Analysis of CITES Annual Illegal Trade Reports:

2016 to 2020 seizure data

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EXECUTIVE SUMMARY

The collection and sharing of wildlife seizure data is a valuable tool for CITES Parties. Analysis of illegal wildlife trade (IWT) data can provide valuable insights into the dynamics, trends, and evolution of IWT over time when other sources of information are limited or not available. A large share of illegal trade goes undetected as it is not possible to inspect every shipment, thus sharing and collecting wildlife seizure data from different points along the trade chain (i.e., different countries) can help to build a more complete picture of IWT dynamics as well as of national capacities to fight the illegal trade of protected species.

Parties and the international community at large can get a better understanding of IWT from sharing wildlife seizure data including the specimen types in trade, new/shifting smuggling routes, various concealment methods, modes of transport, the most effective detection methods, and changes in source, transit, or destination markets. Some Parties may be alerted to illegal exports of their wildlife resources that they were previously unaware about. This could be particularly important for valuable wildlife resources and the associated loss of revenue and biodiversity for a country. The analysis of seizure data is also important to monitor law enforcement activities and priorities in combating illegal trade; for example, the high frequency of seizures for selected species can be related to specific efforts by detecting agencies or, inversely, the lack of seizures for other species can be due to insufficient efforts or diverging priorities. Ultimately, the analysis of ITW seizure data can be used to inform and monitor national strategies, capacity building and training programs, and support the development of effective risk management strategies and law enforcement responses to IWT.

In 2017, new reporting requirements came into effect requiring all CITES Parties to submit an annual illegal trade report (AITR) on all seizures involving CITES-listed species covering actions in the preceding year. While CITES AITRs are not subject to compliance procedures, they are mandatory and should be reported to the CITES Secretariat by 31 October of the following year (e.g., the 2016 AITR was due on 31 October 2017).

This report provides an assessment of CITES AITRs submitted to the CITES Secretariat for the 2016 to 2020 reporting period. It includes a brief summary of AITR coverage (as of 14 November 2021), a quantitative analysis on basic characteristics of CITES related seizure data reported by Parties over the five-year period, and a quality assessment of AITRs to help identify positive aspects and challenges related to seizure data reported by CITES Parties and the corresponding data collection process. The report also highlights some suggestions for further improving the quality of data reported and expanding the coverage of the CITES Illegal Trade Database. The CITES Illegal Trade Database contains seizure data from government authorities that has been submitted via formalized CITES reporting requirements (AITRs).

AITR coverage
The CITES Secretariat received a total of 356 Party AITRs (39%) for the 2016 to 2020 reporting period (as of 14 November 2021), in broadly consistent numbers each year. AITR data coverage varied regionally,

with Europe having the highest AITR reporting coverage on average (70%), followed by North America (60%), Asia (43%), Oceania (25%), Africa (24%), and Central and South America and the Caribbean (15%).

Global coverage of CITES AITRs over a 5-year period (2016 to 2020)
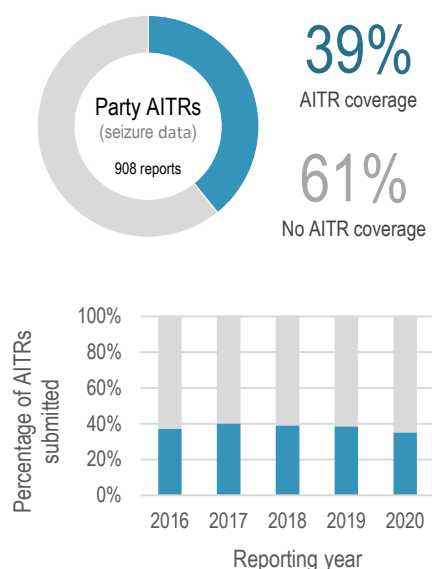
Source: CITES annual illegal trade reports (AITRs)

This coverage may initially seem relatively low. However, many Parties affected by high volumes of IWT are well represented and it is important to note that the reporting requirements are relatively new. Parties are working to integrate these new requirements into their own wildlife management structures. Some Parties may face barriers in detecting illegal activity and/or have limited capacity and resources available to consolidate and compile wildlife seizure data, then prepare and submit AITRs. While data coverage for CITES Annual reports (legal trade data) is higher (77%) for the same period, the legal trade reporting requirement has existed for over 40 years giving Parties time to address reporting challenges.

The analysis of AITR data thus provides useful information and important insights into CITES related IWT of CITES-listed species. At the same time, further improvements in data sharing and collection would help fulfill its potential to understand the global trafficking of specimens of CITES-listed species even better.

Quantitative analysis of seizure records
Seizure data from CITES AITRs were analysed to highlight valuable and informative ways that data can be utilized for research purposes. This report analysed basic characteristics of IWT data: size/volume of a seizure record, types of specimens, taxon, origin/source and final destination of shipments, and other enforcement information (e.g., detecting agencies, mode of transport).

When submitting AITRs, Parties have the option to specify whether their data can be used in the International Consortium on Combatting Wildlife Crime ICCWC supported global research and analysis on wildlife and forest crime purposes. Almost all the Party AITRs submitted (97%) were used for ICCWC research (345 Party AITRs or 38% of AITRs coverage). Analysis of seizure data has been influenced by which Parties submitted AITRs and the quantity (and quality) of seizure records within their AITRs. For instance, New Zealand reported 41% of all seizure records in the CITES Illegal Trade Database, but they are a Party which implements stricter domestic measures governing the import of personal and household effects (CITES Notification to the Parties No. 2020/004). This means items like tourist souvenirs of CITES Appendix II specimens require permits to enter New Zealand or be seized upon entry.

Global coverage of AITR seizure records over a 5-year period (2016 to 2020)
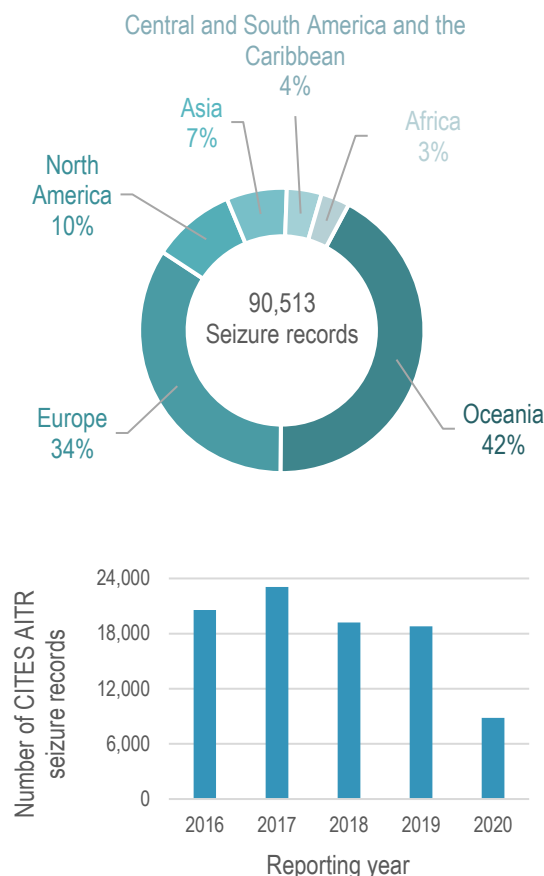
Source: CITES AITRs shared with ICCWC for research purposes.

Due to diverse geographical coverage, the quantitative analysis of seizure data needs to be conducted with caution, but it is still highly valuable information that can be used to guide decision making processes. A great deal of information can be pulled from the seizure data and tailored to the specific needs and research desire of Parties. There was substantial variability in the quantity (and quality) of seizure records reported by Parties within each submission, ranging from 1 to 9,431 records reported by a single Party in a single year. A total of 90,513 seizure records were reported over a 5-year period (2016 to 2020), with records ranging from a few items or a few kg/L up to 209,000

items or 1,238 tonnes in a single seizure record. Over three quarters of all seizure records were small scale (less than 5 kg or 5 items per record), but multiple seizure records could be related to one seizure event.

Ten specimen types were most frequently reported during the 2016 to 2020 reporting period (80% of all seizure records). These ten specimen types were non-living coral, live specimens, medicines, shells, meat, leather products (large and small), roots, ivory/tusks (all ivory codes), bodies and extracts. Some specimen types were not reported as frequently but were nonetheless significant in terms of scale (e.g., high number of items per seizure record or kilograms per seizure record). The 10 largest seizure records reported in units "no.", "kg", and "m³" were meat, derivatives, cosmetics, feathers, live, bodies, wood products, logs/timber, sawn wood, chips, and unknown specimen types involving tree species.

Top 10 specimen types in AITR seizure data, 2016 to 2020
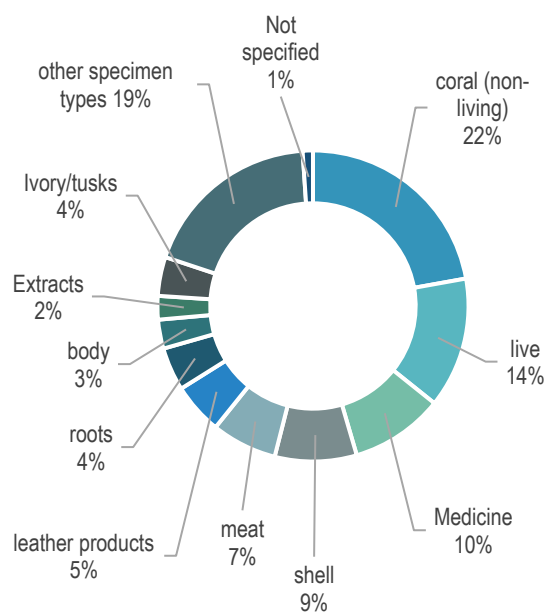
Source: CITES AITRs shared with ICCWC for research purposes.

Seizure records were represented by a wide range of taxonomic groups: flowering plants (24%), corals (23%), reptiles (18%), mammals (13%), marine and freshwater molluscs (8%), birds (7%), ray finned fishes (3%), conchs (2%) and another 14 classes (2%).

Taxonomic groups represented in AITR seizure data, 2016 to 2020
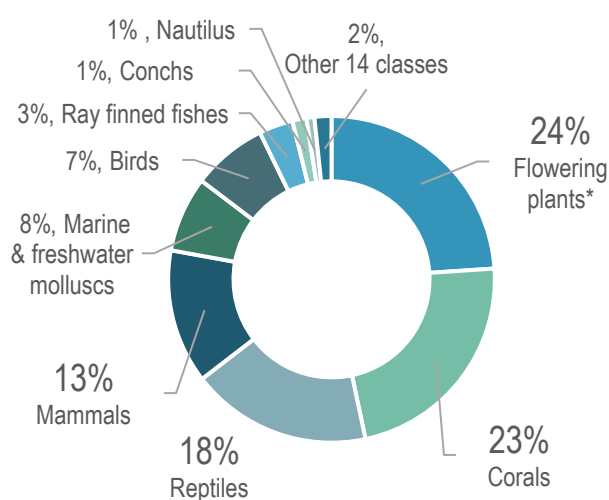
Just over half (54%) of all seizure records reported indicated the species name (1,715 different species reported), while 77% of all seizure records reported genera information (917 different genera reported). Almost half of all seizure records reported (48%) belonged to just 20 genera: *Tridacna* spp., *Pocillopora* spp., *Panax* spp., *Saussurea* spp., *Dalbergia* spp., *Crocodylus* spp., *Acropora* spp., *Loxodonta* spp., *Dendrobium* spp., *Alligator* spp., *Favites* spp., *Python* spp., *Strombus* spp., *Aloe* spp., *Porites* spp., *Testudo* spp., *Manis* spp., *Leptoria* spp., *Favia* spp., and *Hippocampus* spp. Some genera were not reported as frequently but were nonetheless significant in terms of scale (e.g., high number of items per seizure record or kilograms per seizure record). The 10 largest seizure records reported in units

"no.", "kg", and "m³" were ramin, sea cucumber, orchid, peafowl, eels, sturgeon, leeches, cacti, rosewood, kosso, sharks, mahogany, and ash.

Approximately 71% of all seizure records provided the alleged country of origin. Ten Parties accounted for 65% of the known origin: China including Hong Kong Special Administrative Region (SAR), Macao SAR and Taiwan Province of China, Australia, non-Party Cook Islands, Fiji, the United State of America (USA), Thailand, Indonesia, Tonga, Vanuatu, and Samoa. Approximately 61% of all seizure records provided the alleged final destination. Ten Parties accounted for 86% of the known final destinations: New Zealand, Germany, the Netherlands, the United Kingdom of Great Britain and Northern Ireland (UK), France, China including Hong Kong SAR, Australia, Japan, Spain, and Czech Republic. 56% of all seizure records (50,480 records) reported both the alleged country of origin and the alleged final destination.

Almost all the seizure records (99%) in the AITRs specified a detecting agency. After standardisation and cleaning the contributions of agency types were: Border agencies (31%), Customs (29%), others (10%), wildlife agencies (10%), multiple agencies/joint operations (9%), police (5%), and CITES MA (5%).

Almost three quarters of all seizure records (74%) in the AITRs specified the mode of transport: Air (57%), mail (9%), road (4%), maritime (4%), Rail and other (<1%).

This analysis shows that there are many ways in which IWT data can be used, and these can vary substantially depending on the research objective (e.g., impact of illegal live trade on a specific species, economic value of seized products leaving

Information availability (%)

Variable	seizure records weighted by country	total number of seizure records
1. National reference number	56.6%	66.3%
2. Full date of seizure	95.9%	99.5%
3. Species	67.7%	54.2%
4. Description of specimen	95.3%	99.0%
5. Quantity	98.9%	99.7%
6. Unit	98.7%	99.7%
7. Location of incident	92.2%	94.2%
8. Detecting agency	90.1%	98.6%
9. Method of detection	44.9%	23.6%
10. Reason of seizure	72.6%	74.9%
11. Mode of transport	66.4%	74.9%
12. Method of concealment	59.0%	40.1%
13. Alleged country of origin	65.1%	70.8%
14. Country(ies) of transit	7.9%	3.6%
15. Alleged final destination	60.2%	61.3%
16. Estimated value in country currency	15.5%	12.9%
17. Nationality of offenders	50.1%	15.7%
18. Law for charges	55.2%	34.6%
19. Sanction	42.1%	33.3%
20. Disposal of specimen	54.8%	60.1%

seizure records weighted by country ■ total number of seizure records

X country, scale of seizures, etc.). Each research objective therefore requires a different kind of analyses focusing on specific key variables. Parties can use this information to make evidence-based decisions and policy interventions to combat IWT and mitigate its adverse impacts on wild species.

Quality assessment of submitted annual illegal trade reports

CITES AITRs are required to be reported to the CITES Secretariat by 31 October of the following year (e.g., 2016 AITR was due on 31 October 2017). In terms of timeliness of submitted AITRS, 65% of them were submitted on or before the CITES deadline, with another 15% submitted 1 month late, 7% submitted between 1 to 6 months late, 6% submitted between 6 months to 1 year late, 6% submitted more than 1 year late.

All CITES AITRs shared with ICCWC for research purposes were assessed for completeness (e.g. 345 Party AITRs submitted by 91 Parties for the 2016 to 2020 reporting period). Each column variable from the AITR standard template was assessed to determine how much information was collected and reported (i.e. percentage of information availability). Only 6 variables (date of seizure, description of specimen, quantity, unit, location of incident, and detecting agency) had more than 90% information availability. Another 4 variables (reason for seizure, mode of transport, alleged country of origin, and alleged final destination) had between 60% and 75% information availability. One variable (disposal of specimen) was between 55% and 60% information availability regardless of approach, and two variables (Parties of

transit and estimated value) had less than 20% information availability.

The CITES Illegal Trade Database contains seizure data from government authorities that has been submitted via formalized CITES reporting requirements (AITRs). However, there may be data gaps in AITRs submitted by CITES Parties that can be identified by looking at wildlife seizure data from other sources. To this purpose, an analysis has been conducted by comparing the CITES Illegal Trade Database with a complementary database (the World WISE, created by UNODC) that contains wildlife seizure data from additional sources such as government agencies, the World Customs Organizations (WCO), the European Union Trade in Wildlife Information eXchange (EU-TWIX), TRAFFIC, and the Environmental Investigation Agency (EIA), amongst others.

Approximately 91,000 seizure records were reported in the CITES Illegal Trade Database for the 2016 to 2020 reporting period. At the same time, for the specific combinations of Parties and years for which an AITR was received, around 7,500 seizure records were reported in the World WISE Database from various non-AITR-sources. A comparison of these sets of seizure records with a Machine Learning approach that allows to link records from different sources to the same seizure event, indicated that around 5,000 seizure events included in the World WISE Database were not reported via AITRs.

While CITES AITRs are the primary source of IWT data, this analysis shows that some seizure records may not be reported, possibly due to challenges in coordination at the national level across all relevant actors in seizing illegal wildlife trade.

The large majority (89%) of Parties that submitted information through AITRs used the requested columns of the AITR template and thus adhered to the overall structure of the AITR template. Relatively high rates of adherence to the AITR template were associated with Oceania (100%), Europe (97%), Africa (92%), and Asia (87%), whereas lower rates of adherence to the AITR template were associated with Central and South America and the Caribbean (62%) and North America (44%).

The most common and relevant quality issues identified in AITR reporting that hindered the processing and analysis of AITRs included: lack of adherence to standardised codes, inappropriate reporting of species names, inappropriate date format, use of merged cells, multiple types of quantities, lack of national identification codes, and key information missing. This shows that the reporting of seizure data varies amongst Parties and result in an overall lack of standardization in seizure information.

All such inconsistencies require a significant amount of time to clean and standardize (where possible) before they can be processed and uploaded. If seizure records contain variables with non-standardized or poor-quality information, then they risk being unusable. Several reporting variables could not be comprehensively analysed for this report due to poor standardization, even though they contained detailed and valuable information that could benefit Parties.

The variables for which standardization would be highly beneficial included: detecting agency, method of detection, reason for seizure, mode of transport, national reference number, location of incident, and method of concealment.

While some variables provided pre-selected options, Parties might benefit from further clarity which would help ensure the variables are used to their fullest potential. Several other variables that did not have pre-selected options could benefit from standardisation. Another variable that might be worth considering is point of seizure which could help identify where on the trade chain a seizure occurred (e.g., on export, on import, in transit, or within country).

Reporting of AITRs in a timely manner is important. The data must first be cleaned before it can be processed and used for research and analysis purposes. Reports that follow the CITES guidelines and use the suggested template to report data are easier to clean, so they are often processed more quickly. Reports that do not follow the guidelines and/or template, often require more time to clean, are full of issues and in many cases need to be cleaned manually which requires a significant amount of time. The faster reports are submitted and cleaned, the sooner it can be used for research and analysis purposes.

Main implications

A higher AITR coverage would better reflect IWT dynamics and patterns, improve analysis, and ultimately provide a more accurate analysis of the global trafficking of CITES related species. To this end, Parties could consider including annual illegal trade reporting in regional plans that may be developed. This could encourage Parties in the region to actively pursue the implementation of paragraph 3 in CITES Resolution Conf. 11.17 (Rev.CoP18) on *National reports*.

In addition increased and further strengthened cooperation among national authorities can help ensure that the reported AITRs cover all CITES-related seizures made within their countrys territory. This will facilitate that where multiple authorities are responsible for wildlife enforcement all data is captured and not just those from one or some of these authorities. This is crucial to ensure better coverage.

Training and capacity building programs for relevant agencies could be developed to improve the quality of data submitted in annual illegal trade reports. The CITES Secretariat in cooperation with UNODC can play an important role in supporting Parties to improve overall submission rates of annual illegal trade reports and engage in efforts to support better standardize submissions to improve the quality of data submitted in the annual illegal trade reports.

Several issues were identified that interfered with cleaning and analysing AITR data. The most notable issue was the lack of standardisation. Resolving or reducing these issues would have positive impacts on the efficiency of processing AITRs and ensure all AITR data can be used for analysis. *Guidelines for the preparation and submission of the CITES annual illegal trade reports* and a standard template are both available on the CITES website to help support Parties in their compilation of their AITRs. Adherence to the guidelines and the standard template would greatly reduce the amount of time spent in processing AITR data, allowing data to be accessible for analysis (including access to Parties) in a timely and comprehensive manner. In addition, a number of key variables - such as species name or country of origin/destination - are not always provided. The development and implementation of a training plan for

Parties on the use of the AITR template and other related measures that would help to improve standardisation and completeness of AITRs and reduce issues that interfere with data processing, which would ultimately ensure that all CITES related seizure data reported is useable for analysis purposes.

