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OF WILD FAUNA AND FLORA



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ELEPHANT TRADE INFORMATION SYSTEM (ETIS) DATA COLLECTION AND PROCESSING –
DEFINITIONS AND STANDARD OPERATING PROCEDURES FOR INCLUSION IN ETIS ANALYSIS

1. This document has been submitted by the Secretariat on behalf of TRAFFIC in relation to in relation to CoP19 Doc. 21 on the *Review of the ETIS programme*.*

* *The geographical designations employed in this document do not imply the expression of any opinion whatsoever on the part of the CITES Secretariat (or the United Nations Environment Programme) concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries. The responsibility for the contents of the document rests exclusively with its author.*

ELEPHANT TRADE INFORMATION SYSTEM (ETIS) DATA COLLECTION AND PROCESSING - DEFINITIONS AND STANDARD OPERATING PROCEDURES FOR INCLUSION IN ETIS ANALYSES

This document has been prepared by TRAFFIC as the manager of ETIS in response to a number of issues highlighted in the recent ETIS Review as also summarized in detail in [SC74 Doc 12](#).

The main issues related to data collection and processing that were raised as a concern by Parties were: the need to explain standard operating procedures pertaining to ETIS data collection, cleaning and verification; the use of non-Management Authority sourced seizure data; and the inclusion criteria of records in the analysis based on the source grade and data completeness ranks.

The information presented augments explanations of analysis methodology overview presented in Annex 1c of [SC74 Doc. 68](#). TRAFFIC would welcome any queries from Parties if they would like further clarification on these or other issues related to data collection, processing as well as the analysis of data by TRAFFIC.

Background

Annex 1 of the Resolution Conf. 10.10 (Rev. CoP18) on *Trade in elephant specimens* provides for the *Monitoring illegal trade in ivory and other elephant specimens* (hereafter Annex 1 for brevity) and states that ETIS will be managed and coordinated by TRAFFIC in consultation with the MIKE-ETIS TAG and in collaboration with the CITES Secretariat. Annex 1 further directs TRAFFIC to assist the Parties with data collection by providing tools and training and ensuring data quality and consistency. To fulfil its mandate and obtain the most inclusive data on seizures of elephant specimens, TRAFFIC (with support from the CITES Secretariat) has been collecting data from Parties; with the launch of [ETIS Online](#)¹ in 2020, data collection has shifted to an online data submission process. Party-submitted data are further augmented with data from non-Party sources obtained by ETIS staff at TRAFFIC, which allows inference on illegal ivory trade trends when Parties do not report to ETIS. Data cleaning, verification, and categorization procedures ensure duplication is avoided and determine the records' inclusion status in the ETIS analyses reported to the Parties (based on criteria elaborated in the section 'Assigning status for inclusion in analyses' below).

Data collection from CITES Management Authorities (MA) and non-MA sources

ETIS data are collected from the following sources:

- 1) the Parties' Management Authorities (MA) prompted by an annual CITES Notification and outreach by TRAFFIC and the Secretariat, and
- 2) non-MA sources that consist of proprietary data agreements between TRAFFIC and intergovernmental organizations (e.g., World Customs Organization (WCO)) and open sources collected by TRAFFIC staff.

The following provides standard operating procedures for each data collection method:

1) Data obtained from MAs or their authorized agencies²

The specification in Annex 1 that Parties "... *should provide information on seizures and confiscations of ivory or other elephant specimens in the prescribed formats either to the Secretariat or directly to TRAFFIC within 90 days of their occurrence*", indicates that ETIS data collection is an ongoing process occurring throughout the calendar year; any seizures made in the calendar year should be reported to ETIS. The recent launch of ETIS Online provides the Parties with a convenient online tool to submit data throughout the year, and some Parties are doing so continuously. However, most Parties report data to ETIS in the year following the seizure occurrence as prompted by an annual Notification issued by the CITES Secretariat (e.g., Notifications No. [2022/006](#); [2021/011](#)) and the accompanying outreach efforts by TRAFFIC. The latter includes data deposits from the European Union Trade in Wildlife Information eXchange, or [EU-TWIX](#), with proper authorization from the

¹ <https://etisonline.org/>

² Some Parties authorize individuals in government agencies who may not be the CITES MA to register as data providers on ETIS Online and report ETIS data on their country's behalf; hereafter collectively referred to MA sources.

Party(ies) involved³.

