

**MONITORING OF TRADE IN ELEPHANT PRODUCTS AND ILLEGAL KILLING OF ELEPHANTS  
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## EXECUTIVE SUMMARY

TRAFFIC and IUCN/SSC were called upon by the Parties to CITES to recommend monitoring systems for trade in elephant products and illegal killing of elephants that include determinations of the effect of CITES Decisions and Resolutions on wild elephant populations (hereafter referred to as causality). TRAFFIC and IUCN/SSC organised a workshop in Nairobi in December 1997 to provide advice and recommendations with regard to development and implementation of these systems.

Monitoring of illegal trade has an existing basis in the Bad Ivory Database System (BIDS) of TRAFFIC, which collates data on ivory seizures. The workshop participants recommended the development of an expanded, integrated information system, the Elephant Trade Information System (ETIS). ETIS should include information for all countries world-wide on enforcement effort/resources and effectiveness and other supplementary data on trade in elephant products (including legal trade) and related economic information as well as data on seizures and confiscation.

Co-ordinated monitoring of illegal killing on an international scale is not yet underway and would need to be developed. A two-tiered system of monitoring is proposed, including an interim system to provide data for the 1999 Standing Committee meeting and a long term monitoring system to provide data for ongoing management decisions required by elephant conservation programmes. This long term monitoring system would involve collection and analysis of data from a broadly representational sample of sites throughout the range of African and Asian elephant and would require large scale capacity building in all these Range States.

In both cases, data available by early 1999, when the CITES Standing Committee meets to determine if limited commercial trade in ivory and other elephant products can commence, will likely not be sufficient to test the question of causality. Some indications of general trends may be available but only if adequate resources are provided and rapid data collection and analysis could be undertaken.

Long term monitoring systems will be needed to provide information for future decisions to effectively manage and conserve wild elephant populations. These information systems will require support, both institutional and funding, to continue. The CITES Secretariat, TRAFFIC and IUCN should commit to implementation of these systems and the Parties should commit to supporting the systems by provision of data and adequate financial and human resources.

The findings of the Workshop contained here are expert advice and opinion as to the best way forward for development of the required monitoring systems. This advice will be considered in depth when TRAFFIC and IUCN are formulating their proposals to the CITES Standing Committee for developing these systems. The Workshop report is not necessarily the definitive solution and will be considered alongside other important factors.

TRAFFIC and IUCN are grateful to the United States Fish and Wildlife Service for funding the Workshop and to the participants for their essential hard work.

## 1. INTRODUCTION

At the 10th meeting of the Conference of the Parties to CITES (COP10), a decision was made to transfer the African elephant populations of Botswana, Namibia, and Zimbabwe from CITES Appendix I to Appendix II and to allow limited commercial trade in raw ivory from these countries to Japan in 1999. Before this trade can occur, several conditions must be met, including the development of international monitoring systems for illegal killing of elephants and for illegal trade in ivory and other elephant products. The Parties specifically called upon the participation and advice of the TRAFFIC Network and two specialist groups of the IUCN Species Survival Commission (SSC) - the African Elephant Specialist Group (AfESG) and the Asian Elephant Specialist Group (AsESG) - in the development and implementation these systems. A workshop was therefore organised by TRAFFIC and IUCN/SSC to assist in this process.

The workshop participants included experts in elephant biology, management and conservation, experts in the ivory trade and wildlife law enforcement and experts in population modelling and statistics (Annex I). Participants provided input on developing monitoring systems in one of two working groups during the workshop (1) legal and illegal trade in ivory and other elephant products and (2) illegal killing of elephants; with updates and exchanges of information and ideas between the two groups in daily plenary sessions. The advice and recommendations provided by these experts will assist and inform TRAFFIC and IUCN/SSC efforts in preparing their report to the CITES Secretariat for submission to the Standing Committee in March 1998.

CITES Resolution Conf 10.10 calls for development of systems for "measuring and recording current levels and trends of illegal hunting and trade in ivory in African and Asian range States, and in trade entrepôts" as well as "assessing whether and to what extent observed trends are a result of changes in the listing of elephant populations in the CITES appendices and/or the resumption of legal international trade in ivory" (causality). Two major targets were identified - i) monitoring systems that could be rapidly implemented to appraise the immediate effect of the COP 10 Decisions to inform decisions on resumption of legal ivory trade to be considered by the Standing Committee in early 1999; and ii) ongoing monitoring systems to continue to track the effects of a potential legal trade in ivory and other elephant products on wild elephant populations.

## 2. MONITORING OF TRADE IN ELEPHANT PRODUCTS

The COP 10 decisions recognise TRAFFIC's Bad Ivory Database System (BIDS) "as the appropriate instrument for monitoring the pattern and measuring the scale" of trade in ivory and other elephant products. To meet the tasks set out in Resolution Conf. 10.10 effectively, particularly any assessment of the key issue of causality, it would be necessary to expand the present capabilities of BIDS and move towards the development of an integrated trade monitoring information system for all elephant products in addition to ivory; this system would be named the Elephant Trade Information System (ETIS). Two key elements were recognised which would be integral for effective monitoring and analysis, to indicate trends and infer causality. Primarily, the elephant products seizure information would form the basic data required to compare and combine with other data, such as the data on enforcement effort/ resources and effectiveness, which would be the second key element required for the analysis. Enforcement effort/resources and effectiveness are closely linked to rates and scale of seizures, and therefore any assessment based upon seizures should take this key element into account. Seizure data alone do not provide a true indication of illegal trade flows. The variety of factors which influence illegal trade should also be determined and analysed together with the basic seizure data, to enable some assessment of the absolute volumes of illegal products in trade and trends in trade flows.

### 2.1 Data Collection

The new integrated trade information system - ETIS, should include development and maintenance of several relational databases. The Workshop provided detailed advice on how these should be developed and operated and this essential information was recorded by TRAFFIC, for use should the system be implemented. There were three major components identified, listed below in order of significance:

- (1) Seizure/confiscation database - The database on ivory seizures (currently called BIDS) would become the cornerstone of the information system, and continue to be located with TRAFFIC, but it would be refined in several important ways to facilitate assessment of causality and identify changes in trends rapidly. A thorough independent assessment of BIDS was undertaken prior to the Workshop and the recommendations therein would form the basis of the revised system of gathering, compiling, evaluating and analysing seizure data.
- (2) Enforcement effort/resources and effectiveness database - A number of key elements were recognised that could quantitatively assess the enforcement capacity of each country based upon effort/resources such as staffing levels and budgets, and that could qualitatively assess effectiveness such as inspection rates and methods of detection (Annex III). These data would be essential to enhanced analysis of

- seizure/confiscation data and they could also assist in identifying priority areas for capacity building.
- (3) Subsidiary information database system - This system would comprise sub-databases to include all other information which may be required for analysis to indicate trends. The grading of subsidiary information should follow guidelines based on those used by organisations such as Interpol and the World Customs Organisation (WCO). These sub-databases would include data sets on:
- i) the legal trade in elephant products,
  - ii) elephant product markets in both Range States and consumer nations,
  - iii) any supplementary information on the trade in elephant products,
  - iv) economic and commercial environment data,
  - v) data quality assessment information and
  - vi) sensitive intelligence information.