At present, it is not possible to analyse seizure incidents as the focus is on seizure records. To this purpose, a slight modification of the reporting template would make it easier to analyse seizure incidents and therefore generate information on smuggling methods and modus operandi of traffickers.

While the CITES annual illegal trade report requirement is relatively new, data from 39% of Party AITRs have already been submitted. With the above findings in mind, several opportunities and activities could be considered to raise awareness, improve knowledge and capacity, facilitate dialogue and cooperation, and exchange information and experiences to further improve the quantity and quality of seizure data in the CITES Illegal Trade Database for future analyses of AITRs.

1. BACKGROUND

The collection and sharing of wildlife seizure data is a valuable tool for CITES Parties. Analysis of illegal wildlife trade (IWT) seizure data can provide valuable insights into the dynamics, trends, and evolution of IWT over time when other sources of information are limited or not available. A large share of illegal trade goes undetected as it is not possible to inspect every shipment, thus sharing and collecting wildlife seizure data from different points along the trade chain (i.e., different Parties) can help to build a more complete picture of IWT dynamics as well as of national capacities to fight the illegal trade of protected species.

Parties and the international community at large can get a better understanding of IWT from sharing wildlife seizure data including the specimen types in trade,

new/shifting smuggling routes, various concealment methods, modes of transport, the most effective detection methods, and changes in source, transit, or destination markets (see *Box 1*). Some Parties may be alerted to illegal exports of their wildlife resources that they were previously unaware about. This could be particularly important for valuable wildlife resources and the associated loss of revenue and biodiversity for a Party.

The analysis of wildlife seizure data is also important to monitor law enforcement activities and priorities in fighting illegal trade; for example, the high frequency of seizures for selected species can be related to specific efforts by detecting agencies or, inversely, the lack of seizures for other species can be due to insufficient efforts or diverging priorities.

Box 1: Importance of seizure records

Organized crime groups invest a lot of effort in concealing their activities. For this reason, statistics on illegal trade patterns and routes, volumes traded, and profits made are hard to come by.

The value of seizure data comes not from what they say about the country making the seizure, but what they say about the whole supply chain. Most CITES-related wildlife seizures are made when the goods are being transported. Whether transported by sea freight, air freight, personal courier, or post, it is often possible to determine where the contraband originated, transited, or was destined. Rich detail can be culled concerning the routes and techniques used by the traffickers, and even which interdiction strategies are most successful.

In addition, a seizure allows a great deal of information to be harvested about the identity and methods of the traffickers when the confiscating authorities take the initiative to record these details. Aside from routes, the preferred methods of conveyance and concealment can be documented. The age, gender, and citizenships of those associated with the shipment can be recorded, as well as the laws used to charge them. A seized parcel is an indication of illegal activity and accompanying information on alleged origin and destination or the citizenship of the offenders can shed light on operations otherwise conducted in the dark.

Nevertheless, despite their usefulness, seizure data require careful interpretation because they are a mixed indicator, demonstrating both the presence of a problem and the initiative of the relevant authorities in addressing it. On their own, they cannot be used to demonstrate the magnitude of trafficking or effectiveness and capacity of law enforcement. When used in aggregated form and interpreted together with other indicators and data (such as interviews with offenders and law enforcement, poaching data, etc.), seizure data can yield insights on major trafficking routes, concealment methods and techniques used by traffickers. Triangulated with qualitative research, they can provide a key data source for understanding the mechanics of wildlife crime.

Source: excerpts taken from UNODC (2016) and UNODC (2020).

Ultimately, the analysis of ITW seizure data can be used to inform and monitor national strategies, capacity building and training programs, and support the development of effective risk management strategies and law enforcement responses to IWT.

CITES Illegal trade data

Over the years, CITES illegal trade data have been collected and reported through CITES Biennial reports (now called the Implementation report), CITES species-specific reports or other special reporting requirements, but also through Ecomessages, the Elephant Trade Information System (ETIS), the World Customs Organisation (WCO), and INTERPOL.

In 2016, the Standing Committee adopted a new annual illegal trade reporting requirement at its 66th meeting (SC66, Geneva, January 2016; CITES Notification to the Parties No. 2016/007). The CITES annual illegal trade report (AITR) was formalized at CoP17 (Johannesburg, 2016) under paragraph 3 in Resolution Conf. 11.17 (Rev. CoP18) *on National reports*. The CITES AITR was made mandatory but not subject to compliance procedures. The first CITES AITR covered data from 1 January to 31 December 2016 (deadline for submission was 31 October 2017). AITRs are to include
information on both international and domestic seizures of CITES listed species as per the *Guidelines for the preparation and submission of the CITES annual illegal trade report*:

2. General Guidance
"*g) the annual illegal trade report should include information on all seizures for violations involving CITES-listed species,*

irrespective of whether the seizure was made at an international border, or at domestic level for example during the search of a private or business property or during inspections at domestic markets".

Guidelines for the preparation and submission of CITES illegal annual reports are made available to Parties. The most recent version distributed by the Secretariat (CITES Notification to the Parties No. 2021/044) are available on the AITRs webpage on the CITES website.

In CITES Resolution Conf. 11.17 (Rev. CoP18) the Conference of the Parties agrees that, unless otherwise specified by the reporting Party[1], data collected in the CITES AITR and included in the database should be made available to Parties for research and analysis of wildlife and forest crime as it affects them, and to the members of the International Consortium on Combatting Wildlife Crime (ICCWC) for ICCWC global research and analysis studies on wildlife and forest crime.

It is this research that aims to help highlight trade chain routes, and key issues such as the priority species trafficked. As with any data set, where it is most complete, it can be used to help CITES Parties focus limited resources on the most pressing resources and make the best evidence-based policy decisions.

Database Management
In November 2020, the CITES Secretariat subsequently contracted UNODC to establish a CITES Illegal Trade Database for the storage, management, and dissemination of data submitted by Parties through CITES AITRs.

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[1]Each Party should indicate in the annual illegal trade report it submits, whether the data provided in the report may be used in the ICCWC-supported global research and analysis on wildlife and forest crime.

Over 100,000 seizure records from the CITES AITRs are contained in the CITES Illegal Trade Database (as of June 2022). The database is on a UNODC-hosted Microsoft SQL Server Database. There are six steps to process the AITR data, from receiving to uploading the data into the database (see *Section 3 Management of the CITES Illegal Trade Database* for details on the management of the database).

Database dissemination platform

UNODC is currently developing a dissemination platform to be provided to different users of the CITES Illegal Trade Database, as outlined in paragraph 4 of the CITES Resolution Conf. 11.17 (Rev. CoP18) on *National Reports* as per Decision 18.75. The main goal of the dissemination platform is to establish a closed environment for data dissemination to CITES Parties for research and analysis of wildlife and forest crime as it affects them, and to the members of the International Consortium on Combatting Wildlife Crime (ICCWC) for ICCWC global research and analysis studies on wildlife and forest crime.

Purpose of this report

To support the implementation of paragraph 16 of CITES Resolution Conf. 11.3 (Rev. CoP18) on *Compliance and*

enforcement. The CITES Secretariat contracted UNODC to analyse the CITES AITRs for this objective.

16. DIRECTS the Secretariat to, subject to available resources:

"a) analyse, in collaboration with ICCWC partners, the annual reports on illegal wildlife trade;

b) share with Parties information relating to the analysis to support further enforcement activities; and

c) submit a report at each meeting of the Standing Committee and the Conference of Parties based on the analysis and other relevant information available through ICCWC partners."

This report provides an assessment of CITES AITRs submitted by Parties to the CITES Secretariat for the 2016 to 2020 reporting period. It includes a brief summary of AITR coverage (as of 14 November 2021), a quantitative analysis on basic characteristics of CITES related seizure data reported by Parties over the five-year period, and a quality assessment of AITRs to help identify positive aspects and challenges related to seizure data reported by CITES Parties and the corresponding data collection process. The report also highlights some options for further improving the quality of data reported and expanding the coverage of the CITES Illegal Trade Database.

2. ANALYSIS OF ANNUAL ILLEGAL TRADE REPORTS, 2016 TO 2020 SEIZURE DATA

The collection and sharing of IWT seizure data are essential for researchers and authorities to gain a deeper understanding of IWT dynamics and help inform decision making processes.

There are many ways in which IWT data can be analysed, and these can vary substantially depending on the research

objective (e.g., impact of illegal live trade on a specific species, economic value of seized products leaving X country, scale of seizures, etc.). Each research objective therefore requires a different kind of analyses focusing on specific key variables.

Each line (row of data) has been considered a seizure record and does not consider the relationship to other rows of data. Therefore, seizure records should not be confused with seizure incidents (e.g., 10 seizure records could be from a single seizure incident). See section *2.2.6 Mixed seizures* for more details.

2.1   CITES AITR COVERAGE

There are currently 184 Parties to CITES, and all are required to submit CITES AITRs as per Resolution Conf. 11.17 (Rev. CoP18)* *on National Reports:*

"3. URGES all Parties to submit an annual illegal trade report by 31 October each year covering actions in the preceding year and in accordance with the report format distributed by the Secretariat, as may be amended by the Secretariat from time to time with the concurrence of the Standing Committee"

AITRs should include all seizure data related to CITES-listed species, irrespective of where the seizure occurred, as stated in the *Guidelines for the preparation and submission of the CITES annual illegal trade report.*

"g) The annual illegal trade report should include information on all seizures for violations involving CITES-listed species, irrespective of whether the seizure was made at an international border, or at domestic level for example during the search of a private or business property or during inspections at domestic markets."

A total of 356 Party AITRs (39%) were submitted to the CITES Secretariat for the 2016 to 2020 reporting period (as of 14 November 2021).[2] The number of Party AITRs was relatively consistent each year,

averaging 71 Party AITRs per year (*Table 1 and Figure 1*).

Figure 1. Annual Party AITR coverage, 2016 to 2020 seizure data
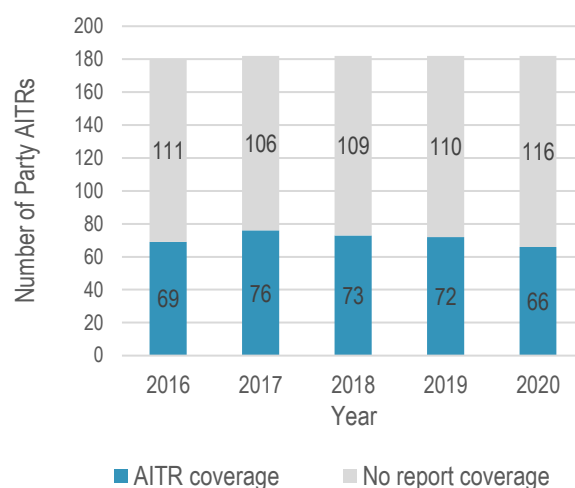
Source: CITES AITRs
Note: Includes all 2016 to 2020 Party AITRS received before 14 November 2021 (cut-off period for data analysis). Any AITRs received after this date were not included in the report analysis.

While around half of CITES Parties submitted at least one AITR during the 2016-2020 period, the vast majority of these did not do so consistently for all years, hindering the completeness of the global picture that these data can contribute to over time.

AITR data coverage varied regionally, with at Europe having the highest AITR coverage for the 5-year period (70% of European Parties on average submitted AITRs). However, this was heavily influenced by the European Union (EU). The EU coordinated with the EU Parties to collect seizure data from each country to submit an EU AITR each year.

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[2]For the purposes of this report, 908 AITRs were considered the maximum number of AITRs that could have been analysed if each Party submitted each year. AITRs from dependent territories have been included in the Party AITR. In 2016, two Parties joined CITES and were given a grace period for reporting. The EU supranational (official Party to CITES) submitted reports

that were also submitted by individual EU countries. In this case, only one report, the most complete report, was included. Thus, the analysis refers to 180 AITRs in 2016 and 182 AITRs in years 2017 to 2020. One Party joined CITES in January 2022, outside the timeframe for data analysis.

Table 1. Global coverage of CITES AITRs (2016 to 2020 seizure data)

CITES Parties	Number of AITRs submitted by Party	Number of Parties
Albania, Algeria, Angola, Antigua and Barbuda, Armenia, Bahamas, Bahrain, Barbados, Belarus, Belize, Benin, Bolivia (Plurinational State of), Brunei Darussalam, Burkina Faso, Burundi, Cabo Verde, Cameroon, Chad, Chile, Colombia, Comoros, Congo, Costa Rica, Cuba, Djibouti, Dominica, Dominican Republic, Ecuador, Egypt, Equatorial Guinea, Eritrea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Grenada, Guatemala, Guinea-Bissau, Iceland, Iran (Islamic Republic of), Iraq, Jamaica, Kazakhstan, Kenya, Kyrgyzstan, Lebanon, Lesotho, Liberia, Libya, Liechtenstein, Maldives, Mali, Mauritania, Mauritius, Montenegro, Nicaragua, Niger, North Macedonia, Oman, Palau, Panama, Papua New Guinea, Paraguay, Republic of Moldova, Russian Federation, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Samoa, San Marino, Sao Tome and Principe, Saudi Arabia, Senegal, Seychelles, Sierra Leone, Solomon Islands, Sri Lanka, Sudan, Suriname, Syrian Arab Republic, Tajikistan, Togo, Tonga, Trinidad and Tobago, Ukraine, United Republic of Tanzania, Vanuatu, Yemen, and Zambia	No submissions	90
Argentina, Bosnia and Herzegovina, Cambodia, Central African Republic, El Salvador, Israel, Jordan, Monaco, Uganda, and Venezuela (Bolivarian Republic of)	1 out of 5 possible submissions	10
Afghanistan, Bangladesh, Botswana, Canada, Honduras, Kuwait, Myanmar, Nepal, Republic of Korea, Somalia, and the United States of America	2 out of 5 possible submissions	11
Australia, Azerbaijan, Democratic Republic of the Congo, Fiji, Lao People's Democratic Republic, Malawi, Mongolia, Qatar, and Serbia	3 out of 5 possible submissions	9
Bhutan, China, Georgia, Guyana, India, Madagascar, Malaysia, Morocco, Nigeria, Norway, Pakistan, Uruguay, and Viet Nam	4 out of 5 possible submissions	13
Austria, Belgium, Brazil, Bulgaria, Côte d'Ivoire, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Guinea, Hungary, Indonesia, Ireland, Italy, Japan, Latvia, Lithuania, Luxembourg, Malta, Mexico, Mozambique, Namibia, Netherlands, New Zealand, Peru, Philippines, Poland, Portugal, Romania, Rwanda, Singapore, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Thailand, Tunisia, Turkey, United Arab Emirates, United Kingdom of Great Britain and Northern Ireland, Uzbekistan, and Zimbabwe	All 5 AITRs submitted	49

Source: CITES AITRs submitted to the CITES Secretariat
Note: Includes all Parties that submitted 2016 to 2020 Party AITRs before 14 November 2021 (cut-off period for data analysis). Any Parties that submitted after this date were not included in report analysis. Andorra joined CITES in 2021 and reporting for them entered into force in 2022 outside the analysis timeframe.

Data coverage for non-EU Parties was much lower, with only 9 non-EU Parties submitting a total of 32 AITRs. North America also had higher AITR coverage (60%), but this was highly variable each year (ranging from 33% to 100%). The remaining regions had less than 50% AITR coverage on average: Asia (43%), Oceania (25%), Africa (24%), and Central and South America and the Caribbean (15%) (*Figure 2*). However, caution should be used when interpreting these results since not all regions have equal number of Parties (e.g., North America has 3 Parties, while Africa has 53 Parties).

While this coverage may seem relatively low especially if compared to CITES Annual reports (*Figure 3*), the CITES AITR is relatively new (since 2017). Whereas the CITES Annual reporting requirement has been ongoing for over 40 years giving Parties ample time to address challenges in collating and reporting wildlife trade data.

Figure 2. Percentage of CITES AITRs received from regions, 2016 to 2020
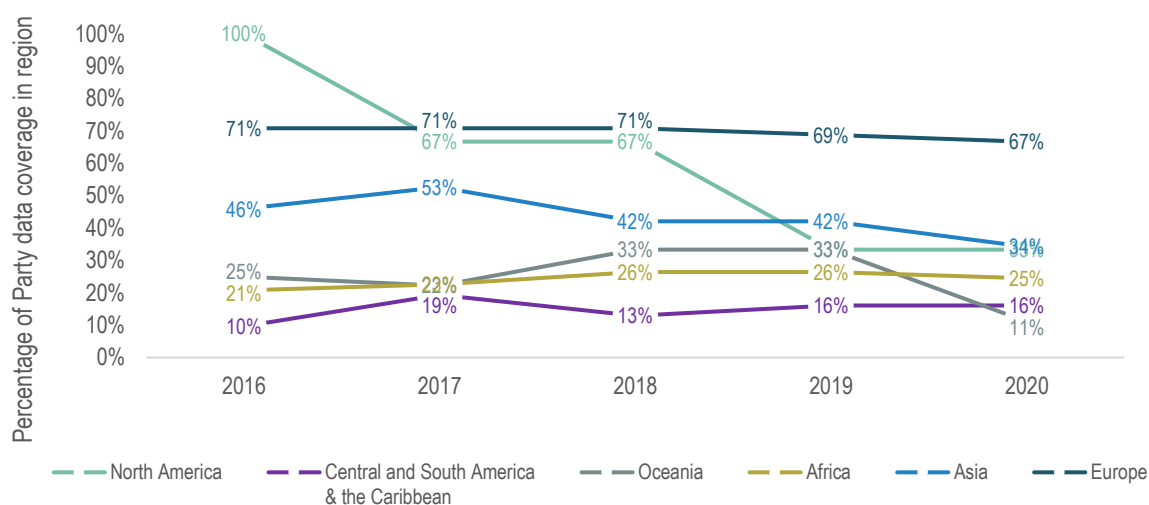
Source: CITES AITRs
Note: Includes all 2016 to 2020 Party AITRs received before 14 November 2021 (cut-off period for data analysis). Any AITRs submitted after this date were not included in report analysis.

Figure 3. Regional submission of CITES AITRs and CITES annual reports for the 2016 to 2020 reporting period
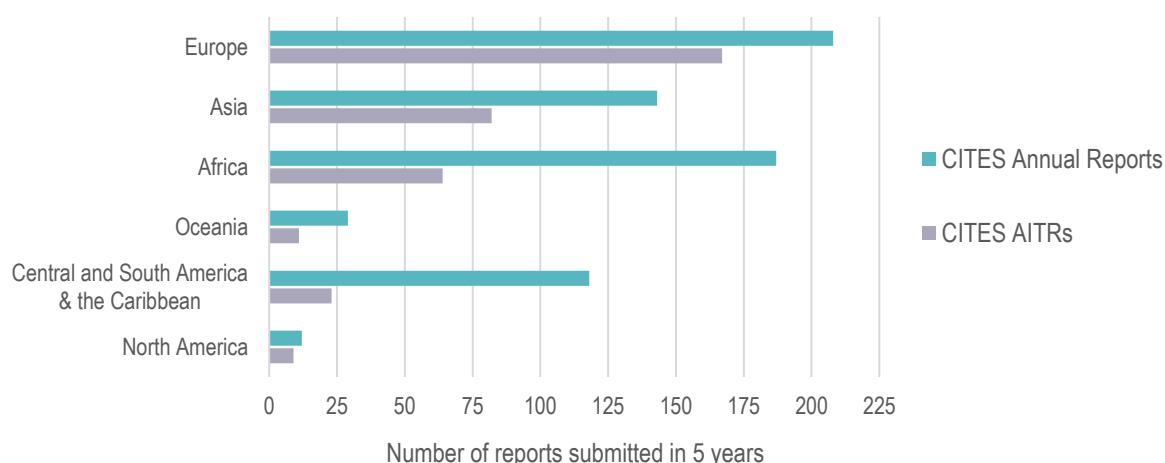
Source: CITES AITRs and CITES Annual Report submissions

There are two key stages that are likely to affect the number of AITRs a Party can produce: the probability of detecting illegal activity in the first place, and then the probability of reporting that seizure in the AITR process.