The annual CITES Notification (hereafter annual Notification) prepared by TRAFFIC and the Secretariat at the beginning of the calendar year⁴:

- calls on Parties to report to ETIS⁴ on every seizure of illegal elephant ivory and other elephant specimens that was made within their territories in the previous year;
- provides options for data submissions including ETIS Online;
- is accompanied by ETIS Data Collection Form and Explanatory notes;
- outlines the minimum information required to enable data entry of a seizure case into the ETIS database ; and
- requests the Parties to communicate the absence of seizures of elephant specimens during the reported year.

Following the publication of the annual Notification TRAFFIC staff solicits ETIS data and offer online data submission training and assistance⁵ with multiple targeted emails.

Because data cleaning procedures take several weeks to complete and include a review period for the Parties to verify records relating to their country that might have been submitted by other MAs⁶ or collected from non-MA sources, data submitted after the deadline specified in the annual Notification are usually not included in the most recent ETIS analysis and report⁷ depending when a Standing Committee or Conference of the Parties meeting is scheduled⁸. Barring any unexpected delays, such as those experienced during the COVID-19 pandemic in 2020 and 2021, TRAFFIC can produce an annual trend analysis report to submit to the Secretariat about 10 months from the end of the previous calendar year⁸.

2) Data obtained from non-MA sources

To augment the data received from MAs and obtain information for Parties that do not regularly report to ETIS but may still play a role in the illegal trade of ivory, ETIS staff collects data on seizures and confiscation of ivory and or other elephant specimens from other proprietary or open sources:

- proprietary sources consisting of data obtained through a data sharing agreement between TRAFFIC and the World Customs Organization⁹;
- open sources collected by ETIS staff with the help of Google alerts (using key words such as “elephant tusks” or “ivory”) for any mentions of seizures of elephant specimens; and
- TRAFFIC’s global staff, who collect seizure data into TRAFFIC’s wildlife trade seizures database (WiTIS).

Non-MA sources therefore include data from (names in bold correspond to the column names in Table 2):

³ This only occurred for one Party in recent years, where the MA provided authorization for EU-TWIX to release elephant seizure data to TRAFFIC.

⁴ The annual Notification calling for the submission of data to ETIS was consistently published starting in 2014. Except for two years (2015 and 2019), the deadline for ETIS data submission has been no later than 31 March of the year following seizure occurrence.

⁵ TRAFFIC also conducts year-round outreach to the Parties to facilitate registration on ETIS Online and to provide training on online data submission and retrieval.

⁶ This review period also allows Parties to review their implicated records submitted by other CITES MAs.

⁷ Exception is if the MA submitted the records themselves hence, they are considered as already verified.

⁸ See also Part VI: ETIS Data Submission Timeline in CoP19 Doc. 66.6.

⁹ Only data submitted by national custom agencies are shared with WCO and, with the request of the Parties, ETIS does not share data submitted by China, Hong Kong SAR or Macao SAR with WCO.

- **WCO** database;
- online press releases, reports or other publications by **CITES**,
- intergovernmental organizations (**Inter-gov.** e.g., UNODC, INTERPOL),
- National and local government agencies (**Nat'l gov.** e.g., customs, police);
- non-governmental organization including TRAFFIC (**NGOs** e.g., WWF and EAGLE Network);
- peer-reviewed publications (**Peer-review**); and
- other general open sources such as news articles (**Other OS**).

Such data augment MA submitted data and provide a more complete picture of the illegal trade especially if the Party involved has not reported to ETIS.

Yearly aggregates of MA and non-MA sourced records

Table 1 presents the percent of ETIS records submitted by MA sources for each year as the total submitted by MA sources (including from EU-TWIX; MA-reported in Table 1) divided by the total number of ETIS seizures for that year (Total Seizures in Table 1)¹⁰. Seizure records originally collected from non-MA sources and that were later also reported by the MA are counted as MA-reported. Annual variation in the percent of records from MA sources ranges from a high of 96% in 2011 to a low of 82% in 2018, while across all years, 89% of the seizures were reported from MA sources¹¹.

