved ivory coming from or transiting Ethiopia. In this regard, Addis Ababa's international airport remains a major transit hub and use of sniffer dogs would certainly be useful. On the other hand, Ethiopia's domestic ivory market is much diminished from earlier assessments (Martin & Vigne, 2009). Finally, it is noted that Ethiopia's dataset in ETIS is, since 2011, one of the best of any African country. **South Africa** was regarded as a 'country of primary concern' in the ETIS analysis to CoP16, but has moved into this group of lesser prominence this time owing to the fact that it has not been implicated in any large-scale ivory seizures since 2012. However, South Africa has a very poor record of submitting seizure data to ETIS in recent years, owing to the lack of a centralised reporting system and the fact that most provinces continually fail to submit data directly. Thus, South Africa's position in this analysis is certainly clouded by the country's lack of systematic participation in ETIS.

Asian 'countries of secondary concern': **Thailand** was regarded as 'country of primary concern' in the CoP16 report and, indeed, every ETIS analysis since 2002. Thus, the movement of Thailand into this cluster should be

regarded as a very positive development. Of particular note, Thailand was not the destination for any large-scale ivory seizures in the period 2012-2014, which has improved the country's standing in the current analysis significantly. Further, in the context of its NIAP, a series of far-reaching changes in policy, legislation, law enforcement and awareness initiatives have been rolled out by the government with strong NGO support, especially from WWF and on-going market monitoring by TRAFFIC. Although still a priority of 'secondary concern', given the past positioning of this nation in ETIS analyses, Thailand has arguably made the most impressive strides of any country in addressing illegal ivory trade problems since CoP16.

Asian Elephant range States **Cambodia** and **Sri Lanka** comprise Group 2, but are considered 'countries of secondary concern' even though they appear on the far right-hand side of Figure 7 amongst those countries regarded as greater priorities. This is because these two countries have only been involved in one large-scale seizure each since 2012, whereas all of the first-tier priorities have been involved in multiple large movements of ivory. In fact, Cambodia was considered a 'country important to watch' in the CoP16 analysis and since then has been the destination for a single three-tonne shipment of ivory; whether this consignment was for use in Cambodia or re-export elsewhere remains unclear. There are reports that the domestic ivory market in Cambodia may be expanding (TRAFFIC, unpublished data), although the last assessment showed a declining retail-level trade (Martin & Martin, 2013). Sri Lanka was also a transit country in the context of another large ivory movement, but has otherwise never before appeared in an ETIS analysis as a significant concern. The Parties should consider inviting Sri Lanka to join the NIAP process which Cambodia is already part of.

'Countries important to watch'

In terms of other countries which fall in residual cluster groups that may not adequately highlight the salient attributes of their involvement in ivory trade, several countries are noted as 'countries important to watch'. This is done in order to raise attention and track existing and emerging developments which could potentially become problematic in terms of sources, trade routes or markets in future iterations of the ETIS analysis. Accordingly, in this analysis, **Angola**, **Democratic Republic of the Congo**, **Egypt**, **Japan**, **Lao PDR**, **Mozambique**, the **Philippines**, **Qatar** and the **United Arab Emirates** are considered to be countries that are 'important to watch'. Indeed, all of these nations held this distinction in the CoP16 analysis except the Philippines, the Democratic Republic of the Congo and Egypt, which were either countries of 'primary' or 'secondary concern'. Most of these countries have already developed NIAPs; the Parties may wish to invite Japan, the only outlier in this regard, to become part of the NIAP process.