The information system would be designed to accommodate information for all countries, not just Range States or the prime consumer nations, and data would actively be requested from all countries. The scope of the analysis would therefore depend upon the amount and types of data accumulated for each country at the point of analysis. In the initial analysis the broadest possible set of variables would be highly desirable, the list of variables for which data are collected would be narrowed down following analysis of what was collected and what was useful.

Data collection for these databases would result from a variety of activities, including the circulation of questionnaire forms, market surveys, investigations and intelligence reports, desktop studies, literature searches and existing databases. The most significant of these would be the revised Seizure Data Collection Form (Annex II). TRAFFIC would hold and maintain most of these databases, with two exceptions - 1) the legal trade data, which is already in existence under the auspices of the World Conservation Monitoring Centre and 2) the sensitive information sub-database, which should be held by the CITES Secretariat, to allay concerns about NGO access to confidential matters.

## *2.2 Data Management*

While TRAFFIC would be the lead body in terms of the operational functioning of the information system, the CITES Secretariat, Interpol, WCO and other organisations and institutions as appropriate should have roles to play in development of the system, data collection, compilation, analysis and interpretation. To safeguard confidentiality and data integrity, the information system would be protected by operational protocols which would provide controlled access at varying levels, dependent upon the information system user's security status. The user security status should be determined by the CITES Secretariat.

## *2.3 System Outputs*

The motivation of data sources such as CITES Parties to feed information into the system would partially be dependent upon a two-way flow of information and the ability of the system to service the needs of the CITES Parties. On condition that adequate funds were provided, the monitoring system would produce routine outputs, analyses and summaries such as:

- (a) CITES reports - the overall report component for the Standing Committee, other reports as required, either as rapid updates, regional overviews or reviews on specific issues.
- (b) Country reports - country specific reviews to assist countries to understand their own individual situation, problems and needs.
- (c) 'Canned' procedures - pre-programmed statistical routines that rapidly produce standard summaries without the need for expert analysts.
- (d) *Ad Hoc* investigations - specific queries of the ETIS by contracted analysts, undertaken as required.

## *2.4 Data Analysis*

The system would be designed for ease of analysis and at the analysis stage all data could be evaluated and considered using modern statistical techniques, often in automated processes. Providing that the Parties co-operated and provided data on a wide range of issues relating to trade in elephant products, it may be possible to produce a credible, analytical output to the CITES Standing Committee by the early 1999 deadline. However, the degree of accuracy and certainty would depend upon the resources allocated and the provision of data in a timely manner. There was little doubt that the ideal system would not be fully operational within this short time frame, but several methods could be applied, for example, restricting analysis to the best time-series data sets. In the short time until 1999 it could be possible to identify likely trends and note significant changes in trends if enough data were provided. While it may not be possible to present conclusive observations about the illegal trade in ivory and other elephant products in the short term, over time, it was envisaged that the system would be able to provide a fuller basis of analysis as the data sets become more complete.

In the short to mid-term, the analytical emphasis would be on determining trends in the trade, changes in trends over time, and the causative factors behind any changes. In the longer term, a research effort should be undertaken to investigate analytical frameworks such as Bayesian Networks, for networks combining concrete data and vague data, to model elephant product trade flows. Such a system may enable ETIS to establish itself as a predictive tool in the long term, with the capacity to estimate absolute illegal trade volumes and predict trends into the future.

While a system of independent verification for the data held in the system would be highly desirable, it would be almost impossible to achieve. Verification of data would be undertaken whenever possible. Though not a perfect means, data on illegal killing of elephants and the market survey data would provide some basis for some degree of independent verification. In order to ensure impartiality and the integrity of the analytical process, independent experts would undertake the analysis of data.. TRAFFIC, in collaboration with the CITES Secretariat, should co-ordinate the process. Interpretation of that analysis would be undertaken in tandem with the analysis of the illegal killing system. Data analysis and interpretation would be open for scrutiny and audit.

### *2.5 Resources*

The system outlined above is presented here as the best solution to the tasks posed by the CITES process, but it would not be able to function unless the necessary resources and co-operation from the Parties and others were assured. A reasonable quantity and quality of information for all countries providing seizures data would be needed. The scope for cost reduction would be limited by the negative impact on the reliability of data that would come from reducing detail and resolution of each country. With the necessary resources and data the system could work, and provide the means of analysis required, as well as set a sound mechanism in place for monitoring and automatically flagging problems into the future as a predictive tool.

There would be a need for additional resources, particularly in terms of staffing and funding, to establish and maintain the proposed information system. If TRAFFIC were to take on formal responsibilities it would be necessary to expand the resources of the East/Southern Africa Regional Office to maintain the revised seizures database and incorporate some of the new databases. In Asia, TRAFFIC and the IUCN SSC Asian Elephant Specialist Group have the infrastructure to take on data collection tasks but this would also require additional resources. The CITES Secretariat would likely require additional external funding to fulfil their role, particularly with the development of a sub-database on sensitive information. Resources would also be required to set up and maintain the linkages that would be required for the system to operate effectively.

## **3. MONITORING OF ILLEGAL KILLING OF ELEPHANTS**

Unlike the trade monitoring system which currently has BIDS as its basis, monitoring of illegal elephant killing has no existing structure under which to operate. It will be extremely difficult, if not impossible, to conduct an adequate analysis of the question of causality in changes in rates of illegal killing as a result of the CITES decisions, except in the case of a very widely distributed and an extremely large degree of increase in such rates with only one year of data. This conclusion is based on an understanding of the availability of existing data, prior to the decisions of COP10, resulting from previous efforts to assess changes in rates of illegal killing in African range states. Any such analysis faces three basic problems:

- (1) the areas for which appropriate data exist for this type of analysis in the period prior to the COP10 decision do not constitute a representative sample of the habitats of African and Asian elephants, or the varying illegal killing pressures that may exist, across the Range States in Africa and Asia;
- (2) the amount of data that would be necessary to establish significance of any changes in rates of illegal killing in the short-time period following COP 10 would be extremely large, and likely not available; and
- (3) the amount of effort involved to compile meaningful data in a format amenable to analysis from a wide range of representative sites, even if available, would be impossible in the time frame prior to the 1999 Standing Committee decision.