On the probability of detection, one of the biggest challenges law enforcement and customs face in detecting illegal trade is the sheer volume of international trade they must sample for inspection. For example, globally only 2% of the 800 million 20ft containers shipped a year are inspected efficiently, over 1 billion tourists travel globally a year, and there are over 100,000 flights a day. [3] [4]

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[3] FIATA. (2021). Maritime supply chain actors brought together to step up collaborative efforts to tackle timber and wildlife trafficking in container shipping. *News Article*. https://www.ftalliance.com.au/newsdetails/23308

[4] CITES. (2021). 71st IATA Annual General Meeting and World Air Transport Summit. News and Highlights. https://cites.org/eng/news/sg/71st_iata_annual_general_meeting_address_cites_sg

Box 2: Quality and variability of seizure data

The quality of seizure data recorded and reported by Parties varies greatly in terms of completeness and coverage. The most vital information – the date and location of the seizure; the species; the product; the quantity; and the source and destination of the shipment – may be lacking in some respect. Product codes are often misapplied, and a wide variety of measurement units specified, making analysis of data complicated.

It can be difficult to distinguish between states that fail to report due to lack of capacity to seize illegal shipments and/or lack of capacity to assemble the data, and those that have the capacities but simply have few seizures to report. There appears to be considerable variation in the capacity to collect seizure information. Some CITES Management authorities are poorly placed to request data from specific branches of government likely to seize wildlife, such as customs, relying instead on the relatively limited interdiction capacity of the environmental ministry in which they typically sit. In states where enforcement is conducted at both national and local levels of government, there may be no mechanism for transmitting local seizures to national authorities. The agencies that collect data on "wildlife" are often different from those collecting data on fisheries or timber, so some databases have no marine species or wood seizures.

Source: excerpts taken from UNODC (2016) and UNODC (2020).

On the issue of reporting probability, limited capacity and complex reporting lines between or within agencies may be key factors. For some Parties, the preparation of AITRs may require a significant investment in terms of money, resources, and infrastructure (e.g., collect seizure data from different authorities and

agencies, consolidate and compile the data, and prepare and submit the reports) (see *Box 2*).

Only a quarter of the Parties (24%, 43 Parties) submitted both CITES annual reports and CITES AITRs for all 5 reporting years. More than half of these were Parties in European. Annual breakdowns for submitting both CITES annual reports and AITRs were: 39% (70 Parties) in 2016, 40% (73 Parties) in 2017, 39% (71 Parties) in 2018, 35% (64 Parties) in 2019, and 31% (57 Parties) in 2020.

MAIN FINDING: AITR COVERAGE

The CITES Secretariat received a total of 356 Party AITRs (39%) for the 2016 to 2020 reporting period (as of 14 November 2021), in broadly consistent numbers each year. While this coverage may seem relatively low, the reporting requirements are relatively new (since 2017). Parties are working to integrate these new requirements into their own wildlife management structures, which takes time. Some Parties may not be affected by IWT, and others may face challenges in detecting illegal activity in the first place and have limited capacity and resources available to consolidate and compile wildlife seizure data, then prepare and submit AITRs.

While data coverage for CITES Annual reports (legal trade data) is higher (77%) for the same period, this reporting requirement has been ongoing for over 40 years giving Parties ample time to address challenges in collating and reporting wildlife trade data, and it is also subject to compliance measures.[5] CITES Annual Report data collection can act as a target to

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concerned (Resolution Conf. 11.17 (Rev. CoP18)* *on National reports).*

work towards for the CITES AITRs in the medium and long term.

Some Parties that have strong capacity to enforce CITES and document illegal trade were not well represented in the analysis. This could be a result of Parties declining to allow their data to be shared for ICCWC research and analysis, or Parties did not submit their AITRs to the CITES Secretariat before the analysis of this report. As a result, analysis of data has been biased by Parties that submitted and shared reports for ICCWC research and analysis.

Despite these limitations, many Parties affected by high volumes of IWT are well represented, which helps balance the analysis. The analysis of AITR data thus provides useful information and important insights into CITES related IWT. At the same time, further improvements in data sharing and collection would help fulfill its potential to understand the global trafficking of CITES related specimens even better.

2.2 QUANTITATIVE ANALYSIS OF SEIZURE RECORDS

When submitting AITRs, Parties have the option to specify whether their data can be used in ICCWC supported global research and analysis on wildlife and forest crime purposes. Almost all the Party AITRs submitted (97%) were used for ICCWC research purposes (345 Party AITRs or 38% of AITRs coverage). These seizure data were analysed to highlight the valuable and informative ways that data can be utilized for research purposes.

This section analysed basic characteristics of IWT seizure data: size/volume of a seizure record, types of specimens, taxon, origin/source and final destination of shipments, and other useful enforcement information (e.g., detecting agencies, mode of transport).

There is substantial variability in the quantity (and quality) of seizure records reported by Parties ranging from 1 to 9,431 records reported by a single Party in a single year.

A total of 90,513 CITES related seizure records[6] were analysed during 2016 to 2020. The total number of seizure records reported in a single year ranged from ~19,000 to 23,000 records, except for the year 2020 reporting less than ~9,000 records (*Figure 4*). The small number of records reported in 2020 was highly influenced by a reduction of seizure records reported by New Zealand (likely influenced by the COVID-19 pandemic and lock down of international travel to the country)[7] Thus, the size or volume of a seizure record, specimen type, taxon, source/destination of shipment, etc., are all influenced by which Parties submitted reports and the quantity (and quality) of seizure records within their AITRs.

Two regions (Oceania and Europe) reported 76% of all analysed seizure records (*Figure 5*).

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[6] A total of 93,528 seizure records were reported (and shared for analysis) during the 2016 to 2020 reporting periods. Some records were either non-CITES listed species, the CITES listing status was unknown (e.g. plants), or the CITES listing was not available (e.g. *Naja* spp. seizure records as some *Naja* species are CITES listed while other *Naja* spp. are non-listed species). Thus,

the analysis in the report is based on known CITES listed records, (90,513 record, 97% of all seizure records).
[7] New Zealand reported an average 44% of all global seizure records during 2016 to 2019 but dropped to 18% of all seizure records reported in 2020.

Figure 4. Quantity of CITES related seizure records (2016 to 2020 reporting years)
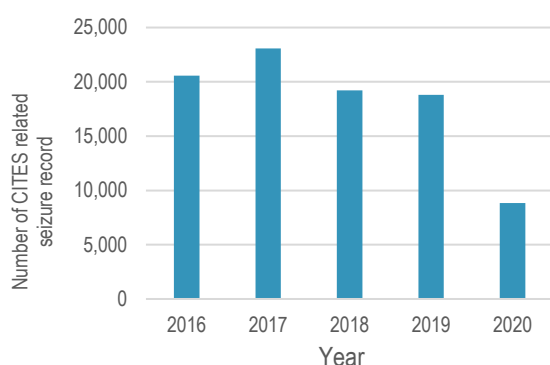
Source: CITES AITRs shared with ICCWC for research

Figure 5. Percentage of seizure records by region, 2016 to 2020
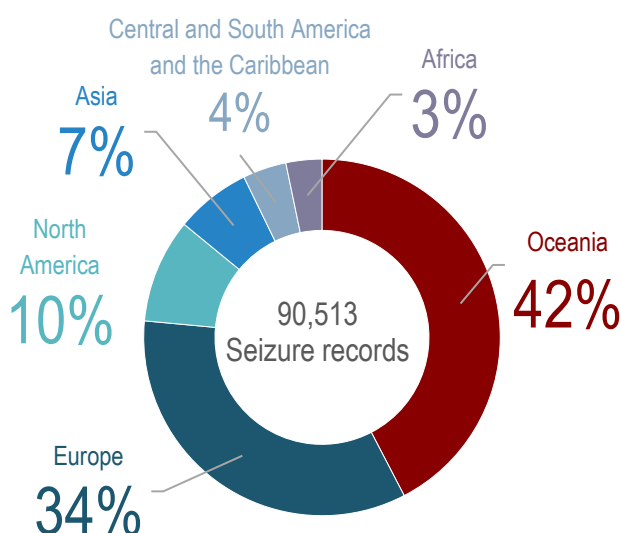
Source: CITES AITRs shared with ICCWC for research

Ten Parties reported 81% of the total seizure records during the 5-year period: New Zealand (37,159 records), the United States of America (USA; 7,719 records)[8], Germany (5,456 records), France (4,702 records), the United Kingdom of Great Britain and Northern Ireland (UK; 4,286 records), the Netherlands (4,176 records), Brazil (3,181 records), Spain (2,995 records), Thailand (1,859 records), and

Switzerland (1,835 records) (see *Annex I* for full list).

New Zealand reported 41% of all total seizure records, more than any other Party over the reporting period. However, New Zealand implements stricter domestic measures governing the import of personal and household effects (CITES Notification to the Parties No. 2020/004). For example, items like tourist souvenirs of CITES Appendix II specimens require permits to enter New Zealand or will be seized upon entry. Approximately 85% of New Zealand's seizure records involved < 1 item/kg/Lt per record, most of which were seized at airports suggesting the bulk of seizures were related to personal effects.

New Zealand in general has higher biosecurity controls than many other Parties [9], which means resources may already be in place for detecting biosecurity threats which are not necessarily related to IWT. However, this greatly assists authorities in enforcing CITES given a biosecurity framework is already established. New Zealand has demonstrated excellent effort and investment in enforcing CITES provisions, documenting all CITES related seizures and sharing the data for research and analysis purposes. The stricter measures implemented by the country also shed some light on the potential scale of non-commercial trade of CITES specimens which are not documented by many other Parties due to exemptions for personal and household effects. The extent and impact of non-commercial trade on species has yet to be assessed and is difficult to do considering many Parties have such exemptions on personal and household effects. Some Parties may not have the

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[8] This only considers two AITRs, the remaining three AITRs for the United States of America were submitted after the analysis cut0off period 14 November 2021.

[9] Stone, Matthew. (2021). Biosecurity is critical to New Zealand's national security, economy and way of life. *New Zealand Veterinary Journal.* 69:6, 309-312.

resources, training, or capacity to inspect non-commercial goods to the same extent and instead prioritize inspection of larger shipments, specific species, or high value specimens.

It is important to remember that the reporting Party reflects the jurisdiction of the seizing authority (the Party that made the seizure) and does not signify the origin or destination of a seized specimen (e.g. origin and destination may not be known). It is not an indicator of demand, but instead demonstrates both the potential presence of an IWT problem in the country and the initiative of the relevant national authorities in addressing it (*see Box 1 and 2).*

COVID-19
Data for 2020 is most likely skewed because of the COVID-19 pandemic. International borders were closed at varying times around the world and transport options were extremely limited or shut down completely during periods of the year. Therefore, fewer seizure records for 2020 may reflect changes in logistics due to COVID-19 rather than trends in demand for illegal specimens. Analysis of future years of AITRs data will help provide more information on impacts of the covid pandemic on both reporting and IWT.

2.2.1 SCALE OF A SEIZURE RECORD

Analysis of the number of seizure records can provide valuable insights but alone can be misleading since it does not give any indication to the size or volume of the seizure record. A single record could have 1 or 100,000 items, an important aspect that would be missed if only looking at number of seizure records.

The importance placed on the size or volume of a seizure ultimately depends on the question being asked, which can differ depending on the species involved and the priorities of government authorities (e.g., smaller scale seizure records may be of more interest in airport awareness campaigns, while large scale seizure records involving valuable cargo may be of more interest to government authorities given the financial aspect and possible organized criminal activity surrounding it).

The conservation status and CITES Appendix listing of a species might also be a consideration for data analysis given the effects of illegal trade on certain species for a country, while in other cases it could instead relate to the financial loss of high valued products being smuggled illegally. For instance, a seizure of two items from a critically endangered Appendix I species from country A will be of more importance to country A than a seizure of 20 tonnes of items from a large cargo shipment of an Appendix III species from country B, and vice versa.

The units most frequently reported during 2016 to 2020 were "number" (52%) and "kilograms"[10] (44%) (*Figure 6*). Other units were reported less frequently (e.g., cubic metres, litre, and square metre) and some seizure records were reported with no units or were not standardized.

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[10] All weight (e.g. grams) was converted to kilograms (kg) and all volume in millilitre (MLT) were converted to litre (LTR) during the data cleaning process.

Figure 6. Number of seizure records according to units, 2016 to 2020
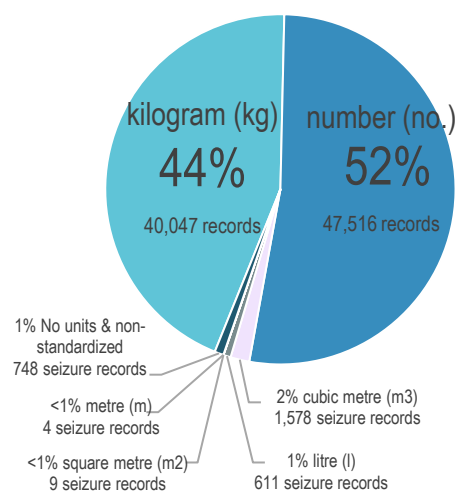
kilogram (kg)
44%
40,047 records

number (no.)
52%
47,516 records

1% No units & non-standardized
748 seizure records

<1% metre (m)
4 seizure records

2% cubic metre (m3)
1,578 seizure records

<1% square metre (m2)
9 seizure records

1% litre (l)
611 seizure records

Source: CITES AITRs shared with ICCWC for research purposes.

The *Guidelines for the preparation and submission of the CITES annual illegal trade report* provides recommendations for which units to use, with a list of preferred units and alternative units for each specimen type (e.g. for timber the preferred unit is m³ and the alternative unit is kg, while for tusks the preferred unit is no. and the alternative unit is kg). While some Parties follow these guidelines, many do not. This has resulted in a mix of preferred units reported by some Parties and alternative units reported by other Parties for the same specimen type which complicated the analysis. In some instances, both preferred and alternate units are provided (2% of all seizure records provided two units).

Medicines were excluded from the volume per record analysis given the uncertainties involving the reported quantities of CITES-listed species in those medicines (See *Box 3*). For example, a seizure record with 20,000 "number" for MED is impossible to determine if they are referring to pills or bottles. Only some Parties provided additional information to specify this,

leaving this open to interpretation for the Parties that did not specify.

Box 3: Medicines

Among the most frequently encountered product categories found in wildlife seizures are those termed "medicine". The CITES definitions of these product terms are vague and seem to be applied to a wide range of items in practice, from compounded raw materials to processed products. Supplements containing CITES-listed species, often in trace amounts as one of many ingredients, are commonly seized when they are shipped to consumers internationally without CITES paperwork.

Further, since these are processed products, often with fillers or other ingredients, it is unclear what share of the weight or value of the seizure can be attributed to the controlled species, if any. A recent study of herbal dietary supplements was only able to authenticate 48% of the products tested and found that most (59%) of the herbal products tested contained species of plants not listed on the labels.

For the purposes of this sub-section below, each seizure record was placed into a category to determine whether seizure records were small scale or large scale in nature.

Small scale seizure records were reported most frequently. For instance, 73% of number (no.) seizure records consisted of <5 items per seizure record. This was also similar for units reported in kilograms, where 85% of all kilogram records consisted of <1kg per seizure record (*Figure 7*). Large scale seizure records were reported less frequently. For instance, 1% of all the records reported in no. consisted of >500 items per seizure record. (*Figure 7*).

Figure 7. Volume in seizure records, according to units reported as "number" and "kilogram" (2016 to 2020)
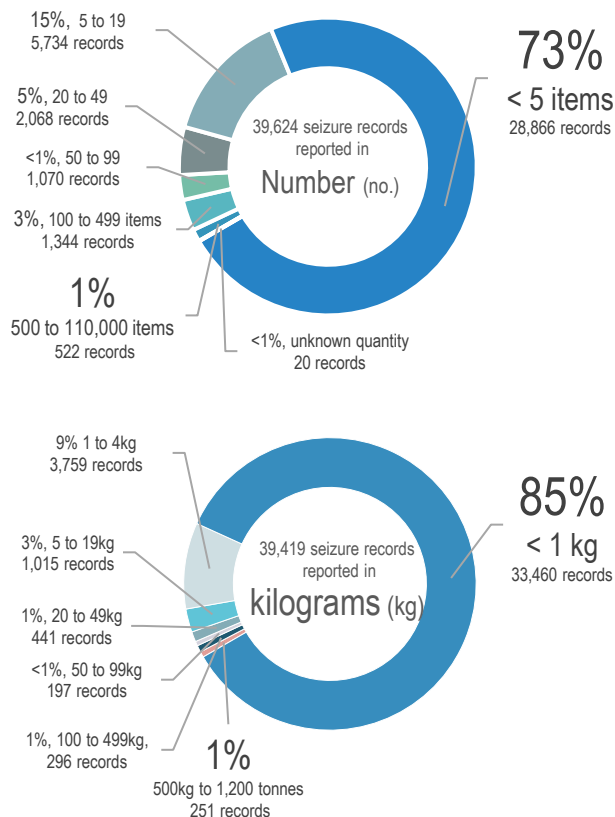
15%, 5 to 19
5,734 records

5%, 20 to 49
2,068 records

<1%, 50 to 99
1,070 records

3%, 100 to 499 items
1,344 records

1%
500 to 110,000 items
522 records

39,624 seizure records reported in
Number (no.)

73%
< 5 items
28,866 records

<1%, unknown quantity
20 records

9% 1 to 4kg
3,759 records

3%, 5 to 19kg
1,015 records

1%, 20 to 49kg
441 records

<1%, 50 to 99kg
197 records

1%, 100 to 499kg,
296 records

1%
500kg to 1,200 tonnes
251 records

39,419 seizure records reported in
kilograms (kg)

85%
< 1 kg
33,460 records

Source: CITES AITRs shared with ICCWC for research purposes.

Note: Medicines were excluded from this analysis.

While small scale records were reported more frequently, they involved a smaller number of items overall (44, 607 no. items in total or 1% of all no. items reported) (*Figure 8*) and lower weight overall (6,360kg in total or <1% of all kg reported) (*Figure 9*). In contrast, large scale records were reported less frequency but involved more items overall (2,814,949 no. items or 85% of all items reported as no.) (*Figure 8*) and more weight overall (2,843,306 kg in total or 96% of all kg reported) (*Figure 9*).

Given that fewer specimen types are recommended to be reported as cubic metres, the number seizure records

reported was less than that of kilograms (kg) and number (no.). However, the majority were also small-scale records (79% of all cubic metre records consisted of <1m^3 per seizure record) and large-scale records were reported less frequently (<1% of all cubic metre records consisted of >1,000m^3 per seizure record). However, the small-scale records involved less items overall (485m^3 in total or 1% of all cubic metres reported) and large-scale records involved more volume overall (39,047m^3 in total or 93% of all cubic metres reported).[11]

Many of the small-scale records were detected at airports. However, this is not necessarily related to the enforcement effort in detecting smuggled wildlife perse, but rather enforcement effort is facilitated by a system already in place. All airports have systems and frameworks to screen and inspect passengers and their luggage to reduce the risk of security threats. This results in a higher detection rate of smuggled wildlife compared to other seizure locations such as mail centres and seaports. For instance, the high number of containers shipped each year combined with the huge volumes per container, make it almost impossible to inspect all cargo containers (e.g., only 2% of the 800 million 20ft containers shipped a year are inspected efficiently).[12] There simply is not enough capacity and resources available.

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[11] Other units were not as significant in terms of number of seizure records nor the total volume/weight/quantity (e.g., 611 seizure records of 3,411 Litres, 4 seizure record of 8 Metres, and 9 seizure records of 10.09 m2). Non-standardized units were not assessed.

[12] FIATA. (2021). Maritime supply chain actors brought together to step up collaborative efforts to tackle timber and wildlife trafficking in container shipping. *News Article*. https://www.ftalliance.com.au/newsdetails/23308

Figure 8. Quantifying a seizure record: total number of seizure records and total quantity of items per volume category, 2016 to 2020
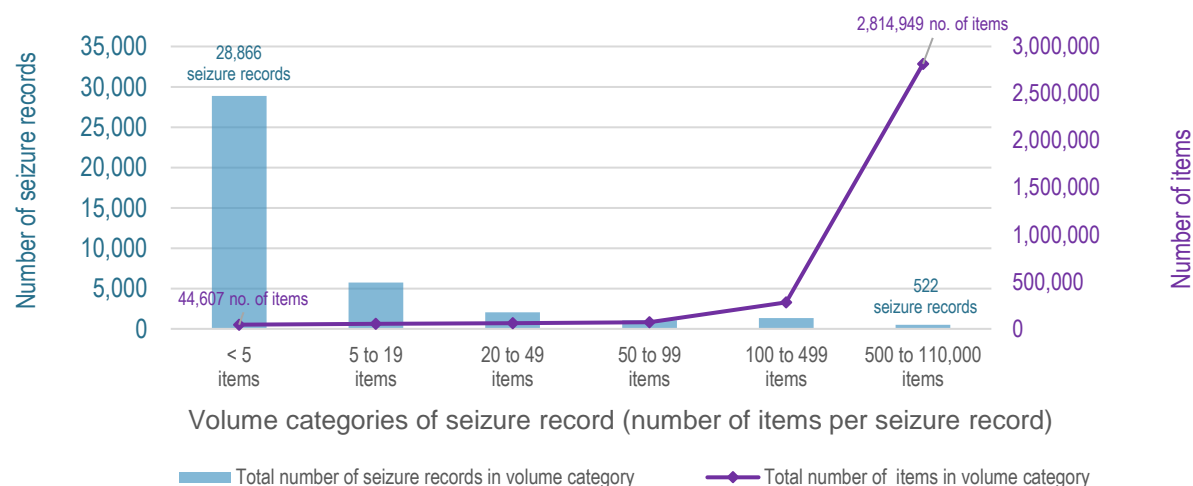
Source: CITES AITRs shared with ICCWC for research purposes.
Note: Medicines were excluded from this analysis.