African 'countries important to watch': All of these countries have significant domestic ivory markets. In recent years, Luanda, **Angola** has been one of the largest unregulated domestic ivory markets in all of Africa, however, a ban on ivory trading was reportedly imposed in March 2016, although the state of implementation remains to be assessed (Hungerford, 2016). It is of concern to note that commercial scale exports of raw and worked ivory from Angola have continued throughout the period under examination, according to ETIS data. Reports indicate that Central Africa's largest ivory market in Kinshasa, **Democratic Republic of the Congo** is still in operation openly selling ivory products at a new location in the capital city (Sone Nkoke, in. litt., 4 May 2016); bringing this market into compliance with CITES requirements for internal trade in ivory is an unfulfilled goal of the country's NIAP and the Democratic Republic of the Congo should continue to be held accountable for the lack of progress in this regard. Similarly, in various coastal cities in **Mozambique**, fewer ivory carvings are openly displayed, but such products are readily available in local markets upon request (Huang, 2013). Mozambique's wildlife trade penalties remain among the most lenient in all of Africa, with imprisonment not an option for cases involving ivory trafficking (as opposed to elephant poaching), even when very large quantities of ivory are involved; the government is moving to address this problem, but the current situation serves to create an enabling environment for wildlife trade crime to flourish. Thus, Asian criminal syndicates in particular continue to use Mozambique as a favorable base for moving ivory, rhino horns and other wildlife products to Asia. Mozambique almost never reports seizure data to ETIS, but the country has been implicated in the trade chains of various large movements of ivory in recent years. Further, if the East African ivory trading hub that is presently centered upon Kenya, Tanzania and Uganda continues to be suppressed actively, the prospect of a Malawi/Mozambique hub, collectively or unilaterally emerging cannot be discounted. Finally, **Egypt**, which is not an African Elephant range state, continues to harbour a large ivory market which, when last assessed, did not comply with CITES requirements outlined in Resolution Conf. 10.10 (Rev. CoP16) (Martin & Vigne, 2011a). Like the Democratic Republic of the Congo, Egypt needs to be held accountable for its domestic ivory market. For these reasons, these four African nations remain countries that are 'important to watch'.

Asian 'countries important to watch': **Japan**, a two-time designated importer in the CITES-approved one-off ivory sales under the Convention, remains a major ivory market with a longstanding indigenous carving industry. Currently, this industry is largely sustained through the purchase of recycled 'personal effects' ivory which has been in the country for decades but is no longer wanted for display purposes in private homes or businesses (Kitade & Toko, 2016). However, regulatory loopholes and lapses have been exposed in recent

years whereby unregistered ‘personal effects’ ivory is being sold to local manufacturers without first being registered in the government’s database of all commercially-eligible stocks of ivory as required by law (EIA, 2015a). Of even greater concern is on-going evidence that such ivory is also being illegally exported to China in significant quantities, including one Chinese couple who were arrested, prosecuted and sentenced to 15 years imprisonment in China for importing more than 3.2 tonnes of raw and worked ivory from Japan over an 18-month period of time between November 2010 and April 2012; this traffic involved multiple shipments, none of which were detected in Japan prior to their export (Anon., 2015b; Yuan Liu, CITES Secretariat, in litt., 10 December 2015). Further, monitoring of internet trading in ivory products in Japan has also exposed a number of problematic issues which need to be addressed by the Japanese government (Matsumoto, 2015). The situation in Japan remains of concern but there is consolation in the fact that the ETIS data do not provide any recent evidence that Japan is a destination for the significant illegal ivory flows presently leaving Africa. Still, for a variety of valid reasons, the Parties may wish to consider Japan for inclusion in the NIAP process going forward.

Although the **Philippines** has moved from being a ‘country of primary concern’ to a ‘country to watch’, it still harbours a domestic ivory carving industry that is primarily focused on the production of religious artifacts for local consumption. It is not yet recognised that this domestic ivory market complies with CITES requirements for internal trade as outlined in Resolution Conf. 10.10 (Rev. CoP16) and, for this reason, the Philippines should remain a country that is ‘important to watch’ and held accountable for its ivory market. **Lao PDR** is one of the few elephant range States that has never reported a single ivory seizure to ETIS since 1989, but is noted as having an increasing ivory market (Krishnasamy, in prep.; Nijman & Shepherd, 2012). Further, it has been the destination for large movements of ivory on at least two occasions in the recent past, with other reports suggesting that much of the wildlife trade in Lao PDR benefits neighbouring China and Viet Nam (EIA, 2015b). Further, in the face of sustained regulation of Thailand’s ivory market, there are concerns that quantities of ivory currently in that country may shift to Lao PDR as an available retail outlet; this has occurred in the past with respect to live animal trade. Lao PDR should remain a country that is ‘important to watch’.

Both **Qatar** and the **United Arab Emirates** host a number of highly successful airline companies that have made these Gulf States one of the world’s most important air transport hubs, particularly in terms of connectivity between Africa with Asia. As such, both nations have become key transit points for illicit ivory trade, particularly for small ‘personal effects’ and mid-sized commercial consignments, but also occasional large-scale movements of ivory, moving to other destinations. Both countries were identified as ‘countries important to watch’ in the CoP16 analysis. Looking at bias-adjusted data in the most recent period 2012-2014, levels of trade have only increased marginally in the United Arab Emirates but an increase of more than 40% is noted for Qatar. It would be prudent to continue to regard these two nations as ‘important to watch’.