Multiple samples from a confined spatial region should not be used as independent evidence that CITES policy has had a significant effect on the rate of illegal elephant hunting. Most of the factors that we know influence the rate of elephant deaths (e.g. drought, civil strife, and lack of law enforcement) tend to be spatially localised. Thus, sites in a particular region will tend to simultaneously experience changes in these factors and consequently in the rate of elephant mortality. Furthermore, many of these factors may change on the same time scale as CITES policy changes, although independently. If we do not adequately identify these factors or are unable to accurately and precisely estimate their effect on elephant mortality, then we may misinterpret the effect of changes in CITES policy. This could mean either erroneously detecting a significant effect of CITES policy on elephant mortality when it did not exist, or not detecting an effect when it did in fact exist.

In spite of the difficulties associated with conducting the types of analysis required to assess the question at hand, it would be extremely valuable, and feasible, to begin a process to collect and compile data for monitoring of illegal killing of elephants in the long term through the establishment of a well-designed international monitoring system. The general characteristics of such a system are described in the following sections. In addition, the workshop participants recognised that there is a desire to compile as much information as may be available prior to the 1999 Standing Committee meeting. In consideration for the need for some objective (though not statistically valid) assessment of illegal hunting trends, an interim reporting system is recommended that includes some of the basic elements of the ideal long-term monitoring system. Finally, the Standing Committee should include some objective, quantitative method to assess how large a change in the rate of illegal killing could possibly be detected and attributed to the decisions made at COP10, given the data available at the time of analysis.

Therefore, given these constraints, a two-tiered system is envisioned within the objectives for the development of an effective monitoring system for the illegal killing of elephants:

1. A method for collecting and analysing data by 1999 to provide an interim report on illegal killing of elephants;
2. A long-term monitoring system to collect and analyse data to determine trends, changes in trends over time, and the causative factors behind any changes in illegal killing of elephants. This system includes an increased capacity in elephant Range States to implement the system.

### *3.1 Interim System for 1999*

To collect data under an interim reporting system, the CITES Secretariat could send an official notification to all elephant Range States (in Africa and Asia) to request reports on official national counts of illegal elephant off-take on an annual basis for each year from 1990-1996. Additionally, data should be requested for official, national, illegal elephant off-take figures for the first six months of 1997 (up to COP 10). Additional notifications from the Secretariat should request elephant Range States to report these same figures for the latter six months of 1997 and the first six months of 1998. In addition to elephant mortality figures, Range States should be requested to provide figures on total budgets for wildlife related activities in the country on an annual basis for the years 1990 to 1998, and to indicate for each of those years whether the country had in operation a special national Anti-Poaching Unit, and/or a Special Intelligence Unit for investigating elephant related crimes. These reports should be submitted to the CITES Secretariat. National data, rather than site-specific data, is chosen for the interim system since this information is all that may be accessible in the short time available and may provide valuable insights.

In order to expand the available data for appropriate analysis, the CITES Secretariat should also ask Range States that believe they have site-specific data meeting the standardised data requirements as outlined in Annex IV for periods before and after COP 10, to submit such data on sites within their country prior to the end of 1998. Clear guidance on how to collect, compile, and submit data in a standardised format would need to be included with the notification to the Parties. Any Range State or other Party wishing to conduct an analysis of such data should be cautioned that, due to representational bias, it will not be possible to draw broad conclusions or address the question of causality from a single Range State or from a number of sites in a single country. Effort in compiling such information should be balanced against these facts. Data collected from these official requests should form the beginning of a regular reporting system for illegal elephant mortality in the Range States.

### *3.2 Long Term Monitoring System*

A long-term monitoring system of the illegal killing of elephants should be established under the auspices of CITES with technical assistance from IUCN/SSC. The goals of such a system would be to promote the on-going collection of data necessary for assessment of trends, changes in trends over time, and the causative factors behind any changes trends in illegal killing of elephants in all Range States; and to promote the appropriate analysis of such information at a national and international level to assist decision-making by Range States and CITES. Any such system would not be in place in time, or able to collect sufficient data, to provide any analysis for the Standing Committee meeting in 1999. Steps to develop the long-term monitoring system should commence as soon as possible, however, so that future CITES decisions may benefit from the data collection and analysis process.

### *3.3 Data Collection*

An adequate analysis of the true trends, changes in trends and causes of changes in elephant mortality rates, across the global range of the African and Asian elephant, would require data sets that include information on elephant population size (unless carcass/live animal ratios are used to assess mortality rates as discussed later); data on elephant mortality that are corrected for the amount of effort involved in data collection; measures of the

effort expended to protect elephants from illegal killing; and some measures or understanding of other factors that could affect rates of illegal killing of elephants other than changes in the status of elephants under CITES. Any data collection effort should attempt as much as possible to collect data in a standardised form. Annex IV is presented as a broad description of the data needed for use in a monitoring system. These data sets must be available from periods before and after the time of the change in CITES status that is being analysed.

Potential sources of data for a monitoring system of illegal killing of elephants include

1. official government reports of national elephant mortality statistics;
2. government reports on a site by site basis following the data parameters described in Annex IV;
3. reports on a site by site basis of the data parameters in Annex IV collected by non-governmental sources (in collaboration with governments); and
4. reports from a variety of sources on information not connected to annual mortality statistics or site-by-site data collection.

Data from any one source would be insufficient for the analysis and interpretation of trends and changes in trends of illegal killing of elephants. Data from all of the verified sources will be required for a comprehensive analysis across all elephant Range States.

As the 1999 Standing Committee meeting approaches, there may be an escalating amount of information from sources other than Range States about reports of illegal killing of elephants. These reports are both a potentially valuable additional set of data in the expected absence of representational site-based analysis, as well as a potentially dangerous source of misinformation that can create an atmosphere not conducive to careful decision-making. The CITES Secretariat should develop a proactive system to collect and attempt to verify this type of information.

The Secretariat should undertake a process of verification of any reported information with the relevant range state, or if necessary through independent sources. No information about specific incidents should be accepted unless it has a clear date reference and place reference. The source of the information, either a primary source, or a secondary source, and the identity of the person or organisation reporting the information to the Secretariat must be identified.

If the Secretariat can verify the information, it should be considered for analysis of the situation in the period leading to the Standing Committee meeting. If the information can not be verified, or is shown to be false, the Secretariat should use its communications capabilities to report this fact, and take steps to insure that unverified and false information is not unduly considered by the Standing Committee in its deliberations on this issue.