Figure 9. Size reported in a seizure record: total number of seizure records and total weight (kg) of items per volume category, 2016 to 2020
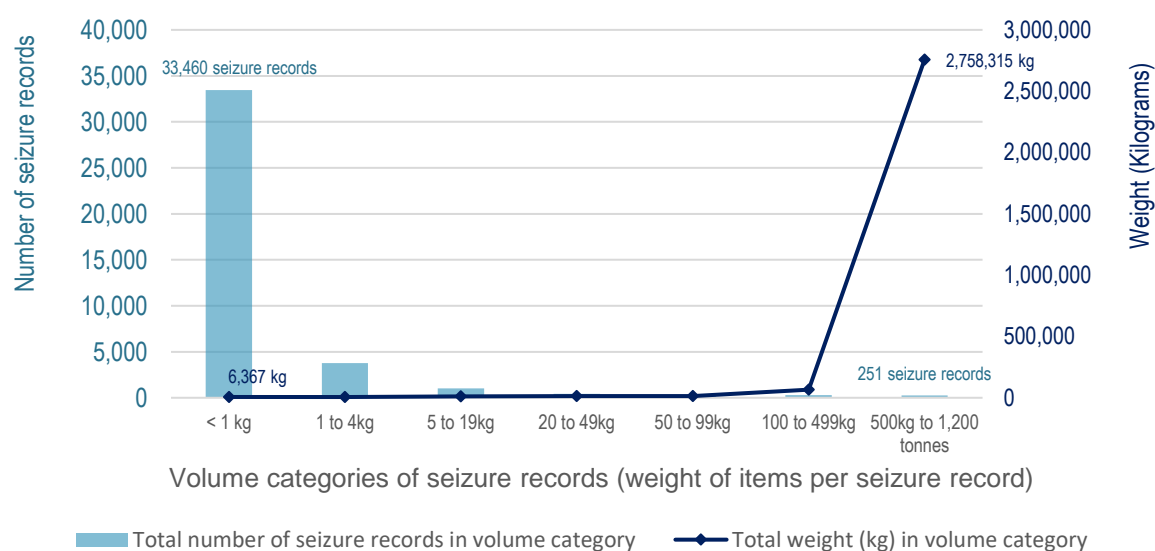
Source: CITES AITRs shared with ICCWC for research purposes.
Note: Medicines were excluded from this analysis.

2.2.2   TYPES OF SPECIMENS

Ten specimen types were most frequently reported during the 2016 to 2020 reporting period (80% of all seizure records). These top ten specimen types involved non-living coral, live specimens, medicines, shells, meat, leather products (large and small), roots, ivory (all ivory codes, including tusks), bodies and

extracts. Another 10 specimen types represented an additional 12% of all seizure records (timber/logs, wood products, stems, caviar, skins, feathers, teeth, skulls, cosmetics, and derivatives) (*Figure 10*). The remaining 8% of seizure records were represented by 90 other specimen types or were unknown. Preferred units were not reported consistently, so some specimen types are shown in more than one unit category (e.g., some non-living corals seizure records are reported in weight while other seizure records reported in "number" of items). A more detailed analysis of the top

5 specimen types in more detail can be found in *Annex II*.

However, it is important to note that these specimen types are influenced by Parties that reported the most seizure records. New Zealand reported 41% of all seizure records, meaning the analysis of specimen types is influence by New Zealand data and could change if more Parties were to submit and share seizure data. Given that New Zealand does not have a personal and household effects exemption, it is possible that many of these specimen types are associated with travel and relocations.

Figure 10. Top 20 most frequent specimen types, by seizure records (2016 to 2020)
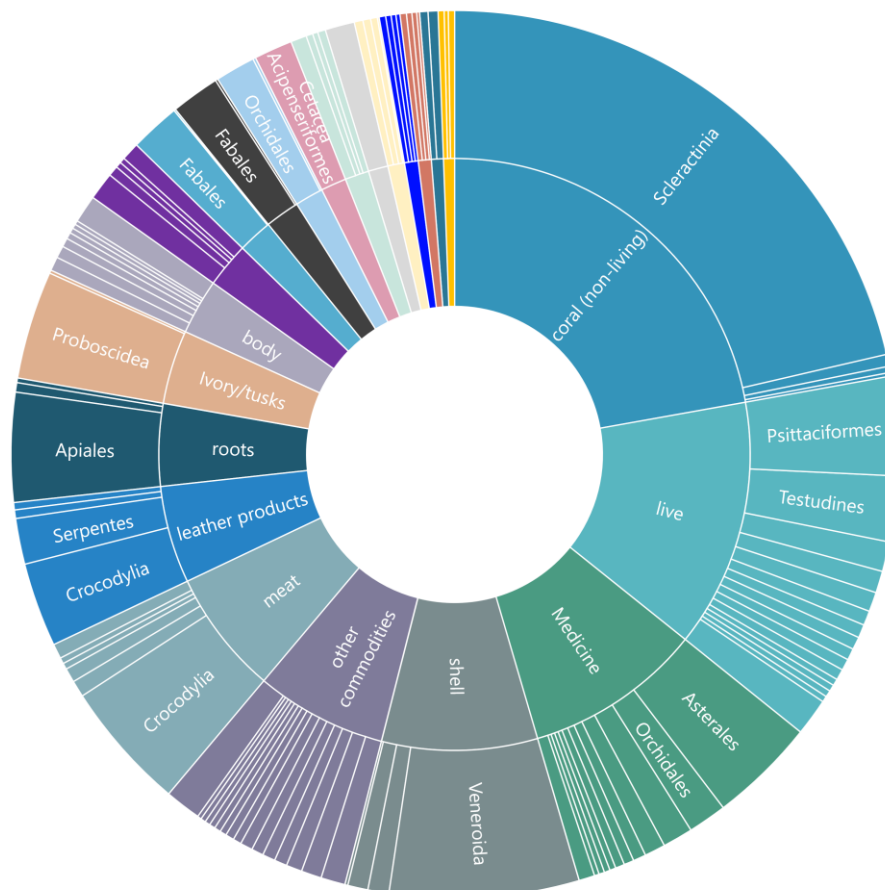
Source: CITES AITRs shared with ICCWC for research purposes.

Depending on the purpose of analysis, the frequency of seizure records may be sufficient. However, it does not take into consideration other key factors such as the volume of a seizure, nor does it give any

indication on the impact or severity of illegal trade on the species in question. For example, non-living corals accounted for over 20,000 seizure records (22% of all reported seizure records), but each seizure

record varied in terms of quantity, weight and species among seizure records (e.g., one small seizure record of 1kg of *Scleractinia,* one large seizure record of 22,900 kg of *Tubipora musica,* and one seizure record of 2,669 *Agaricia agaricites*). This highlights the variability of seizure records and risk of analysing data purely on frequency of seizure records.

Some specimen types were not well represented in *Figure 10* since they do not occur frequently, but nonetheless are significant in terms of volume (e.g., high number of items/kilograms/cubic metres per seizure record). The 10 largest seizure records reported in the units "no.", "kg", and "m³" were meat, derivatives, cosmetics, feathers, live, bodies, wood products, logs/timber, sawn wood, chips, and unknown specimen types involving tree species (*see Table 3 In next section*).

Therefore, it is important to consider both the number of seizure records, but also the overall volume of specimen types reported. *Figure 11* and *Figure 12* highlight the top 10 specimen types in terms of either highest number of seizure records and/or overall volume.

For example, for units reported as number, leather products were reported more frequently (4,771 records or 10% of all records reported as no.) but they involved fewer items overall (30,837 items or 1% of all items reported as no.). Feathers on the other hand were reported less frequently (700 records or 1% of all records reported as no.), but involved more items overall (598,032 feathers or 14% of all items reported as no.) (*Figure 11*).

For example, for units reported as kilograms, non-living corals were reported more frequently (16,814 records or 42% of all kg unit records), but involved a lower weight overall (13 tonnes or 4% of all kg reported). Logs on the other hand were reported less frequently (134 records or <1% of all kg records), but involved more weight overall (1,906 tonnes or 64% of all kg reported) (*Figure 12*).

Only a few specimen types are recommended to be reported as cubic metres, and while the number seizure records reported was low, they involved a significant amount of volume:1,578 seizure records totalling 41,770 m³. Timber was reported more frequently (1,336 records or 85% of all m³ records) but involved less overall volume (849 m³ or 2% of all m³ reported). Sawn wood on the other hand was reported less frequently (16 records or 1% of all m³ records) but involved more volume overall (33,080 m³ or 81% of all m³ reported).

Figure 11. Top 10 specimen types by highest number of seizure records and/or highest number of items (2016 to 2020)
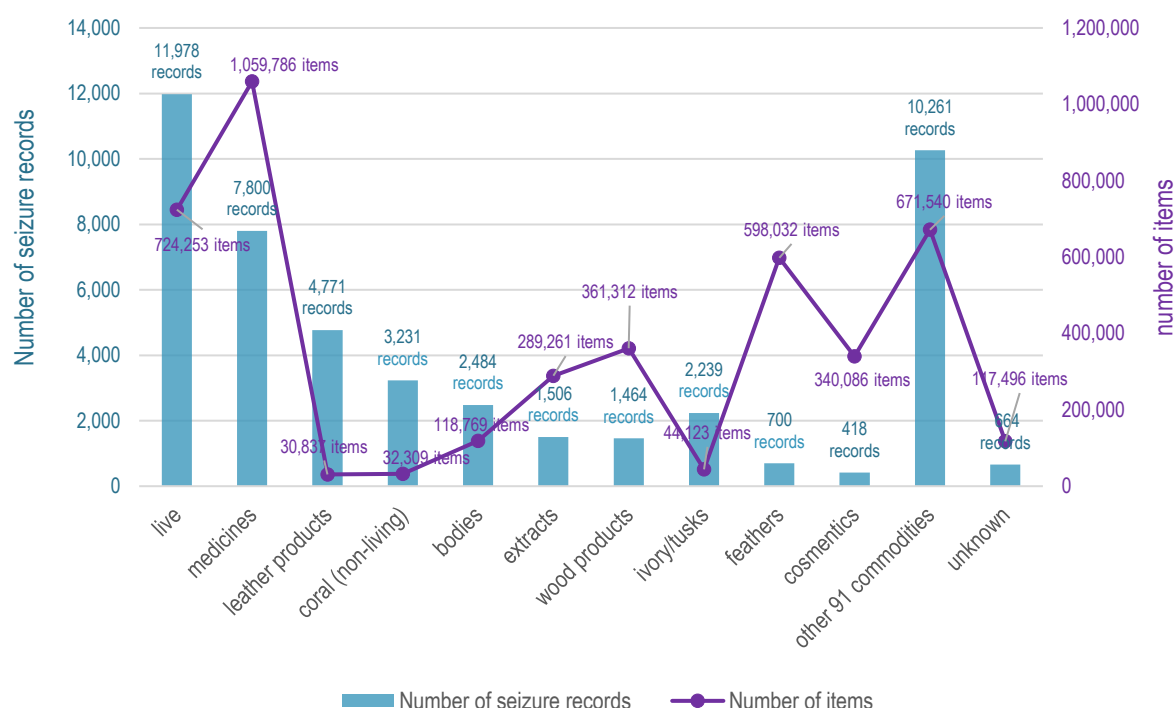
Source: CITES AITRs shared with ICCWC for research purposes.

Figure 12. Top 10 specimen types by highest number of seizure records and/or largest weight (kg), (2016 to 2020)
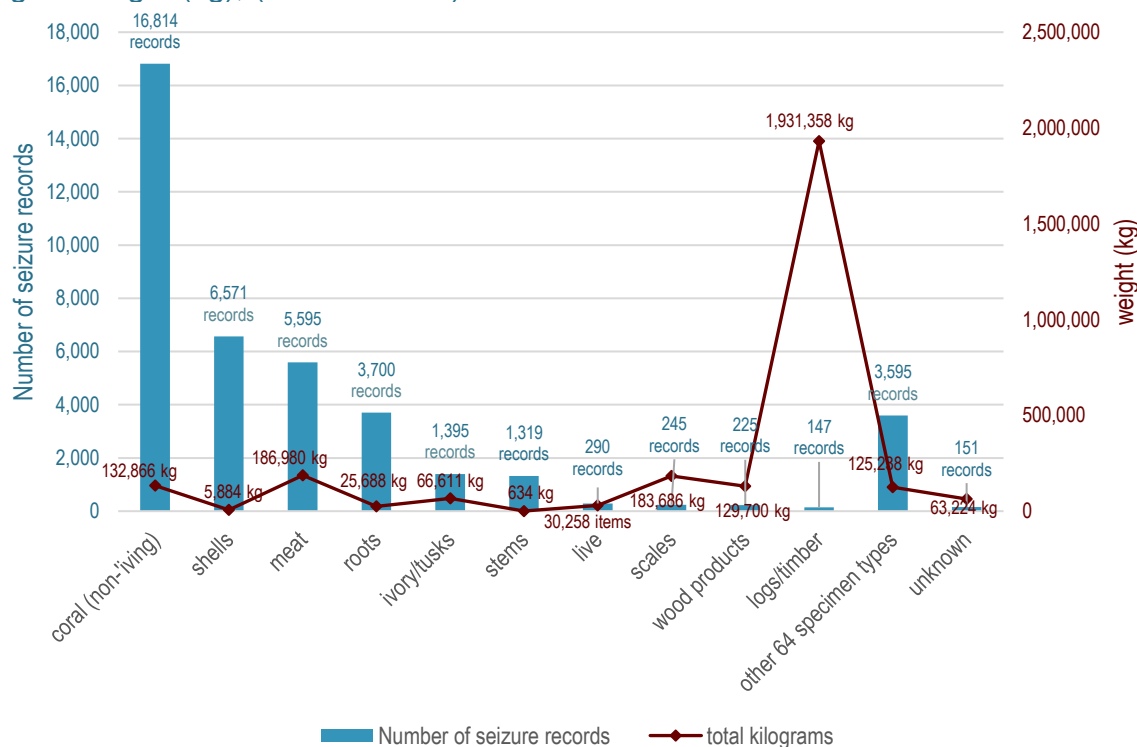
Source: CITES AITRs shared with ICCWC for research purposes.

Seizure records are represented by a wide range of taxonomic groups, with almost half of the total seizure records being flowering plants and corals (42,231 seizure records or 49%), followed by reptiles (18%), mammals (13%), marine and freshwater molluscs (8%), birds (7%), ray finned fishes (3%), conchs (2%) and another 14 classes (2%) (*Figure 13*).

Species level information is not always reported in seizure data, in fact only 54% of seizure records (49,052 records) indicated the species name (1,715 distinct species reported). The remaining 46% instead reported the genus (23% or 21,084 records), family (10% or 9,086 records), or order (12% or 11,291 records).

Identification to species level can be extremely difficult for the untrained eye and/or impossible without DNA sequencing. This has been justification for some species being listed under the "look alike" clause. It is also possible that multiple species in the same genus are impacted by trade justifying a broader-level listing (e.g., genus, family, or order level listing). In such cases, identification to species level is not always needed for a seizure to be made. For example, all stony corals are listed under Appendix II as a order listing (Scleractinia spp.), thus species level information is not needed for a seizure to be made so the species name may not be reported.

Given the taxonomic data reported, a genus level analysis[13] allowed for a broader assessment that still captured the species most frequent in trade (in terms of number of seizure records). A total of 917 genera were specified in the seizure records, and

Figure 13. Number of seizure records, by taxon class, 2016 to 2020
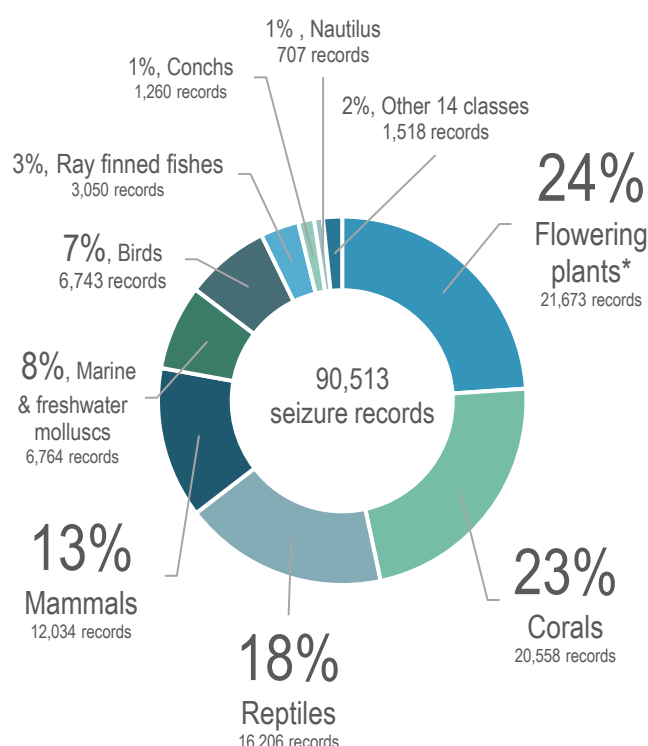
Source: CITES annual illegal trade reports that shared data for research purposes

* Class taxonomy in plants is complex, therefore all flowering plants were grouped into one category.

just 20 of these genera accounted for almost half of all seizure records (43,685 records or 48% of all seizure records). This included a variety of genera such as giant clams, stony corals, ginseng, kuth, rosewood, crocodiles, staghorn coral, elephants, orchids, alligator, brain corals, pythons, conchs[14], aloe, Mediterranean tortoises, pangolins, and sea horses (*Table 2*).

However, it is important to note that these genera are influenced by Parties that reported the most seizure records. New Zealand reported 41% of all seizure records, meaning the analysis of genera is

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[13] A total of 70,136 seizure records (77% of all seizure records) reported the genus.

[14] All seizure records reported *Strombus gigas* (is the only *Strombus* spp. listed under CITES)

influence by New Zealand data and could change if more Parties were to submit and share seizure data. Give New Zealand does not have a personal and household effects exemption, it is possible that many of these genera are associated with travel and relocations.

Table 2. Top 20 genera in number of seizure records (2016 to 2020)

Genera	Number of seizure records	% total seizure records
Tridacna spp.	5555	6%
Pocillopora spp.	4382	5%
Panax spp.	3951	4%
Saussurea spp.	3754	4%
Dalbergia spp.	3236	4%
Crocodylus spp.	3129	3%
Acropora spp.	2606	3%
Loxodonta spp.	2448	3%
Dendrobium spp.	1604	2%
Alligator spp.	1411	2%
Favites spp.	1395	2%
Python spp.	1374	2%
Strombus spp.	1249	1%
Aloe spp.	1229	1%
Porites spp.	1194	1%
Testudo spp.	1191	1%
Manis spp.	1122	1%
Leptoria spp.	1012	1%
Favia spp.	970	1%
Hippocampus spp.	873	1%
Other 897 other genera	26451	29%
Higher taxa	20377	23%
Total	90513	

Source: CITES AITRs shared with ICCWC for research purposes.

While this may indicate the genera most frequently seized, it does not consider the scale (e.g. volume/weight/quantity of the seizure record), nor does it consider the specimen type (e.g. live vs medicine).