Table 1. *ETIS data summaries for MA reported data from 2008 – 2021 that have a status warranting inclusion in the analyses[†]. Yearly tallies for MA sources (MA-reported) include records submitted by an MA authorized sources as well as those obtained from EU-TWIX with permission from the CITES MA. Yearly tallies for Non-MA sources include records that were only reported by non-MA sources (as opposed to those reported by both MA and non-MA sources and presented as % overlap in Table 2).*

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
MA-reported	666	1,491	1,389	1,974	1,370	1,520	1,269	1,361	1,220	1,142	1,106	1,323	736	1,105
Non-MA reported	71	80	106	88	135	246	175	198	181	239	236	245	127	113
Total Seizures	737	1,571	1,495	2,062	1,505	1,766	1,444	1,559	1,401	1,381	1,342	1,568	863	1,218
% MA-reported	90	95	93	96	91	86	88	87	87	83	82	84	85	91

[†]Data were downloaded on 26 Oct 2022; Because new records were submitted since the data cut off for the CoP19 report, the total number of records in this analysis (n = 19,912) differs from the total records included in the latest trend analysis for CoP19 Doc. 66.6 and SC74 Doc. 68 (n = 16,818).

For countries participating in the National Ivory Action Plans (NIAP) process that were considered as “most affected by the illegal trade in ivory” (Category A)¹², reporting by MA is lower, with only 62% of the seizure records in ETIS originating from MA sources between 2018 - 2021 (the rest were from CITES reports, inter-governmental or NGO sources and open source news articles). While it is noted that variation exists with some Parties having a higher percentage of seizures reported by their CITES MAs, the lower percentage of seizures reported by MA source for countries most affected by illegal ivory reinforces the need to augment data to better understand illegal trade trends.

Table 2 presents the tallies for the different non-MA sources for each year. Some records may be collected from non-MA sources but are later also reported by the MA, and the percent of such overlap in the data are presented for each source. ETIS staff will try to cross-reference reports from multiple sources for non-MA seizures. Additionally, records reported by non-MA sources often have multiple sources. Therefore, the yearly tallies across

¹⁰ It is noted that these should not be interpreted as reporting rates to ETIS as the latter are assessed at the Party-level and include additional Parties that report annually to ETIS that they had made no seizures during the previous year(s).

¹¹ Calculated as the sum(No. MA-reported)/sum(Total No. Seizures)*100

¹² Five Parties were listed as NIAP Category A: <https://cites.org/eng/niaps> <accessed 26 October 2022>

all non-MA sources in Table 2 along with number of seizures reported by MA as reported in Table 1 may exceed the yearly total number of seizures also presented in Table 1¹³.

Table 2. ETIS data summaries for non-MA reported data from 2008 – 2021 that have a status warranting inclusion in the analyses[†]. For each source: Total is the total count of seizures in ETIS that are attributed to the source; % MA-overlap is the percent overlap calculated as a subset of the seizures reported by that source that were also reported by MAs divided by total seizures that reported that source. It is noted that some seizures might have multiple sources and may be counted more than once.

	WCO		CITES		Inter-gov.		Nat'l gov.		NGOs		Peer-review		Other OS	
	Total	% MA-overlap	Total	% MA-overlap	Total	% MA-overlap	Total	% MA-overlap	Total	% MA-overlap	Total	% MA-overlap	Total	% MA-overlap
2008	48	2	5	80	0	-	0	-	10	10	0	-	21	19
2009	44	9	0	-	0	-	5	20	9	22	2	50	34	15
2010	39	5	9	44	0	-	4	25	27	7	2	100	41	10
2011	49	31	3	0	1	0	5	0	26	8	1	100	38	32
2012	56	7	14	14	0	-	1	0	43	7	4	25	47	21
2013	141	9	13	46	4	25	2	50	66	35	7	100	113	28
2014	34	3	17	65	0	-	12	25	97	28	6	100	139	37
2015	92	20	5	40	0	-	23	0	70	23	2	50	98	29
2016	40	35	2	0	1	100	27	74	116	15	2	50	151	38
2017	32	19	7	29	2	0	21	76	158	30	2	100	235	37
2018	29	24	65	2	0	-	9	67	94	6	0	-	168	19
2019	14	50	52	0	0	-	6	33	128	2	0	-	187	21
2020	0	-	0	-	0	-	10	0	60	2	0	-	89	4
2021	0	-	0	-	1	0	13	23	36	6	0	-	81	15

[†]Data were downloaded on 26 Oct 2022; Because new records were submitted since the data cut off for the CoP19 report, the total number of records in this analysis (n = 19,912) differs from the total records included in the latest trend analysis for CoP19 Doc. 66.6 and SC74 Doc. 68 (n = 16,818).