### *3.4 Site Selection*

Ideal data collection would be on a site-specific level, rather than at a national level, although currently most data are available at a national level. Any analysis of data must be done within a clearly delineated area where information on measures of effort and external factors are closely associated with the specific area. Analysis of trends and changes in trends within a country would necessarily be based on analysis for multiple sites, across different habitat types, and analysis on an international scale should be on data from a range of sites of different types from different elephant Range States in Africa and Asia.

Assessment of any existing data and the design of any future monitoring system requires that specific attention be paid to whether data collection is from a balanced and representative network of sites. While it is possible to develop a long list of factors that may change across elephant ranges, the list in Annex V(a) includes the most important variables to be considered when determining if a collection of sites is appropriately representative. In addition to the criteria for balanced representation in a group of sites for data collection, several parameters (Annex V(b)) would define the best types of sites within any particular category, with respect to probability of obtaining the necessary data.

As part of a process for selecting a representative set of sites for the international monitoring system, the IUCN/SSC AfESG and AsESG will provide input to the development of a preliminary list of sites in all elephant Range States that could contribute a representative network for future data collection and analysis. Any long-term monitoring system should use such a site list as the basis for its data collection and analysis efforts.

### *3.5 Data Management*

The CITES Secretariat and IUCN/SSC could play key roles in the operation of the monitoring system. The CITES Secretariat would need to obtain the funding to support development and maintenance of the monitoring system including both capital and recurrent costs. Funds may come from the trust fund (current budget) or from external funding (potentially longer term). The Secretariat should invite governments to contribute information

from the long-term monitoring sites recommended for the system and provide forms and guidelines needed to submit these data. Once completed reports are received, the Secretariat can forward information received to the monitoring unit for compilation and analysis. It would be the responsibility of the CITES Secretariat to verify any independent reports of illegal elephant mortality received, to receive reports from IUCN/SSC for forwarding to the Standing Committee and other Parties and to process requests for information from the monitoring system. Finally, the Secretariat needs to ensure independent auditing of the data analysis and interpretation of information from the monitoring system.

In order to manage effectively the information collected in this monitoring system, IUCN/SSC should establish a special unit, in collaboration with the secretariats of the AfESG and the AsESG, to oversee the technical aspects of the development and operation of the long-term monitoring system. The primary functions of this unit would be to:

- (1) develop data collection, and compilation protocols and information management procedures for data on illegal killing of elephants from a representative sample of sites throughout elephant Range States in Africa and Asia;
- (2) oversee technical analysis and interpretation of data relating to illegal killing of elephants;
- (3) provide technical assistance to Range States and others in the development of on-going monitoring programmes in the field, and for analytical capability at the national level;
- (4) provide regular reports to CITES and participating countries as well as responding to official requests; and
- (5) evaluate the monitoring system regularly and recommend changes and improvements.

### *3.6 System Outputs*

As with the trade monitoring system, a reliable two-way flow of information will be required to ensure continued Range State participation in providing primary data. Expected products of the illegal killing monitoring information system would include:

- (a) CITES reports – regular and special reports to the CITES Secretariat and, as and when necessary, the Standing Committee;
- (b) Country reports – country-specific reports to the elephant Range States to assist them in understanding their own individual situation;
- (c) Donor reports – regular reporting as required by donors.

### *3.7 Data Analysis*

The IUCN/SSC unit could develop a database to manage the information from these various sources. The unit would need to contract for appropriate analytical capabilities, most likely in conjunction with analytical efforts of the illegal trade monitoring system. In addition to outside expertise, the unit would be expected to draw on expertise within the AfESG and the AsESG for review of selected reports, analyses, and interpretation of results. In selecting individuals and methods for data analysis, the unit should make the process as transparent as possible, so anyone could identify the individuals, expertise, and methodology used in developing interpretations of the data.

For the purposes of Standing Committee decisions in 1999, any data compilation and analysis process should be complete by the end of 1998 at the very latest. Therefore, only data up to and including June 1998 (one year of post listing change data) would be available for the interim report under the best possible conditions.

### *3.8 Resources*

If IUCN/SSC is to take on the implementation of this long term monitoring system for illegal killing of elephants it will be necessary to expand resources in the form of additional staff as well as office costs, both initial start-up costs and recurrent costs. In addition, as for the ETIS, resources would also be required to set up and maintain the linkages that would be required for the system to operate effectively.

## **4. INTEGRATION OF THE INFORMATION FROM THE TWO MONITORING SYSTEMS**

Similar methods of analysis could be used within each system, and it might be valuable to involve the same analytical experts in examining the data from each system. IUCN and TRAFFIC should work together in identifying independent analytical experts, and developing methodologies to ensure that each exercise benefits as much as possible from shared understanding of the data and problems within each system. The final interpretation of what is happening to elephants and the trade over time should involve some interpretation of analytical efforts from each system. Any formal reports to CITES Standing Committee or COP should include joint interpretation of the information from each system.

The ability to share certain data between the systems could simplify some data collection responsibilities for



each system, and aid greatly in the analysis of data from either system. This may result in the development of some shared databases between the two systems, thus reducing data collection and compilation, database development and maintenance costs. For example, enforcement effort/resources/effectiveness is a component of both systems but there is overlap in the data for Range States only. A grading system could be applied to these states which includes an assessment based partly upon the same variables from the trade and illegal killing systems. There is a need to agree on how the two groups process the information. As well, the supplementary elephant trade information can have overlap with the illegal killing system as information may come to either system, which could be useful for both systems and enable cross-checking. The data quality information base which is an internal audit and control procedure under the trade system, may also provide information relevant to the illegal killing system.

To ensure the integration, and most efficient operation of the two systems, the responsibility for oversight of the two systems, and for any joint output of analysis and interpretation rest with IUCN and TRAFFIC at their respective international Secretariats. Since TRAFFIC is formally a part of IUCN's Global Programme and there is an existing close working relationship between the Secretariats on matters relating to CITES, this integration should be efficient and effective.

There is legitimate concern that vesting responsibility in the same organisations for developing both monitoring systems and for interpretation of the information gathered, risks incorporating a particular bias in the information presented to CITES for decision-making. While IUCN and TRAFFIC are regarded as the primary international organisations with both the breadth of expertise and perspective on issues relating to CITES and elephants necessary for taking on the responsibilities for these two systems, several steps should be taken to guarantee objectivity and transparency throughout the process, including an independent external audit of the entire system.

## **5. TRAINING AND CAPACITY BUILDING**

While some of this information currently may need to be collected or compiled by non-governmental agencies, in the long-term, it should be the intent of any monitoring system to help build the capacity in-country to undertake some of these functions. Where necessary, Range States should be assisted to enable them to routinely monitor elephant populations and mortality. The monitoring of trade dynamics and establishing effective counter measures for illegal trade, should be supported for all countries which are involved in trade in elephant products. Therefore, a critical component of these systems is building capacity in Range States and CITES Parties particularly, for on-going monitoring and analysis of the particular situation within a country. A function of the TRAFFIC and IUCN/SSC would be to provide technical assistance as needed, particularly in the design of monitoring programmes and in the compilation of data from sites.