Medicines are typically removed from UNODC analysis given the uncertainty around the ingredients (see *Box 3 in section 2.2.1 Volume of a seizure record*), they were included in this analysis for CITES to provide a factual depiction of the top genera reported in illegal trade. The genera analysis was not significantly influenced by medicine (MED), the only difference when including medicines was three different species being included in the top 20 genera (*Saussurea* spp., *Aloe* spp., and *Hippocampus* spp.). If medicine were excluded, *Amazona* spp., *Panthera* spp., and *Acipenser* spp., would instead be considered in the top 20 genera. A more detailed analysis of the top 5 genera in more detail can be found in *Annex II.*

Some genera were not well represented in *Table 2* since they do not occur frequently, but nonetheless are significant in terms of volume (e.g. high number of items/kilograms/cubic metres per seizure record). The 10 largest seizure records reported in the units "no.", "kg", and "m³" were ramin, sea cucumber, orchid, peafowl, eels, sturgeon, leeches, corals, cacti, rosewood, kosso, sharks, mahogany, and ash (*Table 3 next page*).

Therefore, it is important to consider both the number of seizure records, but also the overall volume of genera reported. *Figure 14* and *Figure 15* highlight the top 10 genera reported in terms of either highest number of seizure records and/or overall volume. For example:

- *Pavo* spp. were reported less frequently (219 records or <1% of all record reported as no.) but involved more items overall compared to other genera (589,221 feathers or 13% of all items reported (*Figure 14*).

- *Tridacna* spp. were reported more frequently (5,189 records or 13% of all records reported in kilograms), but involved a lower weight overall (4,343 kg or <1% of all kg reported) (*Figure 15*).
- Units reported as cubic metres (m³): *Dalbergia* spp. were reported more frequently (1,493 records or 95% of all m³ records) but involved less overall volume (1,001 m³ or 2% of all m³ reported). *Cedrela* spp. on the other hand was reported less frequently (69 records or 4% of all m³ records), but involved more weight overall (33,934 kg or 81% of all m³ reported).

2.2.4 TRADE ROUTES: SOURCE AND DESTINATIONS

The alleged origin and alleged final destination are influenced by Parties that reported the most seizure records. Thus, some of the top origin Parties will be those related to travel/transport to New Zealand (given New Zealand reported 41% of all seizure records). There will be less bias with destination Parties (aside from New Zealand as a destination country). This bias can be reduced if more Parties were to submit and share seizure data, it would change the distribution depicting a more accurate representation of the origin and destination of smuggled wildlife.

Table 3. Reported taxon in largest seizure records (2016 to 2020)

Taxon	specimen type	quantity	unit
10 largest seizure records in no.			
Gonystylus spp.	wood products	209,200	no.
Isostichopus fuscus	meat	146,700	no.
Cremastra appendiculata	derivatives	120,000	no.
Acipenseridae	cosmetics	107,625	no.
Pavo cristatus	feathers	100,240	no.
Cactaceae	live	76,032	no.
Pavo cristatus	feathers	72,368	no.
Anguilla anguilla	live	70,000	no.
Acipenser baerii	cosmetics	65,975	no.
Hirudo verbana	bodies	62,500	no.
10 largest seizure records in kilograms			
Pterocarpus erinaceus	logs	1,238,670	kg
Dalbergia spp.	logs	181,590	kg
Anguilla spp.	meat	77,200	kg
Dalbergia cochinchinensis	logs	73,145	kg
Dalbergia spp.	logs	54,200	kg
Pterocarpus santalinus	logs	51,600	kg
Dalbergia spp.	wood products	38,080	kg
Isurus oxyrinchus	bodies	26,220	kg
Tubipora musica	non-living coral	22,950	kg
Pterocarpus santalinus	logs	20,530	kg
10 largest seizure records cubic metres			
Cedrela odorata	sawn wood	15,269	m³
Cedrela odorata	sawn wood	9,042	m³
Cedrela odorata	sawn wood	8,449	m³
Fraxinus mandshurica	wood products	6,287	m³
Pterocarpus santalinus	chips	413	m³
Cedrela odorata	sawn wood	216	m³
Cedrela odorata	unknown	130.6	m³
Cedrela odorata	unknown	109.39	m³
Cedrela angustifolia	unknown	106.27	m³
Cedrela odorata	unknown	67.99	m³

Figure 14. Top 10 genera reported by highest number of seizure records and/or highest number of items (2016 to 2020)
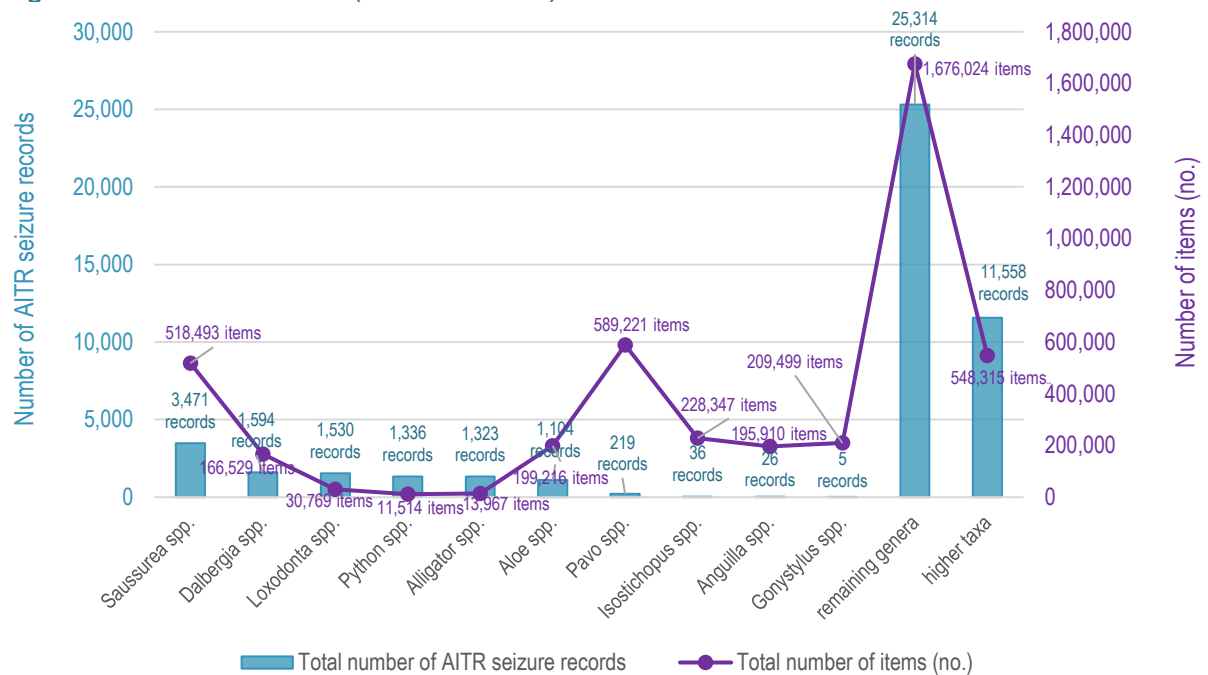
Source: CITES AITRs shared with ICCWC for research purposes.

Figure 15. Top 10 genera reported by highest number of seizure records and/or largest weight (kg), (2016 to 2020)
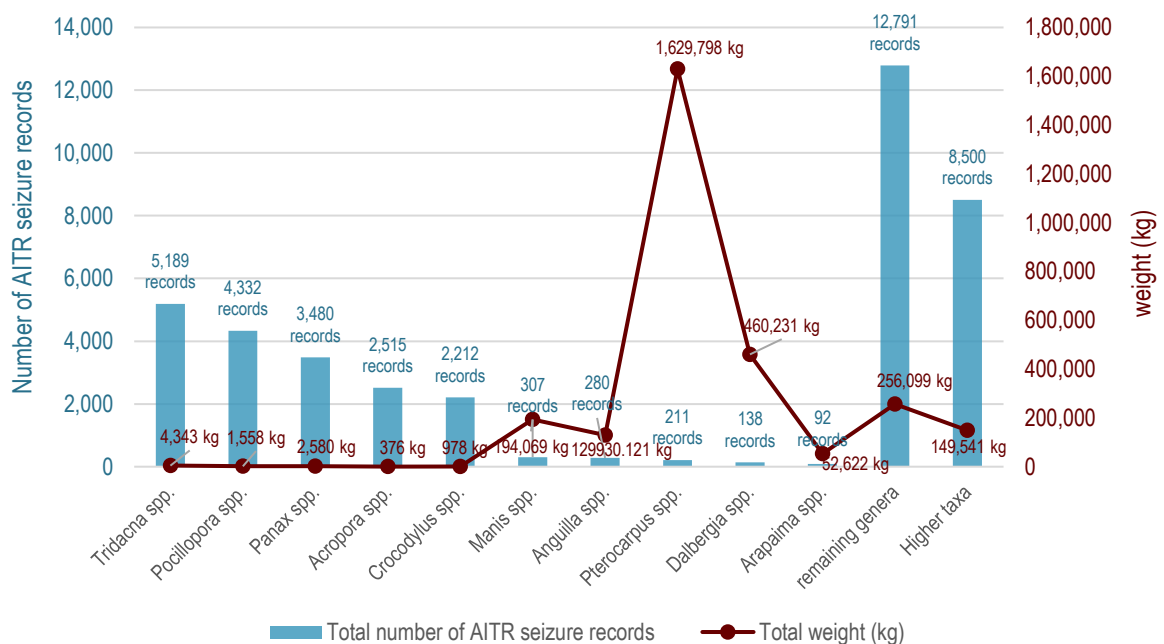
Source: CITES AITRs shared with ICCWC for research purposes.

Alleged origin

A total of 64,072 seizure records (71% of all seizure records) provided the alleged country of origin, while origin was not reported in the remaining 29% of records (*Figure 16*). Ten Parties accounted for 65% of the unknown origin: China (including Hong Kong Special Administrative Region (SAR), Macao SAR and Taiwan Province of China), Australia, non-Party Cook Islands, Fiji, the USA, Thailand, Indonesia, Tonga, Vanuatu, and Samoa. A more detailed analysis of the top 5 country of origin in more detail can be found in Annex II.

Alleged final destination

A total of 55,431 seizure records (61%) provided the alleged final destination, while destination was not reported in the remaining 39% of records (*Figure 17*). Ten Parties accounted for 86% of the known final destinations: New Zealand, Germany, the Netherlands, the UK, France, China (including Hong Kong SAR), Australia, Japan, Spain, and the Czech Republic. A more detailed analysis of the top 5 final destinations in more detail can be found in Annex II.

Figure 16. Parties of origin identified by seizure records (2016 to 2020)

Source: CITES AITRs shared with ICCWC for research purposes.

Figure 17. Parties of final destination identified by seizure records (2016 to 2020)
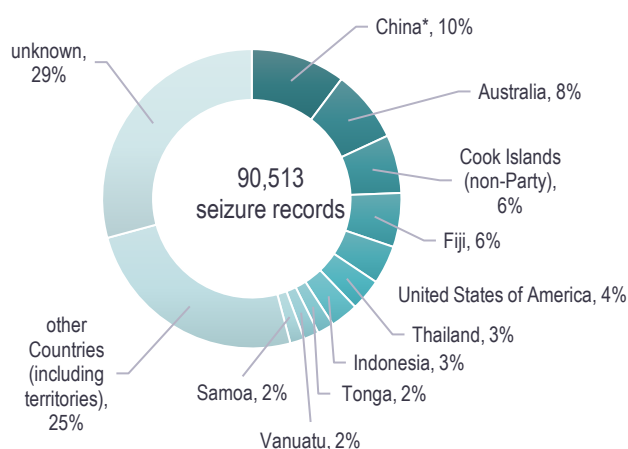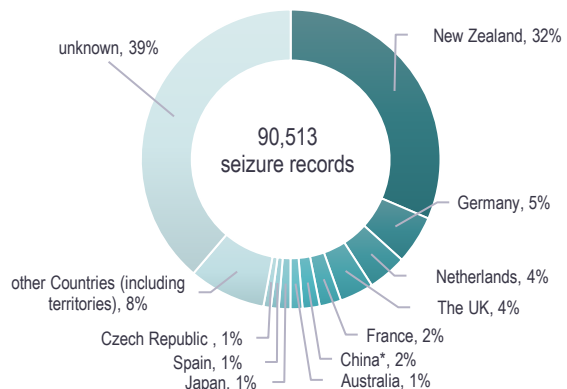
Source: CITES AITRs shared with ICCWC for research purposes.
* China includes Hong Kong SAR, Macao SAR and Taiwan, Province of China

Trade routes

Only 56% of all seizure records (50,480 records) reported both the alleged country of origin and the alleged final destination. Information on the transiting country(ies) was not well reported (4% of all seizure records). Therefore, routing data was not analysed.

However, for 69% of the 50,480 records mentioned above that reported both origin and destination, 31 Parties (or dependent territories) were identified for more than 200 seizure records (e.g. over 5,000 records reported Australia as the source and New Zealand as the destination) (*Table 4*).

2.2.1 DETECTING AGENCY AND MODE OF TRANSPORT

The detecting agency and mode of transport are influenced by Parties that reported the most seizure records. New Zealand reported 41% of all seizure records and given they are an island and employs stricter than measures for personal and household effects, the data may reflect these circumstances.

Detecting agency

Almost all (99%) of seizure records specified a detecting agency, but these were not standardised and required cleaning and interpretation (see *section 2.3.3*).

The *Guidelines for the preparation and submission of the CITES annual illegal trade report* recommends using one of the four pre-selected options for detecting agency (Customs, Police, Wildlife Agency, Other). However, many Parties only provided the name of the agency or an acronym, not the type of agency, or indiscriminately placed the agency in the category other when it corresponded to another category. Each country varied considerably in the number of agency names reported, which were also reported in various languages.

Where possible agencies were placed into the pre-defined categories (e.g. Department of Environment was placed into the "Wildlife Agency" category). Additional categories were created to accommodate some of the frequently reported detecting agencies. These included the following categories: "border agencies" and "multiple agencies/joint operations." Given the CITES MA can be in a range of agencies, a separate category was also created for this answer.

Table 4. Seizure records that reported both origin and destination for at least 200 records (2016 to 2020 seizure data)

Source	Destination	seizure records
Australia	New Zealand	5,062
Cook Islands (non-Party)	New Zealand	4,431
China*	New Zealand	4,375
Fiji	New Zealand	4,077
China*	Netherlands	1,928
Tonga	New Zealand	1,316
Thailand	Germany	1,163
Vanuatu	New Zealand	1,089
Samoa	New Zealand	1,065
Indonesia	New Zealand	998
United States of America	New Zealand	961
French Polynesia (territory of France)	New Zealand	861
United States of America	Germany	852
Thailand	United Kingdom	807
China*	United Kingdom	652
Malaysia	New Zealand	464
New Caledonia (territory of France)	New Zealand	418
France	France	415
United States of America	United Kingdom	409
China*	Germany	359
Turkey	Netherlands	339
Thailand	New Zealand	328
Niue (non-Party)	New Zealand	321
Singapore	New Zealand	318
Switzerland	Germany	292
Ukraine	Poland	284
United Kingdom	China	278
Viet Nam	Czech Republic	257
Spain	Spain	252
Belgium	Belgium	239
China*	Australia	202
Total		34,812

Notes: * Includes Hong Kong SAR, Macao SAR, and Taiwan Province of China

Source: CITES AITRs shared with ICCWC for research purposes.

Border agencies and customs accounted for 60% of all records, followed by other, wildlife agencies, multiple agencies/joint operations, police, and CITES MA (*Figure 18)*.

The most commonly reported types of detecting agency varied depending on the region. For instance, border agency and customs were identified as the primary mode of transport in Oceania and Europe, while wildlife agencies were more prominent in Central and South America and the Caribbean, Asia, and Africa. North America often reported joint operations involving wildlife agencies (*Figure 19).*

Figure 18. Detecting agency reported in seizure records, 2016 to 2020
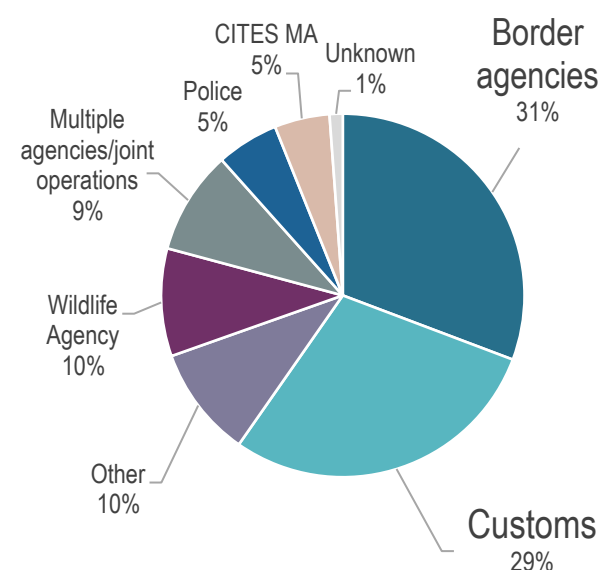
Figure 19. Detecting agency reported in seizure records, by region (2016 to 2020)
Source: CITES AITRs shared with ICCWC for research purposes.
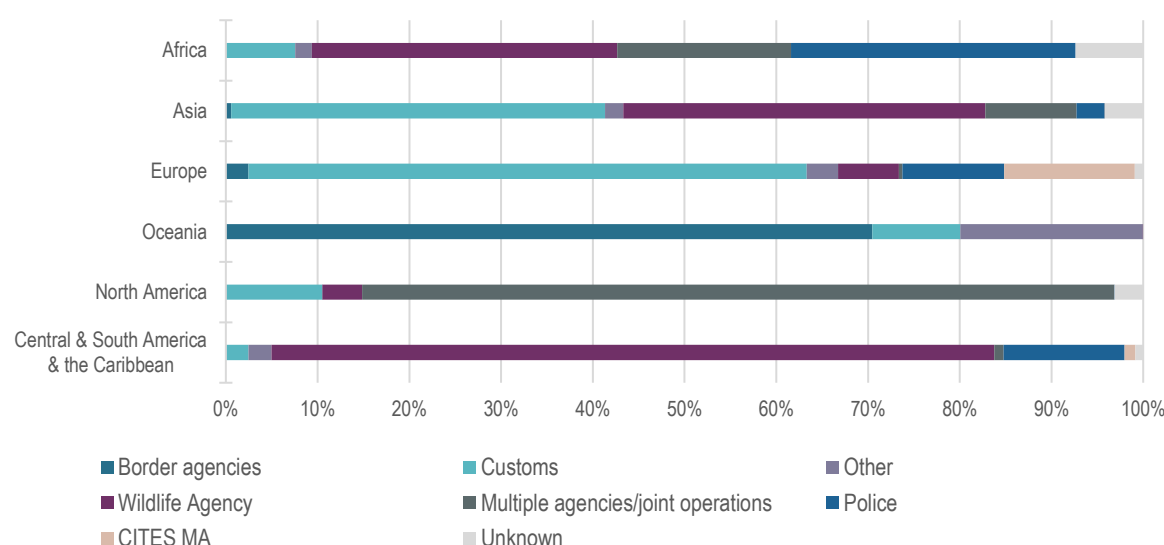
The *Guidelines for the preparation and submission of the CITES annual illegal trade report* recommends using one for the four pre-selected options for mode of transport (Air, Mail, Maritime, Rail, and Road). A small amount of seizure records (51 records), six recorded multiple modes of transport so only the last mode of transport was considered for this analysis (e.g., seizure records reported as "land,

air" was considered as "air" for the purposes of this report). In other cases, the pre-defined options were not specified so the records had to be inferred (e.g. "car" or "Honda" were reported which were placed in the "road" category). Where possible, records were placed into the pre-defined categories but not all records could be inferred and were instead placed into a new category called "Other." In the case of records reported as seized on premises

(e.g. private home), this was placed under "unknown."

Air was the main mode of transport for 57% of all seizure records, followed by mail (9%), road (4%), maritime (4%), rail and other (<1%), and unknown (e.g. seized on premises) (*Figure 20)*. However, when considering the overall weight (kg) of specimens seized, the main mode of transport for 78% was maritime followed by air and road (5% each). For seizure records reported in number, only 30% of all items were transported by maritime transport, 28% by air, 11% by mail, 9% by road, and 1% by other modalities. The mode of transport was not identified for 99% of seizure records reported in cubic meters (m³ reported).[15]

The decline in 2020 data is likely due to COVID-19 restrictions. Data reported by New Zealand was significantly lower in 2020 than in previous years. New Zealand had very strict border closures and international travelling was restricted, which inevitable affected the movement of wildlife products.