PART IV: IVORY STOCKPILE INVENTORIES

Whilst the MIKE programme tracks the illegal killing of elephants and becomes a means for estimating the relative quantity of ivory being generated from illegal off-take in elephant range States, another source of ivory supply moving into illegal trade concerns theft from government-controlled stocks in countries found anywhere along the trade chain or disposal from undocumented private stockpiles. Unfortunately, there has been no formal mechanism for tracking the status of ivory stocks globally under the Convention until 2013 when Resolution Conf. 10.10 (Rev. CoP16) was adopted by the Parties. As a result, a reporting requirement for an annual declaration of ivory stocks was recommended. In paragraph e), under **Regarding trade in elephant specimens**, the Parties were requested to:

maintain an inventory of government-held stockpiles of ivory and, where possible, of significant privately held stockpiles of ivory within their territory, and inform the Secretariat of the level of this stock each year before 28 February, indicating: the number of pieces and their weight per type of ivory (raw or worked); for relevant pieces, and if marked, their markings in accordance with the provisions of this Resolution; the source of the ivory; and the reasons for any significant changes in the stockpile compared to the preceding year.

Accordingly, the Parties have now had three occasions to report their ivory stocks to the CITES Secretariat since CoP16. In this report, the ivory stockpile reports submitted for 2014 and 2015 are assessed.

In 2014, only twelve Parties (Ethiopia, Gabon, Germany, Japan, Malawi, Malaysia, New Zealand, Philippines, Slovakia, Thailand, Uganda and Zambia) submitted ivory stock reports with inventory figures, whilst two Parties (Greece, Malta) submitted reports that stated they held no ivory stockpiles. Five more Parties (Belgium, Democratic Republic of the Congo, Kenya, the European Union and Tanzania) submitted reports indicating they had ivory stocks but provided no figures on the status of these inventories. In 2015, only five Parties (Chad, Congo, Namibia, Thailand and Zimbabwe) submitted ivory stock reports with inventory figures. Further,

only Germany and Zambia provided information on privately-owned stocks. Collectively, over the two years, these stocks accounted for nearly 463.5 tonnes of ivory under the control of 16 Parties, including private stocks.

Whilst the Parties that provided reports with stock inventories should be commended for meeting their reporting obligations under the Convention on the status of their ivory stockpiles, overall compliance with this recommendation remains exceptionally poor and is an issue of concern. For example, most of the countries that are presently part of the NIAP process -- China (and Hong Kong SAR), Kenya, Tanzania and Viet Nam of 'primary concern', Cameroon, Democratic Republic of the Congo, Egypt, Mozambique, and Nigeria of 'secondary concern', and Angola, Cambodia, Lao PDR, Qatar and the United Arab Emirates which are 'important to watch' -- did not submit any reports whatsoever, or only provided reports that did not fulfill the requirements and specify ivory stock inventory figures. For these non-reporting NIAP countries, an estimated 171.2 tonnes of ivory had been seized and reported to ETIS since 2007, the time period of this analysis; in fact, other stocks from earlier years certainly exist for many countries and a greater quantity of ivory is believed to be held by these countries.

Further, only eight of 37 African Elephant range States and two of 13 Asian Elephant range States submitted ivory stock declaration reports. Other countries, which have seized between one and three tonnes of ivory from 2007 through 2014 but have not submitted an ivory stock inventory, include France, Singapore and the United States. Finally, Burundi, which had a documented stockpile of nearly 84 tonnes when last examined in 2004 by TRAFFIC/CITES MIKE for the Secretariat, did not report; TRAFFIC has since confirmed that ivory tusks which formerly comprised part of Burundi's ivory stockpile were seized by Ugandan authorities in March 2015, but the status of the rest of the Burundi stockpile remains unknown. Other thefts of government ivory stocks have reportedly occurred in Kenya, Mozambique, Philippines, Thailand, Uganda, Viet Nam and Zimbabwe in recent years (Nkala, 2016; Bocha, 2013; Milliken *et al.*, 2012).

It is acknowledged that, since 2007, at least 24 separate ivory stock destruction events, involving an estimated total of 226.6 tonnes of ivory, have occurred in 20 countries (Cameroon, Chad, China, Congo, Belgium, Ethiopia, France, Gabon, Hong Kong SAR, Italy, Japan, Kenya, Malaysia, Malawi, Mozambique, Philippines, Sri Lanka, Thailand, United Arab Emirates, United States). It is believed that some of the destroyed ivory involves some part of previously declared stocks by Ethiopia, Malaysia, Malawi and Thailand, and part of the stocks that were held in many of the non-reporting countries to CITES. Many destruction events have occurred without benefit of an independent audit to ensure what is reportedly being destroyed is actually destroyed. In at least one instance, ivory stock destruction involved specimens that were part of an ongoing law enforcement case (TRAFFIC, 2015), and there are concerns that many opportunities for forensic examination are being lost.