CITES Resolution Conf. 10.10 recognises that training of staff and capacity building in both range and consumer states is an important factor that would contribute to more comprehensive data collection on monitoring trade and illegal killing of elephants. TRAFFIC has undertaken CITES administration and enforcement capacity building initiatives in Africa but resources have been limited. More resources are required to undertake capacity building initiatives that also include sections on data management and data collection methods.

Training efforts should take advantage of existing regional programmes that provide a forum for discussion of elephant management techniques between Range States. The Lusaka Agreement has initiated a number of enforcement-specific training exercises. Mechanisms such as these already in place should be expanded upon, to assist with capacity building and data collection more specifically.

## **6. CONCLUSIONS**

By 1999, it will be extremely difficult, perhaps impossible, to conduct an adequate analysis of the question of causality in changes in rates of illegal killing, or in the level of illegal trade in ivory and other elephant products, as a result of the CITES decisions. Providing that the Parties co-operate and provide data on a wide range of issues, some indications of trends may be possible. However, all concerned must be cautioned that it will be extremely difficult to make any statistically significant interpretation from the data that are likely to be available for monitoring the effects of the CITES decision on either trade in elephant products or illegal killing.

There is a desire to compile as much information as may be available prior to the 1999 Standing Committee meeting. While it may not be possible to present conclusive observations about the illegal trade in ivory and other elephant products in the short term, it may be possible to draw trends and note significant changes in

trends if enough data are provided. Similarly, an interim reporting system for monitoring illegal killing of elephants is recommended that includes some of the basic elements of the ideal long-term monitoring system. Any analysis of the data available for the 1999 Standing Committee meeting should be based on the methods outlined in this report and should make explicit problems of establishing causality related to representational bias and the limited statistical power of the data likely to be available at that time.

In spite of the aforementioned difficulties, it would be extremely valuable, and feasible, to begin a process to collect and compile data for long term monitoring of both trade in elephant products and illegal killing of elephants through the establishment of well-designed, international monitoring systems.

The long term monitoring systems described in this report are seen as an essential element of regular elephant conservation programmes. In this light, the activities of Range States and significant consumer nations to collect, compile, and analyse data for the monitoring system should be eligible for international aid designated for elephant conservation programmes, and for any funds that become available for elephant conservation as a result of the implementation of the COP Decisions 10.1 and 10.2.

## **7. RECOMMENDATIONS**

### *7.1 The Overall Recommendations*

- CITES Secretariat should encourage all Parties and other participating organisations, such as Interpol, the World Customs Organisation and WCMC, to participate and contribute as much as possible in the development and maintenance of these information systems.
- The CITES Secretariat, TRAFFIC and IUCN/SSC should establish priorities and methods for training and capacity-building in Range and significant Consumer States to facilitate the implementation of these systems.
- The CITES Standing Committee and the CITES Secretariat should seek the collaboration of TRAFFIC and IUCN/SSC in the development of a full implementation plan and funding proposal for these monitoring systems. They should consider making resources available for these systems from the CITES Trust Fund, and from available external resources.
- Parties to CITES and international donor agencies such as the GEF should consider the development of these monitoring systems as a priority for the use of funds designated for the conservation of elephants. In addition, any funds designated for elephant conservation efforts resulting from the implementation of COP Decisions 10.1 and 10.2 should have the development of monitoring capacity as discussed in this report as a priority.
- The CITES Standing Committee should establish a timetable and process for data analysis and reporting.

### *7.2 Recommendations Related to Monitoring of Trade in Elephant Products*

- TRAFFIC should implement changes to its Bad Ivory Database System to reflect the findings of its recent evaluation and the input of the Nairobi Elephant Monitoring Workshop, to evolve into a fully integrated Elephant Trade Information System (ETIS).
- The CITES Secretariat should collaborate with TRAFFIC to ensure dissemination of the new seizures data collection form (SDCF), and establish a reporting system for all CITES Parties by Notification.
- The CITES Secretariat, in consultation with TRAFFIC, should review and revise if necessary, legal trade information and recording protocols carried out under contract by the WCMC and establish a regular reporting schedule.
- The CITES Secretariat should establish with TRAFFIC's input, operational protocols for access to, and use of data held in the component parts of ETIS.
- The CITES Secretariat and TRAFFIC, together with other appropriate experts, should carry out a detailed review of availability of data on enforcement resources available and effectiveness, agree key variables to be measured and establish data collection protocols and a database structure for such information.

- The CITES Secretariat should establish a method for extraction and collation of sensitive intelligence data on trade in elephant products from the SDCFs and other sources. The sub-database design being co-ordinated with TRAFFIC, to ensure compatibility with other parts of ETIS.
- TRAFFIC should investigate data sources and priorities for establishment of new sub-databases on consumer markets and on economic and commercial environment information and should develop a sub-database structure for supplementary information on trade in elephant products, and together with the CITES Secretariat, establish information collection methodologies.

### *7.3 Recommendations Related to Monitoring of Illegal Killing of Elephants*

- The CITES Secretariat should institute an interim reporting system on illegal killing on elephants from Range States as soon as possible to increase the possibility of some systematic indication of the current levels of illegal killing of elephants by 1999 and encourage governments to contribute information.
- Any analysis of the data available for the 1999 Standing Committee meeting should be based on the methods outlined in this report and should make explicit problems of establishing causality related to representational bias and the limited statistical power of the data likely to be available at that time.
- The CITES Secretariat and Standing Committee should endorse and provide support for the development of a long-term monitoring system for the illegal killing of elephants, and should request IUCN/SSC to prepare an estimate of the costs involved and the specifications of such a system.
- IUCN/SSC should investigate the requirements to establish a unit to oversee the information system for monitoring illegal killing of elephants.
- The CITES Secretariat should develop a system for verification of non-official reports of incidents relating to the illegal killing of elephants and a database for storing this verified information as soon as possible.