Figure 20. Number of seizure records and the mode of transport reported (2016 to 2020)
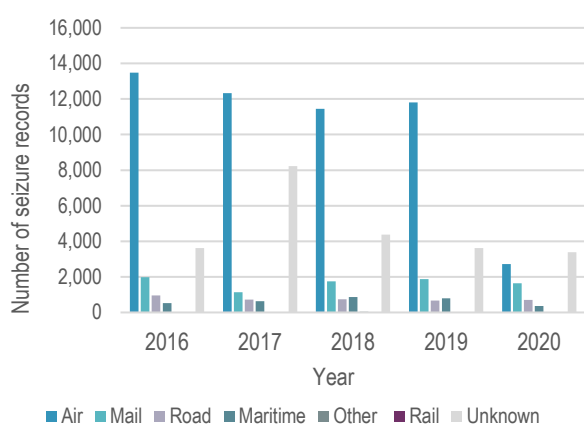
Source: CITES AITRs shared with ICCWC for research purposes.

[15] All of these were tree species (e.g. sawn wood, wood products, chips, timber, logs, etc.).

The mode of transport varied depending on the region. Almost all seizure records in Oceania reported air (92%) as the main mode of transport, while Africa reported road (41%), and to a lesser extent air (12%).

Europe primarily reported air (40%), but also mail (18%). When looking at the total quantity/weight of specimens, 45% of kg and 37% of items (no.) were reported by sea. Instead, only 15% of all kg and 26% of items (no.) were transported by air.

Asia primarily reported 30% by air and another 30% split equally by road and mail (15% each). However, when looking at the total quantity/weight of specimens, 92% of kg and 25% of items (no.) were transported by sea. Instead, only 3% of kg and 28% of items (no.) were transported air*.*

North America did not report the mode of transport for 62% of all seizure records, but most of the known mode of transport was air (22%) and mail (12%). When looking at the total quantity/weight of specimens, 30% of kg and 29% of items (no). were transported by sea

Central and South America and the Caribbean did not report the mode of transport for 92% of all seizure records.

2.2.2 MIXED SEIZURES

Unfortunately, many Parties did not include a national reference number in their AITRs, which could identify mixed seizure records (distinct species and/or different specimen types of the same species in the same seizure).

Some Parties used merged cells to identify mixed seizure events, while other Parties used the same national reference number

(e.g. 10 seizure records used the same national reference number for one seizure event). The *CITES Guidelines for the preparation and submission of the CITES annual illegal trade report* recommends including a national reference number or a case number which could facilitate communication with Parties should further information or clarification be needed concerning a specific seizure or incident.

National reference number (if available)
"It is suggested to include a national reference number or case number and no particular format for such a number is suggested. A national reference number could facilitate communication with Parties should further information or clarification be needed concerning a specific seizure or incident".

While Parties sought to report mixed seizures through merged cells or the use of national reference numbers, it was not always done in a standardized manner. As a result, analysis of mixed seizures was not possible. Some examples that complicated analysis included:

- Merged cells created several errors (now fixed) when uploading the data.
- The same national reference number was used for different dates in the

same year, as well as for different years (e.g., a national reference number of 12 was used for 2016, 2018, and 2020), meaning they could not be from the same seizure event.

- Some Parties highlighted national reference number cells to indicate mixed seizure records which was not picked up during data processing.
- The same national reference number was used for multiple seizure records seized at a specific location such as a mail centre or at a market (this likely referred to inspection event rather than items in the same package or market stall).

Given the multiple ways in which Parties documented mixed seizures, it was not possible to accurately analyse mixed seizure records to know if certain product types and species were routinely trafficked and seized together. A total of 66% of all seizure records (59,381 seizure records) recorded a national reference number, but as discussed previously, it is often unclear how these records are related. Improved guidelines are needed to ensure that mixed shipments are recorded in a way amenable to analysis.

MAIN FINDINGS: QUANTITATIVE ANALYSIS OF SEIZURE RECORDS

While an analysis of seizure incidents was not possible for this report, slight modifications to the reporting template could assist for future analysis. This could allow for analysis on mixed shipments (e.g., what species and/or specimen types are smuggled together). Currently, in a seizure incident involving multiple products from the same species or even multiple species data is reported on separate rows of data as recommended under the CITES *Guidelines for the*

preparation and submission of the CITES AITR:

3. Specific instructions: Species
"Only one species should be included per row of the illegal trade report. If more than one species and/or more than one type of specimen for a specific species were seized during the same incident, these should be recorded on separate rows, each with corresponding quantity and unit, method of concealment, etc .

While some Parties have used national reference numbers to link seizure incidents together, it was not done in a standardized manner making analysis difficult.

The use of merged cells should be discouraged due to the difficulties and errors created during data cleaning and uploading processes. National Identification Numbers could be used but in a more standardized way such as the first three sets of digits standardized among all Parties referring to the country (XX), the year of seizure (20XX) and whether it is a mixed shipment (MS), followed by any additional identifying numbers or agencies would allow for analysis of mixed seizures. Not only would this provide insight into the species smuggled together, but it could also provide a better analysis of IWT data, focussing on seizure incidents rather than seizure records.

Wildlife seizure data are easy to mis-interpret and/or take out of context. This is due to their complexity given the variety of products and taxon they cover, and the incomparable scales and units of products and wildlife seized. Differences in enforcement and reporting capacity are also a contributing factor and can introduce bias to the data. There are various reasons why a specimen is seized, but this is not always known when looking at seizure data. It is difficult, if not impossible, to determine whether specimens were smuggled intentionally or accidentally, whether the seizure was a result of clerical errors on permits or intentionally falsified, or whether the specimen was seized or not seized due to challenges in identification, etc. Therefore, any interpretations of the analysis must consider these limitations.

There is substantial variability in the quantity of seizure records reported by Parties. While a Party may submit an AITR, the number of seizure records is of relative importance. A report with one or two seizure records is not comparable to a report with thousands of seizure records. Analysis will be influenced by the Parties that reported the most seizure. Despite these limitations, analysis has provided useful insight into IWT dynamics.

New Zealand has reported 41% of all seizure records in the CITES Illegal Trade Database, which must be considered while looking at the analysis of specimen types, species, source and destination of consignment, detecting agency and mode of transport. Despite this bias, New Zealand seizure records provide a unique perspective into wildlife trade dynamics considering the Party employs stricter domestic measures and does not have a personal and household effect exemption. Thus, any CITES related specimen requires a CITES permit to enter New Zealand. If not, the specimen will likely be seized upon entry, whether the item was intentionally imported or accidentally (e.g., person unwittingly bringing back a tourist souvenir from a CITES listed species).

Examples like New Zealand highlight the need to properly bound analyses of the AITR dataset and being clear on the assumptions made and caveats of the data. With more even reporting and improved quality as Parties develop and invest in their reporting, more advanced analyses will be possible.

There is a risk of misinterpreting seizure data if an analysis only considers the number of seizure records, because it does not consider the volumes, specimen types or species in a seizure record. While there may be a high number of seizure records reported, the actual volume in the seizure record may be quite low with only a few

items/weights per record (e.g. incidents of tourist souvenirs being seized at airports occur frequently, but each incident often involves only few items or few kilograms per event). Meanwhile, a low number of seizure records reported could still be significant if the volumes in the seizure record is high (e.g., cargo containers may not be seized often, but each incident can involve hundreds, if not thousands of specimens).

Seizure records varied in terms of volume ranging from a few items or few kg up to 209,000 items or 1,238 tonnes in a single seizure record. Most of the seizure records reported were small scale (i.e. few items or few kg in a single seizure record).[16] Some large-scale seizures were reported, but these represent a minority when compared to the scale of all seizure records reported. This does not suggest that illegal trade involved a higher number of small-scale shipments, rather it suggests that small-scale shipments are being reported by authorities more frequently. This likely has to do with the infrastructure, capacity, resources and expertise at different transporting locations to inspect and detect smuggled wildlife (e.g. airports vs seaports). Enforcement effort can be greatly facilitated by using existing infrastructure and systems already in place at transport locations to also detect smuggled wildlife.

For specimen types, taxon, origin and destination, detecting agency and mode of transport, New Zealand data biased the analysis. Therefore, any interpretation of the results must take this into consideration. Results would thus differ if more Parties were to submit and share

seizure data. Despite this, some interesting highlights of the data were: 80% of all seizure records involved just 10 specimen types[17]; 48% of all seizure records involved only 20 genera; the top ten Parties of origin accounted for 46% of all seizure records; the top ten destination Parties accounted for 53% of all seizure records; 57% of all seizure records were transported by air, but when considering the quantity/weight of specimens 78% of all kg and 30% of all items were transported by sea. Some specimen types and taxa were not well-represented in terms of number of records but were significant in terms of volume. This highlights the risks of only analysing data based on number of seizure records.

While Parties are commended for their efforts in identifying mixed seizure records, the method of doing so varied greatly among the Parties, making analysis impossible (e.g. merged cells, non-standardized national identification numbers). A standardized approach for future AITRs would greatly improve the ability to analyse data for mixed seizure events and could provide valuable insight into commodities and species smuggled together.

The number of seizure records reported by a Party is not an indicator of demand, but instead demonstrates both the presence of IWT in the country and the initiative of the relevant national authorities in addressing it. The number of seizure records reported by a Party is likely a reflection of their policies and priorities, and their ability to inspect shipments and report CITES violations. Reporting seizure records is one of the best ways to highlight the issues Parties are facing when dealing with IWT

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[16] Multiple items of a given species and/or different specimen types of the same species are reported on separate rows and treated as an individual "seizure record". Therefore, it is possible that some "small scale seizure records" involved multiple items/species that all belonged to a single seizure event. In such cases these small-scale seizure records could be larger in scale.

[17] Of these 80% of seizure records (72,494 records), just over half of them (39,508 records) reported a species name accounting for 1,704 different species. The remaining records (32,986 records) reported a higher taxa level.

and help to identify key species in trade, transit routes or simply origin and destination of consignment. In some instances, this could lead to greater opportunities or access to resources, funding, training, equipment, and capacity, which could be of great benefit for Parties struggling to deal with IWT.

Like other illicit data, IWT data is inherently biased by enforcement effort, reporting effort and detection rates. While the data may not be perfect, AITR data from Parties is the best evidence-based information available to inform decision making processes. At the very least it can help guide Parties on where to allocate resources and alert Parties to wildlife trade issues they were previously unaware about. At the most, it can help monitor the impacts that illegal trade has on wildlife and intervene where necessary, so it does

not endanger their survival in the wild. Reporting of seizure data can help identify priority issues and which Parties may benefit from additional resources and capacity to help address priority issues.

2.3 QUALITY ASSESSMENT OF SUBMITTED ANNUAL ILLEGAL TRADE REPORTS

2.3.1 TIMELINESS AND CONSISTENCY

Each CITES Party is required to submit a CITES AITR on all seizures involving CITES-listed species (including domestic seizures) from 1 January to 31 December (inclusive) by October 31st of the following year (same deadline as CITES Annual Reports). This gives Parties roughly 10 months to collate their seizures from various detecting agencies (i.e., police, customs, wildlife agency, etc.) before submitting their AITR to the CITES Secretariat.

Figure 21. Timeliness of 2016 to 2020 CITES AITR submissions
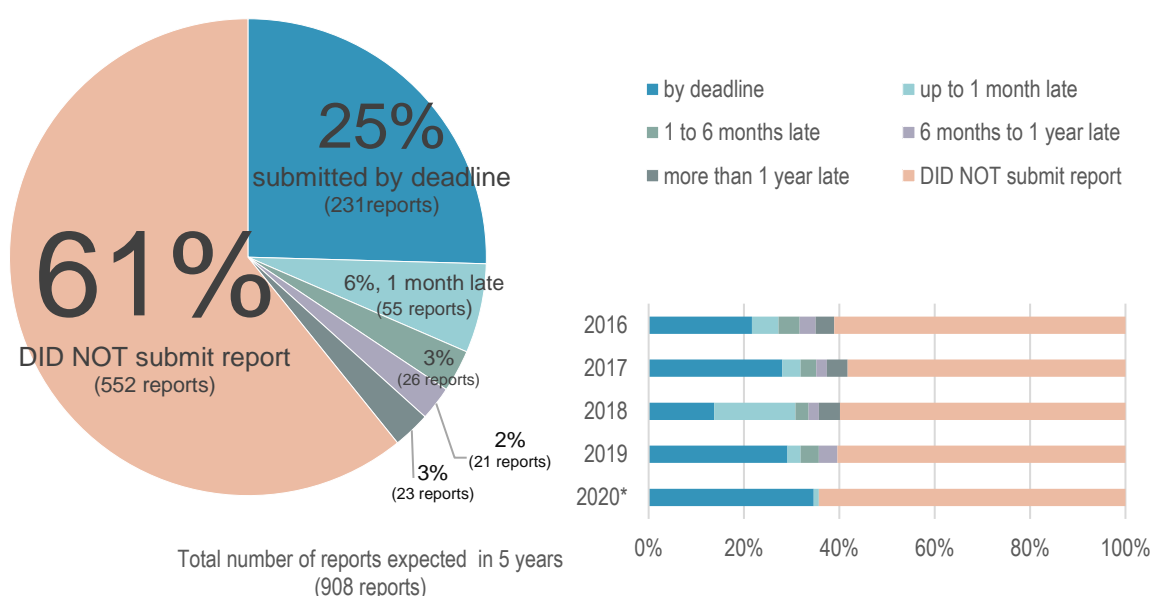
Source: CITES AITRs
Note: Includes all 2016 to 2020 AITRs submitted before 14 November 2021 (the cut- off period for report analysis). Any reports received after this point were not analysed. The 2020 submission rates may be lower than other years given this cut-off period.

Of the 356 Party AITRs submitted for the 2016 to 2020 reporting period, 65% (n=231) were submitted on or before the CITES deadline, with another 15% (n=55)

submitted 1 month late, 7% (n=26) submitted between 1 to 6 months late, 6% (n=21) submitted between 6 months to 1

year late, and 6% (n=23) submitted more than 1 year late (*Figure 21*).

While the overall number of AITRs submitted were consistent each year, timeliness of reporting was not consistent (noting cut-off period for analysis is 14 November 2021) (*Figure 21*).

Over the 5-year period, the Europe region submitted AITRs in the timeliest manner, followed (in order) by Asia, North America, Africa, Central and South America and the Caribbean and Oceania (*Figure 22*). However, caution should be used when looking at the regional breakdowns since

not all regions consist of equal number of Parties. Regions with fewer Parties portray higher variability in reporting over the 5-year period.

When looking at consistency for each year, there was a lot of variability in timeliness of submissions for all regions, except Europe (*Figure 22*). The European Parties that submitted reports, submitted them timely. Other Parties that submitted timely (by deadline or within a few days late) for each of the five reporting years included Singapore, Japan, Namibia, Tunisia, and South Africa.

Figure 22. Timeliness of AITR submissions, by region for 2016 to 2020 reports

Source: CITES Secretariat

Note: In 2016, two Parties joined CITES so for 2016 Asia had 37 Parties and Oceania had 8 Parties.

2.3.2   COMPLETENESS

All CITES AITRs shared with ICCWC for research purposes were assessed for completeness (e.g. 345 Party AITRs submitted by 91 Parties for the 2016 to 2020 reporting period). Each column variable was assessed to determine how much information was collected and reported (i.e. percentage of information availability). This section only considered whether the information was reported, not whether the reports were submitted as suggested in the *CITES Guidelines for the preparation and submission of the CITES annual illegal trade report*.

Figure 26 provides a summary of information availability (percentage available) for each "variable". Information availability has been calculated using two different approaches:
- a *total record approach* considered the percentage of records (i.e. the number of records reported for a given variable out of the total records that should have been reported). For example, ~90,000 seizure records were reported but only 49,000 records specified the species name, thus information availability was 54%).
- a *Party average approach* considered the percentage of records relative to the number of records each Party reported (e.g. the number of records reported for a given variable by a Party, out of the total records that should have been reported by that Party). For example, species name information availability for Party A was 25%, Party B was 100%, Party C was 75%, so total information availability was 67%).

Both methods provide valuable yet different information. For the *total record approach,* results can be biased by the Party reporting the most records, but it gives relevance and weight to the records actually reported and speaks to the quality of the database. *For the Party average approach,* Parties are weighted equally to see how complete data is relative to all records reported by a given Party, even though one Party might report fewer seizure records while another Party reports the majority of all seizure records. This gives a measure of how thorough Parties are at reporting the variables for all the seizure records they submit.

Only 6 variables (date of seizure, description of specimen, quantity, unit, location of incident, and detecting agency) had more than 90% information availability, regardless of the approach.
Another 4 variables (reason for seizure, mode of transport, alleged country of origin, and alleged final destination) had between 60% and 75% information availability, regardless of the approach. One variable (disposal of specimen) was between 55% and 60% information availability regardless of approach, and two variables (Parties of transit and estimated value) had less than 20% information availability, regardless of approach.

The information availability for the remaining variables varied depending on the approach used (*Figure 23*). There are regional differences in how seizure data is collected and reported, but such an analysis was beyond the scope of this report.

Figure 23. Completeness of annual illegal trade reports using variables from template, 2016 to 2020

Information availability (%)

Variable	seizure records weighted by country	total number of seizure records
1. National reference number	56.6%	66.3%
2. Full date of seizure	95.9%	99.5%
3. Species	67.7%	54.2%
4. Description of specimen	95.3%	99.0%
5. Quantity	98.9%	99.7%
6. Unit	98.7%	99.7%
7. Location of incident	92.2%	94.2%
8. Detecting agency	90.1%	98.6%
9. Method of detection	44.9%	23.6%
10. Reason of seizure	72.6%	74.9%
11. Mode of transport	66.4%	74.9%
12. Method of concealment	59.0%	40.1%
13. Alleged country of origin	65.1%	70.8%
14. Country(ies) of transit	7.9%	3.6%
15. Alleged final destination	60.2%	61.3%
16. Estimated value in country currency	15.5%	12.9%
17. Nationality of offenders	50.1%	15.7%
18. Law for charges	55.2%	34.6%
19. Sanction	42.1%	33.3%
20. Disposal of specimen	54.8%	60.1%

Source: CITES AITRs shared with ICCWC for research purposes.

Missing seizure records

The CITES Illegal Trade Database contains seizure data from government authorities that has been submitted via formalized CITES reporting requirements. However, there may be data gaps in reports submitted by CITES Parties. Evaluating the completeness of these AITR is possible by looking at data from other sources and comparing with the corresponding records submitted through the submitted reports.

In this sense, the UNODC has created another database (the World WISE Database) that contains data from additional sources such as government agencies, the World Customs Organizations (WCO), the European Union Trade in Wildlife Information eXchange (EU-TWIX), TRAFFIC, and the Environmental Investigation Agency (EIA), amongst others. Analysis of data from the World WISE Database can complement the CITES Illegal Trade Database by helping to provide a more comprehensive picture of

IWT, and identify where data gaps exist in AITR reporting, particularly in terms of reporting Parties.

Before use in analytical reports, such as the World Wildlife Crime Report, the records contained in the World WISE database go through a pre-publication process which allows Member States to validate the data used in the reports and contained in the database. The data are shared with Parties in a transparent manner, and governments are given the chance to comment on the data, correct it and provide new records to be considered for the report. This process was conducted last in 2020 for the Second World Wildlife Crime Report and will be repeated in the near future for the third version of this report.

Examples of seizures that have not been reported via AITRs but have been reported by other data sources in the UNODC World WISE database include:

- two related seizures involving 29.8 tonnes of pangolins in the form of full

frozen pangolins, live pangolins, and scales in 2019.

- One seizure involving 2,748 ivory tusks (7.48 metric tons) in 2019.
- One seizure involving 1,026 tusks (3.2 metric tons) in 2018.
- One seizure involving 3,446 kg of ivory in 2019.
- One seizure involving 762 pieces of elephant ivory (over 3 tonnes) and 423 kg of pangolin scales in 2019.