The fact is that most CITES Parties, including many being held accountable for addressing ivory trade issues, are failing to meet the reporting requirement for ivory stockpiles. It is important for the CITES Parties to consider how to achieve better implementation of the ivory stock reporting requirement in Resolution Conf. 10.10 (Rev. CoP16).

PART V: CONCLUSIONS

Conclusions of the trend analysis:

This analysis presents the trend in illicit trade in ivory from 2007 through 2014 using bias adjusted data which allows effective tracking of illegal ivory trade activity through Transaction and Weight Indices. The following conclusions can be made:

- Global illicit ivory trade activity rapidly escalated from 2007 onwards, and possibly peaked in 2012, the year before CITES CoP16 (Figure 4). The salient finding for now is that illegal ivory trade transactions reached their highest levels in 2012/2013 since the CITES ivory trade ban was agreed in 1989. The result for the most recent year, 2014, suggests that trade activity is beginning to drop at this time but mostly for transactions in the small worked ivory weight class (Figure 3). However, given the large confidence interval associated with the result for that year, the prospect of a downturn will only be possible to validate when subsequent years of data are assessed.
- Concerning the weight of ivory in illicit trade, the pattern of the trend differs from the Transaction Index in that the prospect of decline in 2014 is far less (possibly even non-existent) owing to the fact that the level of change in the large raw ivory weight class, which accounts for the most ivory in illegal trade, has been marginal. Until there is significant change in this weight class any decrease in the quantity of illicit ivory in trade will remain modest. Thus, effectively investigating large-scale ivory seizure cases to identify the criminal syndicates behind them remains a crucial concern.

Conclusions of the cluster analysis:

With respect to the cluster analysis, which focused upon assessment of illicit ivory trade data in the period 2012-2014, the following conclusions can be made:

- There are few surprises in this cluster analysis and most countries previously noted as priorities remain priorities. In this regard, **China, Hong Kong SAR, Kenya, Malawi, Malaysia, Singapore, Tanzania, Togo, Uganda** and **Viet Nam** are linked to the greatest illegal ivory trade flows since 2012 and are noted as the 'countries of primary concern' in this analysis. As a consequence, the Parties should consider whether Malawi, Singapore and Togo should be included in the NIAP process.
- Equally, **Cambodia, Cameroon, Congo, Ethiopia, Gabon, Nigeria, Sri Lanka, South Africa** and **Thailand**, represent the 'countries of secondary concern' as they repeatedly play important supporting roles in the illicit ivory trade, especially large movements of ivory. Five of these countries were previously assigned this category of prioritisation at CoP16, but in this iteration Cambodia, Sri Lanka, South Africa and Thailand are now included. Thailand and Cambodia already have developed NIAPs and are engaged in implementation, but the participation of Sri Lanka and South Africa in this process should also be considered by the Parties at this time.
- And, in terms of countries that are 'important to watch', **Angola, Democratic Republic of the Congo, Egypt, Japan, Lao PDR, Mozambique** and the **Philippines** are noted. All of these countries were previously prioritized in the CoP16 analysis, but the Philippines moves into this category from formerly being a 'country of primary concern', the Democratic Republic of the Congo, Egypt and Mozambique were formerly 'countries of secondary concern', whilst Angola, Japan, Lao PDR, Qatar and United Arab Emirates remain in this category. The inclusion of Japan, Qatar and the United Arab Emirates in the NIAP process is something that the Parties may wish to consider at this time.
- Table 4 presents a comparison with the cluster analysis presented to CoP16 together with a list of those countries or territories that the Parties subsequently agreed to subject to the NIAP process. Once again, with this assessment, it is the prerogative of the Parties to determine which countries or territories should be considered for inclusion in the NIAP process.