## ANNEXES

### *Annex I - Workshop Participant List*

Crawford Allan (TRAFFIC Network)

Dr. Richard Barnes

Bill Clark

Dr. Bob Burn

Dr. Holly Dublin

Adan Dullo

Dr. Atanga Ekobo

Dr. Hugo Jachmann

Maki Koyama

Dr. Nigel Leader-Williams

Dr. Malan Lindeque

Jean-Paul Luquet

Musa M Lyimo

Dr. Sue Mainka (IUCN/SSC)

Vivek Menon

Tom Milliken

Dr. E-J Milner-Gulland

Dr. William Oduro

Louisa Sangalakula

John Sellar (CITES Secretariat)

Mattana Srikrachang

Dr. Raman Sukumar

Dr. Chris Thouless

Dr. Arun Venkataraman

Dr. Peter Walsh

Dr. Lee White

Facilitators:

Tim Sullivan

Art Wright

**IVORY AND ELEPHANT PRODUCT SEIZURE DATA COLLECTION FORM**

**Please check as appropriate:**

<b>First Time Submission?</b>	Yes: _____	No: _____	Other: _____
<b>Follow-up Report?</b>	Yes: _____	No: _____	Other: _____

1. Source: \_\_\_\_\_  
Date of Source Record: Year: \_\_\_\_\_ Month: \_\_\_\_\_ Day: \_\_\_\_\_

2. Date of Seizure: Year: \_\_\_\_\_ Month: \_\_\_\_\_ Day: \_\_\_\_\_  
Agency Responsible for Seizure: \_\_\_\_\_

3. **Type of Transaction** (Check as Appropriate):      ☐ Export      ☐ Import      ☐ Transit  
☐ Possession   ☐ Sale   ☐ Offer for Sale   ☐ Illegal Killing   ☐ Other:

4. Country of Discovery: Place: \_\_\_\_\_  
City: \_\_\_\_\_ Country: \_\_\_\_\_

**5 Country of Origin:**

6. Country of Export/Re-export:

**7. Country of Destination/Import:**

8. Elephant Species:      African:                      Asian:                      Unknown:

**9. Ivory Type and Quantity:**

Raw Ivory:                      Number of Tusks/Pieces:                      Weight (Kg):

Semi-worked Ivory:    Number of Pieces: \_\_\_\_\_ Weight (Kg): \_\_\_\_\_

Worked Ivory: \_\_\_\_\_ Number of Pieces: \_\_\_\_\_ Weight (Kg): \_\_\_\_\_

Percentage (%) representing:    Old:                      Fresh:                      Unknown:

Comment:

## 10. Non-ivory Elephant Products:

Elephant Hide/Skin:      Number of pieces:      Weight (Kg):

Manufactured Elephant Hide Product: Type of Product:

Weight (Kg): \_\_\_\_\_ Feet (No.): \_\_\_\_\_ Hair (Kg): \_\_\_\_\_

Other (Please Specify):

**11. Other Contraband Seized with Elephant Products:**

**12. Estimated Value of Elephant Products in Country of Seizure:**

13. Mode of Transport: Air: Sea:

Land: \_\_\_\_\_ Other: \_\_\_\_\_

**14. Method of Concealment/Fraud:**

**15. Describe Documentation:**      **Falsified:**      **Fake Permit:**

Valid Permit but Wrong Shipment: \_\_\_\_\_ Other: \_\_\_\_\_

16. **Method of Detection (Check):**    ☐ Routine inspection    ☐ Targeting    ☐ Investigation

( ) X-ray      ( ) Intelligence      ( ) Other:

## 17. Profile of Offenders/Suspects:

Name: \_\_\_\_\_  
(Individual or Company) Alias(es): \_\_\_\_\_  
Address(es): \_\_\_\_\_

Tel/Fax Nos: \_\_\_\_\_  
 Nationality: \_\_\_\_\_ Passport/ID Nos: \_\_\_\_\_  
 Sex (Please Check):    ☐ Male    ☐ Female    ☐ Unknown

**18. Status of Offenders/Suspects (Please Check):**    ☐ Poacher                      ☐ Middleman Trader  
☐ Importer    ☐ Carver/Manufacturer    ☐ Wholesaler    ☐ Retail Seller    ☐ Exporter  
☐ Tourist/Consumer    ☐ Courier    ☐ Handling Agent    ☐ Other \_\_\_\_\_  
Repeat Offender (Please Check):    ☐ Yes                      ☐ No                      ☐ Unknown  
Other Information: \_\_\_\_\_

**19. Status of the Case in Court:**

(a) Date Case Introduced in Court: Year: \_\_\_\_\_ Month: \_\_\_\_\_ Day: \_\_\_\_\_

(b) Date Case Closed in Court: Year: \_\_\_\_\_ Month: \_\_\_\_\_ Day: \_\_\_\_\_

(c) Name of Court: \_\_\_\_\_

(d) Verdict (Please Check):    ☐ Not Guilty        ☐ Guilty        ☐ Seizure maintained  
☐ Return of Goods    ☐ Jail (months): \_\_\_\_\_    ☐ Fine(Value): \_\_\_\_\_  
☐ Other: \_\_\_\_\_

20. Additional Information: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Was an Ecomessage form filed with Interpol? (Check):**    ☐ Yes    ☐ No    ☐ Unknown

**Name and Position of Person Completing this Form:** \_\_\_\_\_

**Name of Organisation Represented:** \_\_\_\_\_ **Date :** \_\_\_\_\_

## OFFICIAL USE

**SDFC Reference Code:** \_\_\_\_\_

**Date Received by CITES Secretariat:** year \_\_\_\_\_ month \_\_\_\_\_ day \_\_\_\_\_

**Date Passed to TRAFFIC:** year \_\_\_\_\_ month \_\_\_\_\_ day \_\_\_\_\_

**Date Entered in Database:** year \_\_\_\_\_ month \_\_\_\_\_ day \_\_\_\_\_

**Data Quality Rating:** ( ) 1 ( ) 2 ( ) 3 ( ) 4

### *Annex III - Variables for Measuring Enforcement Effort/Resources and Effectiveness in the ETIS*

The ideal and optimum list of contributory factors to measure resources made available for enforcement and the effectiveness of the application of those resources and enforcement efforts generally, were drafted with a view to a selective process to remove less significant factors. The number of factors which could be assessed would depend upon the finances made available to perform the study and the availability of data. The methods to obtain data were numerous, and if all data could be gathered, the analysis would not be problematic and would enable the conclusions required to be drawn. Examples of information sources which could be accessed were noted, in many countries this information would be required for several agencies where they are involved in enforcing laws relating to the trade in elephant products. The variable factors under the topic areas of enforcement resources available, and the effectiveness of that enforcement were identified. In addition, it was not the point to make assumptions about good and bad practice but to emphasise which enforcement practices have worked well and benefit from lessons learned. The variables are outlined below:

#### **Effort/Resources Available:**

Information obtained by country review and research, often agency specific.

- Domestic Legislation (exemptions)
- Penalties: whether legislated and/or imposed penalties
- Budget: totals, original annual allocation, annual expenditure, deficits
- Staff: numbers and types (e.g. field or office)
- Equipment: vehicles, radios etc.

#### **Effectiveness:**

##### *Section 1:*

Information can be gleaned in part with information from the CITES Secretariat.