To further illustrate this point, *Pterocarpus* spp. from CITES AITRs were compared with another source (WCO-CEN data) included in the World WISE database. *Pterocarpus* spp. data for 2017 was used to highlight missing records. A total of 62 *Pterocarpus* spp. seizure records were reported in 2017 CITES AITRs[18]. When looking at the unit "kilogram," this corresponds to 55 seizure records with an estimated 1,268 tonnes documented via CITES AITR reporting, but according to WCO-CEN data, an additional 24 seizures (representing 203 tonnes) were not reported. This implies a total of 80 seizure records (representing 1,470 tonnes, 1 chip and 866 logs) *of Pterocarpus* spp. were seized in 2017, not the 55 seizure records reported in AITRs (*Figure 24*).[19]

Figure 24. Seizure records of *Pterocarpus* spp. reported in CITES AITRs and supplemented with additional records provided by WCO-CEN for 2017
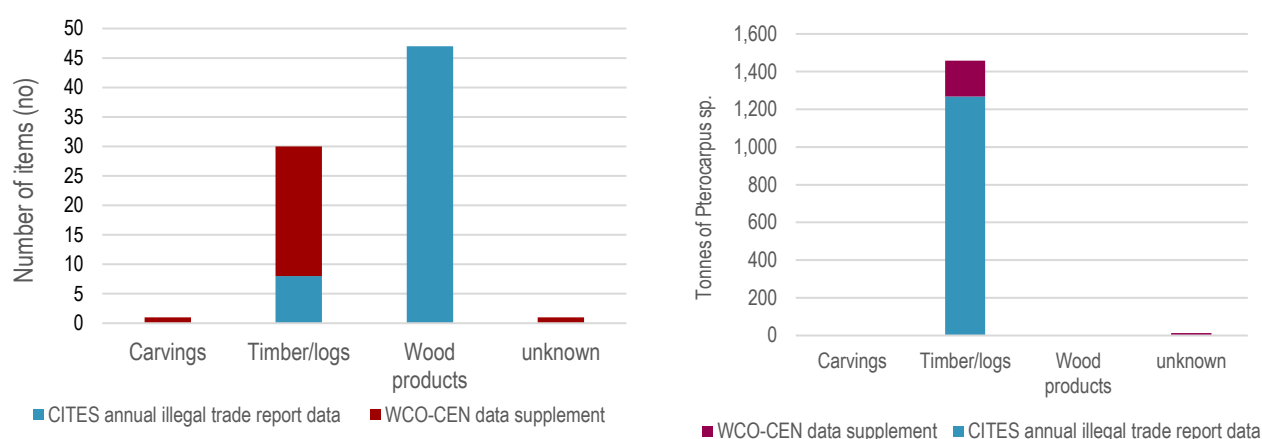
Source: CITES AITRs shared with ICCWC for research purposes and WCO-CEN data provided to UNODC.
Note: CITES AITRS reported eight records totalling 1,267 tonnes of timber/logs, 47 records totalling 245kg of wood products, one record of 1 chip, and six records totalling 866 logs. WCO-CEN provided an additional one record of 203 carvings, 22 records of 190 tonnes of timber/logs, and one record of unspecified wood weighing 12,8 tonnes.

Building on the consideration of these individual cases, a systematic examination of seizure data from AITRs versus seizure data from non-AITR sources provides further insights into the potential extent of missing seizure information from AITRs. This systematic examination makes use of a complex record linking procedure that uses Machine Learning models to link records in the CITES Illegal Trade Database

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[18] A total of 55 seizure records reported 1,268 Tonnes and another 7 seizure records reported 867 items (1 seizure record of 1 chip, 6 seizure records totaling 866 logs).
[19] While there is always the potential for different data sources reporting different units for the same seizure, the 24 seizure records reported by WCO-CEN data are not related to the seven AITR seizure records of chips and logs (non-kg records). The seven seizure records were reported from a different country than what the 24 WCO-CEN data reported.

with records in the UNODC World WISE database that correspond to the same seizure event.

For the Party and year combinations from 2016 to 2020 for which AITRs were received, approximately 91,000 seizure records were reported to the CITES Illegal Trade Database. At the same time, only taking into account those Parties and years for which AITRs were submitted, around 7,500 seizure events are contained in the World WISE Database from a variety of other non-AITR sources. A comparison of these sets of seizure records that makes use of the Machine Learning approach mentioned before, indicates that around 5,000 of the seizure events included in the UNOWDC World WISE database were not reported via AITRs.

Over three quarters of these approximately 5,000 seizure events not reported via AITRs correspond to European Parties, 15% to Asia, and the remaining took place in Africa, the Americas and Oceania. This is in line with the fact that the coverage of the non-AITR sources considered is significantly higher in Europe than in the rest of the regions, especially due to a large number of records from EU-TWIX.

While CITES AITRs are the primary source of IWT seizure data, this analysis shows that some seizure events may not be reported, possibly due to challenges in coordination at the national level across all relevant actors in charge of seizing illegal wildlife trade. This is an issue that seems to affect Parties from all regions. For example, in Europe there are a total of almost 32,000 records in the CITES Illegal

Trade Database. Almost 4,000 additional seizure events were identified among non-AITR sources of data, which took place in Parties that submitted the corresponding AITRs.

To further illustrate this point, *Pterocarpus* spp. from CITES AITRs were compared with another source (WCO-CEN data) included in the World WISE database. *Pterocarpus* spp. data for 2017 was used to highlight missing records. A total of 62 *Pterocarpus* spp. seizure records were reported in 2017 CITES AITRs[20]. When looking at the unit "kilogram," this corresponds to 55 seizure records with an estimated 1,268 tonnes documented via CITES AITR reporting, but according to WCO-CEN data, an additional 24 seizures (representing 203 tonnes) were not reported. This implies a total of 80 seizure records (representing 1,470 tonnes, 1 chip and 866 logs) *of Pterocarpus* spp. were seized in 2017, not the 55 seizure records reported in AITRs (*Figure 27*).[21]

2.3.3 ACCURACY AND CONSISTENCY

Adherence to the AITR template

All CITES AITRs shared with ICCWC for research purposes were assessed for adherence to the AITR template (e.g. 345 Party AITRs submitted by 91 Parties for the 2016 to 2020 reporting period). The large majority of Parties that submitted information through AITRs used the requested columns of the AITR template and thus adhered to the **overall structure** of the AITR template (307 of 345 AITRs; 89%) (*Figure 25*). Relatively high rates of adherence to the AITR template were associated with Oceania (11 of 11 AITRs;

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[20] A total of 55 seizure records reported 1,268 Tonnes and another 7 seizure records reported 867 items (1 seizure record of 1 chip, 6 seizure records totaling 866 logs).
[21] While there is always the potential for different data sources reporting different units for the same seizure, the 24 seizure

records reported by WCO-CEN data are not related to the seven AITR seizure records of chips and logs (non-kg records). The seven seizure records were reported from a different country than what the 24 WCO-CEN data reported.

100%), Europe (159 of 164 AITRs; 97%), Africa (56 of 61 AITRs; 92%), and Asia (66 of 76 AITRs; 87%), whereas lower rates of adherence to the AITR template were associated with Central and South America and the Caribbean (15 of 24 AITRs; 62%) and North America (4 of 9 AITRs; 44%). Importantly, when Parties do not adhere to the AITR template by adding, dropping, or combining columns, it can make processing the submitted information a lot more difficult and prone to error because extra steps and time are needed to convert the data into the standard template structure before incorporating the data into the CITES Illegal Trade Databases.

Accuracy of reported seizure characteristics

All CITES AITRs shared with ICCWC for research purposes were assessed for accuracy (i.e., the 345 AITRs submitted by 91 Parties for the 2016 to 2020 reporting period). This accuracy assessment was based on the systematic examination of the raw versions of the AITRs (data submitted to the CITES Secretariat, but not yet cleaned by UNODC). Reported information was treated as inaccurate if the Party did not adhere to the requested format of the *Guidelines for the preparation and submission of the CITES annual illegal trade report*. *Figure 26* shows the proportion of records for which inaccuracy is an issue, based on the Party average total record and approaches, as defined in the Completeness section above.

One of the most pervasive accuracy issues is for the misreporting of taxon. This issue is identified in 34% of all entries and the average proportion of entries in AITRs with this issue was 27%. The regions with the highest percentages of entries with this issue are Asia (67% of all entries; average proportion of entries across AITRs of 44%) and Oceania (59% of all entries; average

proportion of entries across AITRs of 53%). A reported taxon might not match with one in the CITES-listed species database for several reasons, including the reporting of common names; inclusion of additional text in the relevant column; misspelling of a taxon; reporting of synonyms of CITES taxon; and reporting of non-CITES taxon. Importantly, it can take a large amount of time to correct inaccurately reported taxa to suitable classifications and inaccurate reporting means they cannot be attributed to a classification. Given that taxon is one of the most important seizure attributes for analyses of seizure data and that the issue of inaccurately reported taxa is common, it would be particularly useful if the taxonomic information in received AITRs adhered more closely to the current CITES taxa nomenclature when completing AITRs.

Two other relatively common issues in the reporting of key seizure attributes relate to misreporting of units: unit choice and unit format. The AITR guidelines request that each specimen type be accompanied by a quantity measured in certain units. Misreporting was found for 20% of all entries and the average proportion of entries in AITRs with this issue was 14%. The regions with the highest proportions of entries with incorrect combinations of specimen descriptions and units were Oceania (26% of all entries; average proportion of entries across AITRs of 34%), Europe (20% of all entries; average proportion of entries across AITRs of 19%), and North America (15% of all entries; average proportion of entries across AITRs of 16%). In some cases, however, this issue might not be entirely an accuracy issue as per the definition of this report, as the respective Party may not have the necessary information to adhere to the requested combinations of specimen descriptions and units.

Figure 25. AITR adherence to the overall structure of the requested template.
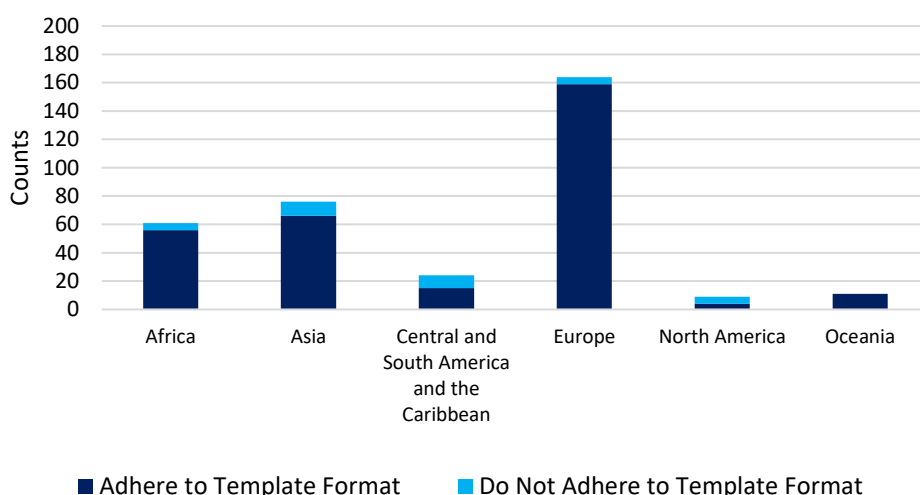
Figure 26. Prevalence of entries from AITRs with accuracy issues.
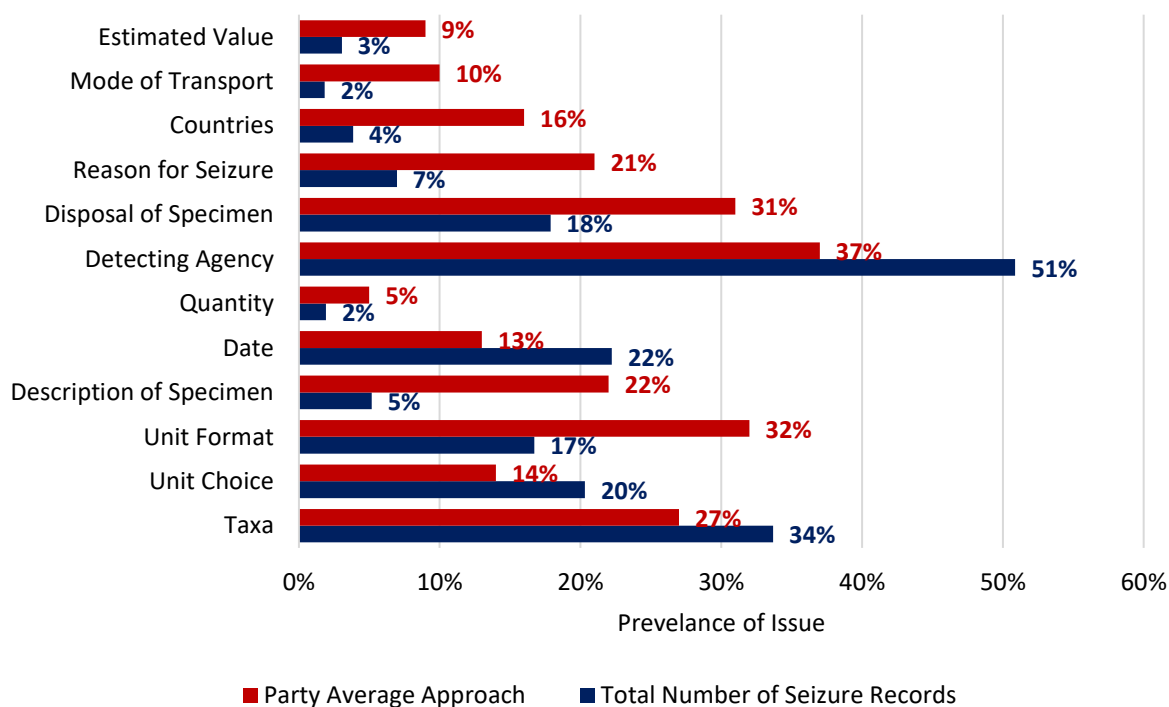
Furthermore, the AITR guidelines request that units are reported in a certain format, like 'kg' for kilograms and 'no.' for number of specimens. Yet, lack of adherence to these formats was found in 17% of entries, and the average proportion of entries in AITRs with units in an incorrect format was 32%. The highest rates of inaccurate unit format were associated with Central and South America and the Caribbean (92% of all entries). Nonetheless, in many cases the various ways of writing different units can usually be converted into the suitable formats with relative ease.

Inaccurately reported specimen descriptions were found across AITRs. Specimen types should be reported in AITRs as the relevant three-letter code, yet inaccurately reported specimen descriptions were found for 5% of all entries, and at higher rates in entries from Africa (25% of all entries) and Asia (22% of all entries). In practice, this issue usually

involves Parties describing specimens in a few words, which, in some cases, cannot be linked by UNODC to a three-letter specimen description code with confidence. The resultant lack of a specimen description then undermines the useful of relevant entries in certain analyses.

Accuracy issues were also identified for reported seizure date. The AITR guidelines request that dates be indicated in following format: DD/MM/YEAR or DD-MM-YEAR; yet inaccurately reported dates were relatively common, with this issue was found for 22% of entries, and the average proportion of entries in AITRs with inaccurately reported dates was 13%. This said, most of the inaccurately reported dates were in the formats that were easily corrected, such as '1st Jan 2020' and '1/1/2020'. The more challenging type of inaccurate dates to identify and correct is when dates are reported as 'MM/DD/YEAR' instead of 'DD/MM/YEAR', because identifying this issue requires consideration of many entries in the AITR and the assumption that the Party has kept the same date format throughout the AITR. Inaccurately reported quantities were found in only 2% of entries. The region with the highest proportion of entries with technically inaccurately reported quantities was Europe, mainly because several Parties in Europe reported two quantity values for substantial numbers of entries (e.g., count and mass). In total, 5% of the entries from Parties from Europe contained two quantities. Nevertheless, whilst the reporting of both a number and mass in the same cell is technically an inaccuracy, the receipt of both metrics of quantity can be valuable for various analyses. Hence, a script was developed to separate the reported number and mass for subsequent analyses.

Synthesis of the most common and relevant quality-related issues in AITR reporting

Examining the raw AITRs revealed several common and relevant quality issues (*Figure 25; Figure 26; Table 5*). In practice, some of these quality issues have a particularly notable impact on the time taken to process and incorporate entries into the CITES Illegal Trade Database, and on the usefulness of entries for analyses of the seizure records. For instance, as discussed in the previous section, one of the most pervasive issues in the submitted AITRs has been the **lack of adherence to the standardised codes** for several of the variables. A related issue is the inaccurate **reporting of species names**, whereby Parties do not keep to the binomial names of CITES-listed species, as per the CITES-listed species database, and, instead, report synonyms of species names in the CITES-listed species database, names of species that are not in the CITES-listed species database, non-CITES species names, higher-level taxonomic groups, or common names (*Table 5*). Another format-related issue, or at least source of uncertainty, relates to the use of different **date formats**, as previously mentioned. Such format-related quality issues can require a considerable amount of time to correct.

Several submitted AITRs have had issues with aspects of their structure; for instance, **merged cells** and entries that have contained **multiple types of specimens**. Once received, merged entries need to be unmerged and the emergent empty cells need to be filled, and entries with multiple types of specimens need to be appropriately split. These steps, which are needed to incorporate the submitted information into the CITES Illegal Trade Database, are time consuming and prone to error. Fortunately, however, these

issues relate to very small proportions of entries (entries that are merged with others: 1%; entries with multiple species or species types: 0.4%). On a similar note, issues also arise during data processing, when **multiple types of quantity** are reported for single entries. This issue was most common in AITRs from Europe where Parties would enter both a number and a mass within single cell (5% of entries from Europe).

Another quality issue that has a notable impact on the processing and use of entries is that many AITRs **lack national identification codes** to identify different seizures. This can lead to uncertainty over whether seizure records with shared characteristics (e.g., same day, location)

refer to a single seizure of multiple specimens or multiple seizures, which, in turn affects the insights from the analyses of such records

Finally, one of the most fundamental quality issues is **missing key information** (see *Figure 23*). Importantly, when entries are missing information for key seizure attributes, it can reduce the usefulness of the respective entries during the analyses of seizure records. *Table 5* summaries the most common and relevant quality issues in AITR reporting and outlines the actions that are performed to mediate each issue and incorporate the relevant data into the CITES Illegal Trade Database. The table also includes options for mediating several the identified issues in future AITRs.

Table 5. Summary of the most common and relevant quality issues in AITR reporting with relevant actions and options to mediate in future

Issue	Description	Action to Facilitate Incorporation into CITES Illegal Trade Database	Options to Mediate in Future
Lack of adherence to standardised codes	Lack of adherence to standardises codes, like those for detecting agency, method of detection, reason for seizure, mode of transport, and disposal of confiscated specimen. This hinders the ability to conduct broad analyses of these variables.	Either manual conversion of variables to standardised format, or the development of machine learning models to predict standardized / categorised from the reported data.	Limit responses to only the requested categories.
Inappropriate reporting of species names	Species names reported in ways that cause issues; for instance, common names; synonyms of CITES species names; and non-CITES species.	Actions differ depending on the type of issue in the reporting of the name. For common name: manually match the species to the lowest taxon. For the synonyms of CITES species names: modify the taxon ID match mechanism to look for synonyms in the CITES listing database.	Request taxonomic information be reported as per CITES nomenclature. If the species is unknown, then request the lowest known taxonomic rank.
Date format	Difference in date format sometimes leads to uncertainty in dates and times; for example, 02/03/2020 could be the 2nd of March 2020 or the 3rd of February 2020).	Consider whole AITR and evaluate which format is being used, then convert to standard format of MM/DD/YYYY	Clearly state required date format.
Merged cells	Some AITRs contain merged cells to indicate seizures of multiple specimens, which can lead to missing data when AITRs are being processed.	Development and use of a script to identify merged cells, to unmerge them, and to copy the data into all unmerged cells.	Request use of national identification numbers to indicate seizures of multiple specimens instead of merged cells.
Multiple type of quantity	Some Parties reported quantity in both number and mass; however, the template only allows for one type of quantity.	Development of a script to identify such cells, and to split the information as needed.	Allow option of reporting of both units on the template.
Lack of national identification codes	Lack of national identification codes can lead to uncertainty over whether certain entries all fall under a seizure of multiple specimens or whether certain entries are duplicates.	Without a national identification code, there is no way to determine if a set of entries with several shared traits relate to the same seizures. Also, data processing of AITRs for CITES Illegal Trade Database does not remove potential duplicates from within the same source.	Request use of national identification numbers.
Missing key information	Some AITRs include entries without important data, like descriptions of specimens and quantities.	Contact relevant authorities for clarification.	Clearly mark crucial information as required in the template.

Key findings for AITR timeliness and completeness

While CITES AITRs are not subject to compliance procedures, they are still required to be reported to the CITES Secretariat by 31 October of the following year (e.g., 2016 Illegal trade report due on 31 October 2017). Reporting of AITRs in a timely manner is essential so any analyses produced are up to date and Parties can have access to up-to-date data on the IWT data dissemination platform.