Table 4: Comparison with CoP16 and CoP17 cluster analyses and countries/territories participating in the National Ivory Action Plan (NIAP) process under CITES

Priority Ranking	CoP16 Cluster Analysis	CoP17 Cluster Analysis	Countries/Territories Currently Engaged in the NIAP Process
Countries/territories of 'primary concern'	<i>China, Hong Kong SAR, Kenya, Malaysia, the Philippines, South Africa, Tanzania, Thailand, Viet Nam</i>	<i>China, Hong Kong SAR, Kenya, Malawi, Malaysia, Singapore, Tanzania, Togo, Uganda, Viet Nam</i>	<i>China, Hong Kong SAR, Kenya, Malaysia, the Philippines, Tanzania, Thailand, Uganda, Viet Nam</i>
Countries of 'secondary concern'	<i>Cameroon, Congo, Democratic Republic of the Congo, Egypt, Ethiopia, Gabon, Mozambique, Nigeria, Taiwan (province of China), Uganda</i>	<i>Cambodia, Cameroon, Congo, Ethiopia, Gabon, Nigeria, Sri Lanka, South Africa and Thailand</i>	<i>Cameroon, Congo, Democratic Republic of the Congo, Egypt, Ethiopia, Gabon, Mozambique, Nigeria</i>
Countries 'important to watch'	<i>Angola, Cambodia, Japan, Lao PDR, Qatar, United Arab Emirates</i>	<i>Angola, Democratic Republic of the Congo, Egypt, Japan, Lao PDR, Mozambique, the Philippines, Qatar, United Arab Emirates</i>	<i>Angola, Cambodia, Lao PDR</i>

Summary conclusions:

Although this analysis covers an eight-year time period from 2007, it includes only a 20-month period of time since the CITES Parties, at CoP16 and the follow-on Standing Committee meeting, boldly launched the global NIAP process to combat illegal trade in ivory under the Convention. The results of this report make clear that Africa's elephants continue to face a very serious threat from the illicit trade in ivory: while the findings provide a hint of improvement on the horizon, additional data in subsequent years will be required to confirm if a meaningful decline in the illicit ivory trade trend is commencing. In the meantime, there should be no cause for complacency in addressing illegal ivory trade threats to elephants.

Currently, some 19 countries have developed NIAPs and, in terms of implementation, many very positive actions have been taken by a wide range of players, but overall implementation is still very much at a nascent stage. Among these countries Thailand demonstrates very clear improvement in this analysis, having moved from the most problematic category into one of lesser concern, and such progress is indicative of the kind of positive achievement that is possible with dedicated and sustained commitment. For this reason, the continuation of the NIAP process needs to be further encouraged with renewed scrutiny and review of the various NIAPs to ensure that they adequately address the range of issues raised in this analysis. It is expected that a more robust picture of the impact of the NIAP process will be possible once data are available for the years 2015 and 2016. Towards that end, and within available resources, TRAFFIC hopes to conduct another analysis through 2015 prior to the commencement of CoP17 to derive a revised trend. Notification to the Parties No. 2016/037 of 1 April 2016 is presently requesting the Parties to submit all ivory and other elephant product seizure data to ETIS by 31 May 2016 for this purpose.

In the meantime, the continuing movement of large consignments of ivory between Africa and Asia again points to the involvement of transnational criminal syndicates. These operatives, typically of Asian origin but based in Africa, directly support major elephant poaching networks throughout the continent and control the bulk of ivory supply moving to Asia (Milliken, 2014). So far, the impact of increased law enforcement and cooperation at national and international scales along the trade chain is not decisively apparent, nor has it yet resulted in any significant change to previously documented global trade patterns in ETIS - though progress has been seen in individual countries.

There remains a need for greater and more focused commitment on the investigation of large-scale ivory seizures along the entire trade chain. In this regard, scaled-up forensic examination to source ivory is needed as most large seizures are not being examined in a timely manner as called for in Resolution Conf. 10.10 and Decision 16.83; this Decision should be extended at CoP17. Further, most countries where large seizures occur are failing to produce itemized inventory lists of the contents of these seizures (in many cases prior to stock destruction), which could serve the useful purposes of understanding average tusk weights and modeling the age structure and origins of the elephants being killed. The absence of dedicated, long-term investigations along the entire trade chain, and in appropriate languages, remains a factor of concern that inhibits successful progress (C. Dietrich, pers. comm., formerly INTERPOL). Where Asian nationals are arrested in Africa in major wildlife crime cases, interrogations and examination of documents, cell phones and computers whose contents are in foreign languages rarely effectively occurs, impeding successful prosecutions and the unmasking of the trade syndicates involved. And finally, the use of controlled deliveries as a means to penetrate deeper into the identities of large-scale criminal operatives is not yet a reality. The importance of focusing investigative and enforcement efforts on large-scale ivory seizures appears to have improved only marginally since the analysis to CoP16.

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