Data cleaning, categorization, and verification

There are multiple steps to data cleaning and categorization explained in more detail below. As an overview these steps entail:

1. Cleaning ETIS data is to ensure each seizure record has the minimum required information and that it is not a duplicate of existing records;
2. Giving each record an initial *data completeness rank* and a *source grade* that can be amended if additional information is obtained from the Parties involved or other sources;
3. Determining the record *status* as it pertains to its inclusion in the ETIS analyses.
4. Soliciting further verification from each Party for all seizure records related to their country. If needed, *data completeness rank* and *source grade* are revised as new information is provided.
5. Running data quality checks to flag any inconsistencies or notable seizures. Only seizure data that pass all checks and verifications are then included in the ETIS analyses.

¹³ For example: from Table 2 for 2008, the total non-MA reported seizures were 84 (or 48 from WCO + 5 from CITES + 10 from NGOs + 21 from open sources), and from Table 1 the total MA reported seizures are 666. Adding 84+666=750 is greater than the 737 seizures tallied for 2008 as reported in Table 1.

The following sections provides additional information on each step.

1. Ensuring minimum required information and checking for duplicates

The minimum required information is specified in the CITES annual Notification and includes the following fields: *Source of data; Date of seizure; Agency or authority responsible for the seizure; Location of discovery; Ivory type and quantity; and/or Type and quantity of non-ivory elephant products*. An *Internal reference code* is also required so that ETIS staff can refer to the specific Party's record during the data verification process. Ensuring that the minimum information exists is done automatically on [ETIS Online](#) when Parties submit data by using the individual record form or by uploading ETIS Excel data template. ETIS staff also reviews all records and will follow up with the Parties if information seems to be missing or erroneous (e.g., very large weight for worked ivory pieces).

While the minimum required information allows inclusion of a seizure record in the yearly counts for the country making the seizure (seizure-in), it does not provide the necessary fields to inform the bias-adjustment of the trend modelling. For the latter, trade route information that allows determination of seizures that originated, exported or transited undetected through a country (seizure-out) is necessary to calculate an annual law enforcement effort; similarly trade chain data on country of destination helps determine the country's role in illegal trade transactions as captured by the trade chain index¹⁴; both law enforcement effort and trade chain index are analysis covariates in the modelling of seizure rates to bias-adjust reported ETIS data. Finally, although not always available, seizure data on type of transaction, mode of transport, method of detection, and suspect nationality, provide contextual information on illegal activities when interpreting analyses results¹⁵.

All newly submitted data are checked for duplicates to avoid double counting and over-estimation. If records are uploaded on ETIS Online, an automatic check will flag to the data provider that a similar record already exists. Otherwise, if data are not submitted via ETIS Online, ETIS staff will conduct a manual check for duplicates; if duplicates are identified, only one record is retained¹⁶ to include multiple reporting data sources and the quantity, trade chain, and other relevant information are combined. When MA and non-MA sources exist for a single record, TRAFFIC defaults to the information submitted by the MA as the authoritative source; however, if large discrepancies exist, ETIS staff will follow up directly with the Party submitting the records to further investigate and agree on the information to be included.

2. Assigning source grade and data completeness rank

Source grade (A, B, or C) is an indicator of the reliability of the data source. Data obtained from MA sources are always considered the highest reliability and are given a grade of A. Source grades for data obtained from non-MA reported sources will vary greatly depending on the source:

- Grade A: Data from reliable and official sources such as WCO, CITES, inter-governmental organizations (e.g., INTERPOL, UNODC), or national government organizations (e.g., customs or police agencies) receive the highest grade of A;
- Grade B: Data from reliable¹⁷ but unofficial sources, mostly NGOs including TRAFFIC, receive a lower grade of B;
- Grade C: Data from open source media or other records with lowest degree of reliability receive source grade of C.

¹⁴ As detailed in CoP18 Doc. 69.3, the trade chain index was developed in response to concerns brought by Singapore at the 69th meeting of the Standing Committee that the law enforcement ratio of destination countries may be artificially high.

¹⁵ The different data elements and how they are used are detailed in the proposed amendments to Annex 1 of Res. Conf. 10.10. as part of recommendations outlined in CoP19 Doc. 21.

¹⁶ Records that are determined as duplicates are retained in the ETIS database for audit purposes, but they are not included in ETIS analyses.

¹⁷ An NGO is considered to be reliable by TRAFFIC if one or more of the following conditions are met: 1) it strictly follows an impartial evidence and/or science-based approach to gathering information and conducting analysis; 2) it is an organisation that stresses a collaborative and partnership-based approach with governments in addressing conservation issues; 3) it has long-standing experience in the field; 4) it demonstrated credibility and authority with the CITES Parties.