- Liaison with other Agencies: communication
- Reporting to Agencies/secretariats: including to Interpol, WCO, CITES Management Authorities
- International Liaison and Co-operation

##### *Section 2:*

Information can be gleaned from the Seizures Data Collection Form in part, but not independent for analytical purposes.

- Aware of sophisticated methods of smuggling?
- Routine Control: systems in place to routinely examine / capture?
- Investigations: are they proactively investigating?
- Checking documents: are they checking, and if so, how accurately?
- X-ray technology: maintain equipment and use the facilities to inspect shipments?
- Targeting: combined with investigation? using intelligence to profile smugglers, locations, methods? use of information from other agencies?
- *Modus Operandi*: log, study and recognise the methods used by smugglers?
- Checking Import/export/transit: concentrate on certain aspects or look at everything?

##### *Section 3:*

Information would require some extensive research but would attempt to obtain it.

- Public Education: literature available, awareness campaigns, talking to public, traders etc.?
- Training: undertaken, frequency, and to what level?
- Corruption: list of most corrupt countries - add to broad categories (high-medium-low), anti-corruption legislation/agencies in place? internal corruption audits?
- Intelligence, Use of Informants: how gathering? proactive gathering? storage and analysis?
- Multi-agency Approach: liaise well? but do they work together?
- Specialised Teams: major indicator as often have excellent impact
- Monitoring and Evaluation: looking at their own practices and effectiveness - internal audits?
- Management/government Policy: policy must allow activity to combat trade
- Incentive Schemes: special incentives, bonuses for success

## *Annex IV- Data Considerations for Monitoring Illegal Killing of Elephants*

### 1. POPULATION NUMBERS AND TRENDS

It will be necessary to have reliable and repeated updates. This information should be collected and analysed in accordance with criteria developed by AfESG and AsESG. Any population numbers to be used in such an analysis must be collected within carefully defined areas that should, wherever possible, be identical to the areas in which mortality data are collected. Due to the possible long-term effects of poaching on elephant population dynamics, data on population age and sex structure should also be collected. This is especially true for Asian elephants since only males carry ivory.

### 2. MORTALITY RATES

Reliable measures of elephant mortality from illegal killing can only be derived if there is some measure of the effort put into searching for elephant carcasses. This can be accomplished using standardised measures of carcasses found per unit of searching time, carcasses per live elephant or carcasses per unit area. To the extent possible, the search rate should represent an adequate coverage of the area and not be comprised of repeated and saturated searching of the same area.

There are four broad categories of data collection on elephant mortalities: (a) carcass counts or ratios from aerial surveys; (b) carcass counts from ground surveys corrected for effort; (c) total number of elephant carcasses reported and (d) proxy data. While the first two categories can, in principle, provide unbiased estimates, the latter two cannot and, therefore, must be considered qualitative but admissible information. Proxy data are indirect measures of illegal hunting that can act as surrogates for undetected carcasses in an area.

#### (a) Carcass counts from aerial surveys

Techniques for deriving carcass ratios from aerial surveys are well established. However, reliable sighting of elephant carcasses from the air may be affected by the skill and training level of observers and the type of survey. As a result, carcass ratios can only be reliably used for comparison within and between sites if the methodology remains constant. In addition, because of the relatively low detection rate of carcasses from the air, this method is only likely to pick up very substantial changes in rates of illegal killing. Likewise, the technique cannot be used in forested areas, where data on illegal killing are most deficient. It may be possible to monitor individual forest clearings, where poaching incidents seem to concentrate, from the air in a systematic manner but these techniques have yet to be developed.

#### (b) Carcass counts from ground surveys

The most useful and unbiased estimates of elephant mortality have come from a small number of detailed, long-term studies relying on detection of elephant carcasses by foot patrols. Provided patrols do not return to areas already covered over a short-time scale (i.e. double counting), then there should be a linear relationship between the number of carcasses reported and the true number of carcasses in the area. However, in order to use these carcass counts in an analysis they must be corrected for the effort put into searching for them. The most meaningful measure of may be obtained by measuring the number of carcasses per distance covered by patrols.

Other methods may be used as less direct measures of the same thing. These include: the number of individuals involved in searching per unit area; the expenditure per unit area or the effective time spent patrolling per unit area or an accurately- defined measure of the time spent on intelligence investigations leading to the sighting or interception of carcasses within a given site.

Concern has been expressed about the effectiveness of these techniques in forest conditions. While carcasses in savannahs may be detected from distances of over a kilometre on the ground, detection distances in many forested areas are less than 50m. Thus, with a similar carcass density, one would get much lower carcass counts in forests compared to savannahs. Therefore, in order to get sufficient data, forest patrols would need to cover long distances to sample large enough areas. While forest monitoring programmes may adopt 'reconnaissance' surveys, rather than detailed transect surveys, to more efficiently and effectively search the area, there may be more benefit to tracking population trends (i.e. changes in changes in indices of numbers of live animals) rather than carcass numbers.

#### (c) Total number of carcasses/incidents reported

Most reporting on elephant mortality at both national and site level currently consists of a rough compilation of illegal killing incidents uncorrected for search or detection effort. Such information is difficult to analyse and may result in misleading or incorrect interpretation. For example, a breakdown in law enforcement (i.e. searching effort on the ground) may lead to an increase in illegal killing levels but a reduction in detection and reporting or, conversely, an increase in law enforcement and detection efficiency may lead to an apparent, but



false, increase in measures of illegal killing. Incident reporting at a national level is dependent on good communication between staff of the national wildlife authority at local and national levels, as well as with other law-enforcement agencies. A clearly-defined scheme to validate and rank such data by quality and reliability will need to be developed if it is to be used in any meaningful assessment of illegal killing trends.

### 3. MEASURES OF PROTECTION EFFORT

Several studies have demonstrated that one of the most important factors determining levels of illegal killing is the amount of effort devoted to law enforcement. This effort can be measured either in terms of staffing levels and/or budgets.

#### (a) Staffing levels

Measures of staffing levels must be site-specific and, to the extent possible, directly related to the area where elephant population numbers and elephant mortality rates are also being measured over time. Although some staff involved in law enforcement may be stationed permanently outside the area in question, these should be excluded since it would be too complicated to assess the proportion of their time spent in a particular area or to apportion it in any meaningful way. Instead, there should be a yes/no' category for presence of a centrally-located, national-level specialised wildlife law enforcement unit (e.g. a strike force', special operations branch' or anti-poaching unit') and/or a specialised wildlife intelligence unit.

1. Total personnel numbers - Total staff should include the entire staff of the government wildlife management authority based within and working at the site.
2. Total search and deterrent (law-enforcement) personnel numbers - For the purpose of determining the number of individuals actually on-the-ground who could be directly or indirectly performing a search and/or deterrent function in a specific site location, it is necessary to include several categories of government and non-government personnel.