It is worth noting that often a seizure record that is first reported as an open source news article (grade C), will later also be reported by the CITES MA (grade A); in such case the record will maintain all sources but for analyses purposes be treated as the highest source grade available (in this example, A). Considering only the best data source for each seizure record (similar to the data summaries presented in Table 1), data from 2008 - 2021 with status warranting inclusion in ETIS analysis consisted of 92.3% grade A, 3.5% grade B, and 4.2% grade C sources.

Data completeness rank (Table 3) is based on the availability of seized quantity data, additional trade chain data, or supportive information¹⁸ as an indicator whether complete information exists (rank 1), minimal essential quantity information exists for both number of pieces and weight (rank 2), less detailed quantity information exists for only number of pieces or weight (rank 3), or only ivory presence is checked (rank 4). It is important to note that all records with data completeness ranks 1-4 will have all other minimum required information of *Source of data; Date of seizure; Agency or authority responsible for the seizure; Location of discovery*. For 2008 - 2021 data of status warranting inclusion in ETIS, only 1.4% of seizure records are complete (rank 1), 30.2% are partially complete (rank 2) and 68.4% are incomplete (rank 3). Data completeness ranks serve as an indicator for ETIS staff to follow up with the Parties to obtain additional information.

Table 3. Data completeness rank for ETIS seizure data that already contain the minimum required information of *Source of data; Date of seizure; Agency or authority responsible for the seizure; Location of discovery*.

Rank	Ivory present?	No. of pieces	Weight	Trade Chain Information	Supportive information
1	x	x	x	x	x
2	x	x	x		
3	x	x			
3	x		x		

3. Assigning status for inclusion in analyses

Status scores determine whether a record will be included in the overall database and specifically, whether they will be carried forward to analyses. Negative status scores exclude records from the analyses if it is determined to be a duplicate, rejected by the MA, or is deleted for other reasons (e.g., was a test or training record). Positive status scores are assigned for newly submitted records that need verification or those already validated. Only the latter validated records (status scores of 3-5) are incorporated into the analyses; whether these receive a status score of 3, 4, or 5 relates to the source grade and data completeness rank, which help ETIS staff assess if additional information should be pursued. In general, most records from grade A sources (MA or non-MA) receive the highest status score of 5 (85.3% of total validated records from 2008-2021), and most records from grade B and C sources receive lower status scores of 3 and 4 (14.7% of total validated records from 2008-2021).

4. Soliciting data verification by the Parties

After a period of data cleaning by ETIS staff that follows the ETIS data submission deadline⁴, ETIS notifies the Parties and requests their verification of pending records within a two-week period. This provides the Parties with the opportunity to resolve any data inconsistencies, augment incomplete data, and review non-MA sourced data. Parties who are registered on ETIS Online can suggest amendments to records via linked options during the solicitation period, or at any given time¹⁹. For Parties registered on ETIS Online, the verification process also provides an opportunity to review records in which they have been implicated by other Parties (e.g., as countries of export or transit). Parties who are not registered on ETIS Online, are asked to do so to access their records and contact ETIS staff if any assistance is required¹⁹. In the event that ETIS staff does not hear back from the Parties and no extension is requested, ETIS staff will validate records that meet the minimum required information

¹⁸ Previously consideration was given to whether the case was pending in court or resolved.

¹⁹ Previously, when ETIS staff emailed Parties requesting data verification, those who were not registered on ETIS Online were provided with the records needing verification as a file attachment. Starting with the data collection effort in 2022, Parties were referred to ETIS Online to view and submit their ETIS data.

and have no other anomalies; however, Parties have the option to suggest amendments on any validated records at any given time on ETIS Online or by emailing ETIS staff.

5. Running data check scripts

After all data are cleaned and verified, 19 final checks are run by ETIS staff to ensure 1) no data inconsistencies exist in seizure records data (e.g., country of origin given, but no ivory quantities are noted), and 2) flag seizures with multiple countries listed on trade route (e.g., seizures with multiple countries of transit) or of notable weight (e.g., seizures with weight 500kg or more) so that ETIS staff can conduct a final review and verify no additional errors occurred during the data entry process. Any final amendments are made, after which records with status warranting inclusion in the analysis (3-5 as detailed in section above) are provided to the analyst to conduct trend analyses.