##### i) Government field staff

Government field staff include: specialist anti-poaching personnel, armed game scouts/rangers and officers who may take part in interceptions, unarmed staff (including scouts, drivers and government research staff) who patrol and may contribute to detection and deterrence, and intelligence staff (including underground agents and informants). Staff excluded from the field category include: direct support staff such as mechanics and radio operators, and indirect support staff such as clerks, cleaners, secretaries, gate-keepers and casual labourers.

##### ii) Non-government field staff

Non-government field staff include: community game guards, field-based conservation NGO staff, independent researchers and field-based employees working within hunting concessions (including hunters, scouts, trackers, gun-bearers and drivers).

#### (b) Budget

##### 1. National level

Budget information requested at the national level would be in two categories:

- i) Total recurrent costs for the primary governmental conservation agency. In most cases this would be the national wildlife management authority. This budget may include donor funding that passes through the conservation agency, though this should be specified.
- ii) Other sources of government agency funding contributing to national conservation efforts. This may have to be estimated where another agency, such as police, army, or forest department has a specific, field-based conservation programme with law-enforcement implications. Donor contributions to recurrent budgets would also be included here but should be specified.

##### 2. Site-specific level

Budget information needed at a site-specific level, on an annual basis, would include the following total recurrent expenditure for the site in question, total salary costs for total personnel (see Section 3 (a), above), total salary costs for search and deterrent personnel (see Section 3 (a), above), number of functioning (road-worthy) vehicles, bonuses and incentives (e.g. for capture of illegal hunters, recovery of ivory), and law-enforcement expenditure, excluding bonuses and incentives (see below). The salary costs should be calculated for all government field staff listed and defined in Section 3 (a), (I), above, and, where possible, Section 3 (a), (ii). Recurrent costs for law enforcement expenditure at a site level should include field allowances, housing allowances, personal equipment (e.g. uniforms, tents, sleeping bags), funds for vehicles/ aircraft and running costs for vehicles/aircraft. While actual expenditure budget information is preferred, if it is not available, allocation budgets may have to be used.

### 4. EXTERNAL FACTORS

While difficult to quantify, it is clear that there are many external factors operating on the African and Asian

continents that may have a direct impact on the illegal killing of elephants. Therefore, there must be some attempt to measure these factors and to integrate them into any assessment of causality of trends in illegal killing or changes in these trends. These factors can become quantifiable variables by establishing relative scales of measurement or simple presence/absence records for a specific site. These external factors may include, but are not limited to:

- Civil strife - The presence or recent cessation of civil strife near or in site or in a neighbouring country is inevitably linked to a rise in general lawlessness. This may be accompanied by an increase in the availability of arms and ammunition or the establishment of large numbers of refugees within or near the site accompanied by a significant rise in the illegal use of the resources within. Elephants are particularly susceptible to illegal hunting under such conditions.
- Increasing levels of human activity - Development activities, such as large-scale timber extraction or the construction of roads and dams, are often accompanied by increased human settlement by both nationals and foreign individuals employed by or associated with these activities. Increases in human population densities at or near the site may increase the potential for and rate of illegal off-take of elephants within the site.
- Effectiveness of law enforcement effort and the judiciary - In countries where law enforcement and the judiciary are weak, the chances of detection and capture as well as the likelihood and severity of punishment if apprehended are generally low. In such countries, there may be a greater degree of lawlessness and this may be associated with many illegal activities, including the killing of elephants for their ivory.
- Levels of other criminal activity - It is believed that illegal ivory changes hands in much the same way as other contraband commodities. Therefore, the presence of individuals dealing in other contraband commodities near the site could stimulate illegal killing in several ways. First, the existence of an easy trade route already established for other commodities makes ivory trafficking relatively easy and, second, the consequences of a lull in the trade of other contraband commodities could result in an increased pressure for ivory.
- Spread of poaching - Heavy illegal killing taking place in neighbouring areas or countries may provide an early warning sign within the site in question. Historically, elephant killing has spread from one area to the next as elephant populations are depleted by illegal off-take.
- Proximity to international boundaries - Sites located immediately adjacent to international boundaries are at greater risk to illegal incursions of all sorts, including elephant hunting. Such sites may be particularly prone to cross-border hunting where individuals strike within the site and then retreat across international boundaries making it difficult for wildlife management authorities or police to pursue.
- Extent of community involvement in conservation - One potentially positive external factor is the relative involvement of local communities in conservation efforts relating to the site. As beneficiaries of revenues or other benefits derived from the site and active participants in community conservation initiatives, local communities may act as a powerful deterrent to illegal activities (including illegal elephant hunting)

## 5. QUALITATIVE OR PROXY DATA

Even where carcasses are not directly counted, there may be other qualitative sources of information which indicate a change in rates of illegal killing. These may include but are not limited to:

- (a) changes in the profile of illegal hunters (e.g. use of automatic weapons vs. home-made weapons, or a change from local illegal hunters to ones from other countries);
- (b) numbers of poaching camps found within the site;
- (c) behaviour of elephants within the site (e.g. changes in their distribution patterns from the norm or obvious changes in their response to human proximity); or
- (d) intelligence reports regarding the arrival of known criminals, inquiries in the local communities or market places about the availability of ivory or reports of planned poaching raids within the site.

#### *Annex V - Site Selection Criteria*

(a) Criteria to determine balanced representation of sites

- habitat representation - forest and savannah sites;
- representative sites in all relevant geographic regions - Africa (West, Central, East, and Southern); Asia (Indian Subcontinent, Southeast Asia, and Island Asia);
- sites with low and high enforcement capacity;
- locations in protected and non-protected areas;
- sites that were previously exposed to heavy illegal killing pressure and sites that do not have a past history of illegal killing ;
- areas within Range States involved in the CITES COP 10 decisions (10.1 and 10.2) and those that are not;
- sites in countries with and without significant legal domestic ivory markets and illegal domestic ivory markets and
- locations with recent or current civil strife within site or in the neighbouring area and those that are have been stable for a long period.

(b) Additional criteria that enhance the ability to collect data as outlined in Annex IV

- existing research/conservation projects by government or NGOs with infrastructure in place
- existing data sets over a long time period (as far back as 1990)
- relatively large elephant populations
- sites with defined geographic limits that are linked to measures of protections (e.g. budgets)
- ecological/socio-economic homogeneity within the site
- government co-operation with data collection at the site level and in the wildlife department
- sites where data can be confirmed by independent sources
- a long-tenure of staff in key positions
- sites with single agency control over management
- for non-protected areas, sites with local community willingness and/or ability to share information