The data must first be cleaned before it can be processed and used for research and analysis purposes. Reports that follow the *CITES guidelines for the preparation and submission of the CITES annual illegal trade reports* and use the suggested template to report data are easier to clean, so they are often processed more quickly. Reports that do not follow the guidelines and/or template, often require more time and are more difficult to clean, which requires a significant amount of time. The faster reports are submitted and cleaned, the sooner the data can be used for research and analysis purposes, including by Parties.

In terms of timeliness, only 25% of AITRs were submitted on or before the CITES deadline, the remaining reports were submitted late (14%) and 61% of reports were not submitted at all (as of 14 November 2021). While regional variation in submission of reports was relatively consistent, the timeliness of reporting was not. The only exception was Europe, which might be largely because the European Union supports timely AITR reporting by collating seizure records from member Parties.

In terms of completeness of AITRs, a substantial amount of information is being reported. Parties differ greatly in their capacity, expertise, and ability to document, collate, and report seizure records. What is viewed as essential information to report for one country may not be the same for another country. The *Guidelines for the preparation and submission of the CITES annual illegal trade reports*, provide recommendations on what information to report. However, not all Parties have the capacity or resources to do this so, for some Parties, little information is provided and/or many variables are incomplete. This highlights the potential value in training, capacity building, inter agency cooperation, and resources for Parties that do not currently have adequate reporting frameworks to collect and report seizure data.

Some of the AITRs appear to be missing seizure information for the Party and year combinations to which they correspond, as indicated by a comparison of entries from AITRs with entries that have been submitted to UNODC from a variety of sources (see section 2.3.2). Notably, the AITRs provided an incredibly valuable approximate 91,000 entries for 2016-2020, yet non-AITR sources indicate that these entries might be missing some seizure information that would amount to around 5,000 entries. As outlined in the recently adopted CITES Resolution Conf. 18.6 , especially paragraphs 8 a) and 11, CITES Management authorities are responsible to collect seizure data from various detecting agencies. Thus, an important part of reducing the extent of missing seizure information that is suggested by analysis for this report may be to improve the capacity of CITES Management Authorities from certain Parties to collect and submit IWT seizure information. In some cases, a key part of this capacity

building could be to improve interagency cooperation between the organisations involved in the actual seizures of CITES-listed species.

Key issues interfering with cleaning and research analysis

Regarding the main factors that hinder the processing and analysis of AITRs, the assessment of raw AITRs conducted for this report showed that the ways in which seizure information is reported can vary amongst Parties and result in an overall lack of standardization in seizure information. This is an overarching finding, that applies to many of the reporting variables. All variables required a significant amount of time to clean and standardize (where possible) before they could be processed and uploaded without error. This all must be done before any analysis can occur and delays the useability of the data. In some cases, the data was difficult to interpret (e.g. street name as opposed to city name), which led to further delays in the processing of the AITRs as hand-cleaning of data was needed.

If seizure records contain variables with non-standardized or poor-quality information, then they risk being unusable. Several reporting variables could not be comprehensively analysed for this report due to poor standardization, even though they contained detailed and valuable information that could benefit Parties (i.e., information that could inform the development or improvement of strategies to more effectively counter IWT). This issue of poor standardization was most apparent for the reporting variables of detecting agency, method of detection, reason for seizure, mode of transport, national reference number, location of incident, and method of concealment.

For context, *Guidelines for the preparation and submission of the CITES annual illegal trade reports* and a standard template for the CITES AITRs have been approved by the Standing Committee and made available to Parties. These resources help guide Parties in their reporting, but it also helps to standardize records so they can be used effectively for research and analysis purposes. The template currently identifies pre-selected options for five variables: detecting agency, method of detection, reason for seizure, mode of transport, disposal of confiscated specimens. However, in practice the pre-selected options for these variables are not being used to their fullest potential, as demonstrated by the following variables:

1. Detecting agency: pre-selected options include: Customs, Police, Wildlife Agency, and Other. While some Parties indicated the category followed by the name of the agency, most Parties only reported an acronym or name of the agency, making it difficult to determine which category it referred to. More than half of the records were in the "other category" or could not be placed into one of the pre-defined categories. Each country varied considerably in the number of agency names. With over 90,000 records, checking each acronym and agency for over 100 reporting Parties is not feasible and requires a significant amount of time to clean and interpret.

Standardization could be improved if Parties reported the pre-selected option followed by the name of the agency (e.g. Wildlife Agency: name or acronym of agency).

Creation of additional pre-selection options based on commonly reported agency types could assist Parties to find the right category for their CITES responsible

agency (e.g. border agencies, CITES MA, multiple agencies/joint operations, county/state government bodies, and federal/ministry bodies).

2. Method of detection: pre-selected options include: scanning images, risk assessment; random check; sniffer dog; third-Party information, physical inspection, and Other (specify). While this variable is optional, having Parties use the standardized categories would greatly assist during the cleaning and processing of data, and subsequent analysis. Such information could help Parties in their risk management strategies and capacity building for detecting smuggled wildlife. Less than 30% of the seizure records that provided method of detection fit into the pre-selected categories. Many records referred to "checks, control, intelligence, investigation, inspection, document inspection, routine inspection, targeting," or variations of these.

Standardization could be improved if Parties reported the pre-selected options, not variations of these categories. Additional categories based on commonly reported methods of detection could be created (e.g. document inspection, routine inspection, intelligence/investigation, and multiple detection methods: specify).

3. Reason for seizure: pre-selected options include: no CITES permit, mis-declared, illegal crossing, and other (please specify). While Parties used the pre-selected options, other reasons commonly reported included "illegal possession, illegal capture, illegal collection, illegal transport, illegal import/export, illegal sale, no documents," or variations of these. There were also many cases where multiple reasons were provided.

Standardization could be improved if Parties reported the pre-selected options and not variations of these options. Additional categories based on commonly reported reasons for seizures could be created (e.g. Illegal capture/collection/hunting, illegal transport, illegal possession, illegal trade/sale, etc).

4. Mode of transport: pre-selected options include: maritime, rail, road, air, and mail. Most Parties reported using variations of the pre-selected options (e.g. mail service, parcel service, post, land, sea, etc.). Other modes of transport commonly reported included "cars, vehicle make and model, house/residence" and multiple modes of transport. Some records may not have specified the mode of transport since they were seized on premises (e.g. home, private residence, shop, garden/zoo, etc.).

Standardization could be improved if Parties reported the pre-selected options rather than variations of these options. Additional information can be provided after the pre-selected option is first identified (e.g. "mail: parcel courier" or "road: vehicle").

There were several other variables (column headings) that did not provide pre-selected options, which could benefit from standardization. Examples include:

1. National reference number: While this variable is optional, when provided it greatly assists the cleaning and processing of data (e.g. when Parties provide updated seizure information after already submitting an AITR for that year, it can be difficult and time consuming to cross reference already reported data and ensure duplicates are removed). If a Party needs to be contacted for clarification on a specific record, having a national

identification number can assist Parties in locating the seizure record. While many Parties reported a national reference number, the method in doing so varied considerably among Parties. Uses of a national reference number included: the use of the same number for multiple years, meaning that it was not a unique identifying number; the use of numbers to identify a specific enforcement operation (e.g., inspection at mail centre or a market) but not necessarily the individual seizure incident (e.g., seizure at a given stall); the use of a national reference number to indicate a mixed seizure. Having a specific identifying number for each seizure event, for each year would allow for a more detailed analysis, such as analysis of seizure events rather than seizure records.

2. Location of incident: the recommendations on how to report this variable are open to interpretation which means they are not standardized. This has resulted in a vast array of information being provided making a proper analysis difficult (a lot of information cannot be used). The most frequently reported location included "name of airport, name of port, name of mail centre, name of town/city, house, market, and many other names, etc.). This variable has the potential to provide a significant amount of information, specifically at which point along the train chain the seizure was made.

Standardization could be improved if several pre-selected options provided additional information (e.g. airport: Name of airport, port: Name of port, on premises: name of town, etc.).

Alternatively, or in complement, two columns could be added to the AITRs, one for longitude and one for latitude, that together would provide a GPS location.

Yet, in the cases where it is not possible to provide such information, Parties should be able to provide the name of an airport, port, town, etc.

3. Method of concealment: Advice on how to report this variable is open to interpretation which has resulted in a vast array of non-standardized information being provided making a proper analysis difficult (a lot of information cannot be used). The most frequently reported method of concealment included "personal baggage, in postal package, in freight, in cargo, on premises, not concealed, in car, in boat," or variations of these. In many instances this does not describe how the items are concealed instead it reports where they were concealed. This variable has the potential to provide a significant amount of information which can help guide Parties on where and how wildlife might be smuggled, where to prioritise inspections, and what to focus on for training and capacity building programs.

Standardization could be improved if several pre-selected options provided additional information (e.g. In personal baggage: air/boat, in postal/courier package: airmail, in freight/cargo/container: specify how it was concealed, on premises: specify how is was concealed, in vehicle: specify where it was concealed, etc.).
Another variable that it might be worth considering adding to the AITRs would be 'point of seizure'. This variable could help identify where on the trade chain a seizure occurred and whether the seizure was international in nature. Such a variable could have the following standardized categories: 'on export', 'on import', 'in transit', or 'within country'.

3. MANAGEMENT OF THE CITES ILLEGAL TRADE DATABASE

3.1 DATABASE MANAGEMENT AND PROCESSING OF AITRS

Database management

The management and maintenance of the CITES Illegal Trade Database is carried out by UNODC, as per CITES Decision 18.75 (agreed in 2019) and involves various tasks, as outlined in Annex 1 of the CoP18 Document 36. These tasks include receiving the AITRs; cleaning and validating the data; contacting Parties for clarification or further information; maintaining and developing the database; drafting and refining documentation on the data, metadata, sources, and validation process; responding to specific data requests, in agreement with the CITES Secretariat; and once the dissemination platform is operational, ensuring that data is appropriately disseminated. This array of tasks means the management and maintenance of the database requires a significant amount of time and resources. One full time member of UNODC staff is dedicated to cleaning, processing, and incorporating AITRs reports. Support is provided by a UNODC manager and UNODC IT developer who work part-time on wildlife crime data, and further support will soon be provided by a statistical assistant. When needed, UNODC staff liaise and consult with UNEP-WCMC staff, who have greater experience and expertise working with wildlife trade data.

Data processing structure of the AITR

Data from the CITES AITRs that are shared with ICCWC for research are stored in the CITES Illegal Trade Database. This database is stored in UNODC-hosted Microsoft SQL Server Database. There are 6 steps to process the data received via AITR, from receiving the data to uploading the data to the database, as follows:
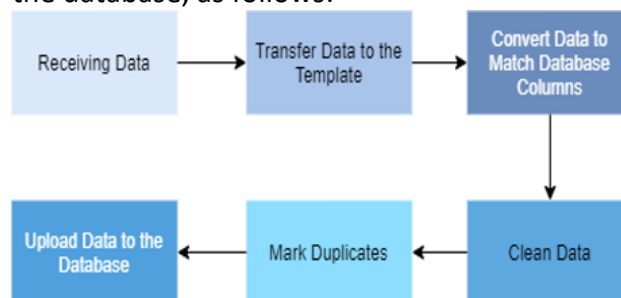
The step, "Transfer of data to the template", is critical component of the cleaning and processing of AITRs. Quality of reporting by Parties can have a significant impact on the time required to complete this step, as well as the susceptibility of this step to error. The AITR files submitted by Parties to the CITES Secretariat and shared with UNODC, come in various formats, including Microsoft Excel, Word, and PDF. Most of the files are in Microsoft Excel and use the standard template (see section 1.3.3); however, those that come in different format can take a significant amount of time to process. Whilst AITRs that are received without major issues (i.e., received in the requested template and with standardized variables) usually take under 3 hours to process, AITRs with issues can take up to 2 full days to process.

3.2 STATUS OF THE CITES ILLEGAL TRADE DATABASE DATA DISSEMINATION PLATFORM

The following table (*Table 6*) presents the main contents and functionalities of the CITES Illegal Trade Database data dissemination platform, which draws heavily on data from the CITES Illegal Trade Database:

Table 6. Contents and features of the CITES Illegal Trade Database data dissemination platform

Subject	Initial proposal
Contents of platform	• The data dissemination platform will contain records from submitted AITRs that have not been marked as "Not to be used for research purposes". Data from AITRs marked as "Not to be used for research purposes" will be recorded separately on a different restricted section within the platform, that will be accessible to the CITES Secretariatand the submitting Party only. • There is still a need to determine which variables from the database will be included in the data disseminated. The final decision on which variables to include should be done before deployment (planned for September 2022). • There will also be a document downloadable from the platform that provides guidelines on how to interpret the data and variables included.
Data processing and platform governance	• Data will be processed outside of the dissemination platform (see section in this document about data processing for more details) and made available in the dissemination platform within one month from the time it is received by UNODC, depending on the agreed data approval procedure. • The platform will be synchronized with the database twice a month, to make the newly submitted reports available. • In paragraph 4 of CITES Resolution Conf. 11.17 (Rev. CoP18) the Conference of the Parties to the Convention agrees that, unless otherwise specified by the reporting Party, data collected in the AITR and included in the database should be made available to Parties for research and analysis of wildlife and forest crime as it affects them, and to the members of the International Consortium on Combating Wildlife Crime (ICCWC) for ICCWC global research and analysis studies on wildlife and forest crime. The platform will be hosted on behalf of the CITES Secretariat on premises by the IT department of UNODC, and maintenance of the platform will be managed by the UNODC.
Variables for filtering	• The filtering options for querying the data include the following variables: Date, Country of seizure, Region/Subregion of seizure, Taxon (species, genus, family, class), Focused taxon (e.g., Rhino, Elephant, etc.), CITES Appendix, Source / Destination country, Measurement unit.
Registration process	The following registration procedure to register users is proposed. Registration of users will be subject to approval by the CITES Secretariat: • Users will have the opportunity to request access to the platform by submitting a registration request directly to the CITES Secretariat. • A CITES Secretariat Focal Point will review all registration requests and approve requests as appropriate. • Once the request for access is approved by the CITES Secretariat, the user will receive an email with the accreditation details, including a username and temporary password to access the platform. • All users will have access to all the data available in the platform, i.e., all records from submitted AITR that have not been marked as "Not to be used for research purposes." Approved representatives from Parties with AITRs marked as "Not to be used for research purposes" will be able to access their own data separately.

The new platform is planned to be live by the end of September 2022, based on a proposal shared with the CITES Secretariat. The development of this platform is planned in 5 phases, as outlined in *Table 7*:

Table 7. Timeline for the development of the CITES Illegal Trade Database data dissemination platform

Project phases	Outputs	Status
1. Project start /Inception	Brief document with platform contents	Finalized
2. Design and Mockup	Mockup site that shows the design of the platform.	Finalized
3. Development	First working (Alpha) version of the platform.	Finalized
4. Testing with CITES Secretariat	A list of improvements to the platform, from the Secretariat.	To be completed by July 31, 2022
5. Testing with Parties	A list of improvements to the platform, from Parties that tested the platform.	To be completed by August 31, 2022
6. Deployment	Final platform live	To be completed by September 30, 2022

MAIN IMPLICATIONS

A higher AITR coverage would better reflect IWT dynamics and patterns, improve analysis, and ultimately provide a more accurate analysis of the global trafficking of CITES related species. To this end, Parties could consider including annual illegal trade reporting in regional plans that may be developed. This could encourage Parties in the region to actively pursue the implementation of paragraph 3 in CITES Resolution Conf. 11.17 (Rev.CoP18) on *National reports*. Regional networks of relevant agencies and actors in the collection and reporting of illegal wildlife trade seizure data could play a role in encouraging annual illegal trade reporting and supporting training sessions in this regard, and provide a forum for exchanging experiences, expertise, and information.

In addition increased and further strengthened cooperation among national authorities can help ensure that the reported AITRs cover all CITES-related seizures made within their countrys

territory. This will facilitate that where multiple authorities are responsible for wildlife enforcement all data is captured and not just those from one or some of these authorities. This is crucial to ensure better coverage.

CITES Resolution Conf. 18.6 on *Designation and role of Management Parties, in* paragraph 8 a) , reminds Parties that their CITES Management Authorities are responsible for coordinating the preparation of the AITR and submitting it to the CITES Secretariat. The gathering of illegal trade data from different law enforcement agencies for preparation of the annual illegal trade report could be addressed under the coordination and communication mechanism referred to in paragraph 11 of Resolution Conf. 18.6. Further, it could be beneficial for Parties to consider including matters related to CITES annual illegal trade reporting in their national action plans, as referred to in paragraph 14 a) ii) in Resolution Conf. 11.3

(Rev. CoP18) on *Compliance and enforcement*. In addition, training and capacity building programs for relevant agencies could be developed to improve the quality of data submitted in annual illegal trade reports. The CITES Secretariat in cooperation with UNODC can play an important role in supporting Parties to improve overall submission rates of annual illegal trade reports and engage in efforts to support better standardize submissions to improve the quality of data submitted in the annual illegal trade reports.

Analysis of CITES related seizure data was biased by the Parties that reported and shared AITRs for ICCWC research and analysis purposes. *Section 2.2 Quantitative Analysis of Seizure Records* summarize the main findings of the analysis on basic characteristics of 2016 to 2020 AITR seizure data.

Several issues were identified that interfered with cleaning and analysing AITR data (see *Section 2.3.3 Accuracy and Consistency in Table 3 and in the section Key issues interfering with cleaning and research analyses for specific* details). The most notable issue was the lack of standardisation. Resolving or reducing these issues would have positive impacts on the efficiency of processing AITRs and ensure all AITR data can be used for analysis. *Guidelines for the preparation and submission of the CITES annual illegal trade reports* and a standard template are both available on the CITES website to help support Parties in their compilation of their

AITRs. Adherence to the guidelines and the standard template would greatly reduce the amount of time spent in processing AITR data, allowing data to be accessible for analysis (including access to Parties) in a timely and comprehensive manner. In addition, a number of key variables - such as species name or country of origin/destination - are not always provided. The development and implementation of a training plan for Parties on the use of the AITR template and other related measures that would help to improve standardisation and completeness of AITRs and reduce issues that interfere with data processing, which would ultimately ensure that all CITES related seizure data reported is useable for analysis purposes.

At present, it is not possible to analyse seizure incidents as the focus is on seizure records. To this purpose, a slight modification of the reporting template would make it easier to analyse seizure incidents and therefore generate information on smuggling methods and modus operandi of traffickers.

While the CITES annual illegal trade report requirement is relatively new, data from 39% of Party AITRs have already been submitted. With the above findings in mind, several opportunities and activities could be considered to raise awareness, improve knowledge and capacity, facilitate dialogue and cooperation, and exchange information and experiences to further improve the quantity and quality of seizure data in the CITES , Illegal Trade Database for future analyses of AITRs.

Annex I: Number of seizure records by reporting Party (including their dependent territories),2016 to 2020 seizure data

Reporting Party (includes dependent and overseas territories)	Number of AITR seizure records
New Zealand	37,159
United States of America	7,719
Germany	5,456
France	4,702
United Kingdom of Great Britain and Northern Ireland	4,286
Netherlands	4,176
Brazil	3,181
Spain	2,995
Thailand	1,859
Switzerland	1,835
Australia	1,164
Japan	1,064
Austria	959
Namibia	888
Belgium	873
Italy	870
Czech Republic	814
India	612
China	604
South Africa	600
Denmark	569
Poland	530
Hungary	455
Canada	437
Hong Kong SAR (dependent territory of China)	421
Mexico	403
Turkey	392
Zimbabwe	392
Sweden	368
Portugal	342
Norway	273
Malawi	255
Singapore	195
Malta	188
Philippines	186
Malaysia	173
Indonesia	170
Viet Nam	150

Uruguay	140
Madagascar	135
United Arab Emirates	130
Reunion (dependent territory of France)	128
Latvia	125
Estonia	111
Bangladesh	105
Nepal	100
Côte d'Ivoire	94
Nigeria	92
Botswana	87
Serbia	87
Pakistan	77
Slovakia	74
Congo, Democratic Republic of the	70
Lithuania	69
Myanmar	67
Georgia	62
French Guiana (dependent territory of France)	60
Mongolia	55
Croatia	50
Jordan	48
Lao People's Democratic Republic	48
Bhutan	46
Guinea	46
Slovenia	46
Morocco	41
Cayman Islands (dependent territory of the UK)	38
Argentina	37
Greece	37
Rwanda	37
Guadeloupe (dependent territory of France)	31
Kuwait	28
Mozambique	28
Honduras	27
Tunisia	24
Israel	23
Luxembourg	23
Peru	22
Uzbekistan	22
Fiji	21
Finland	21

Bulgaria	19
Ireland	18
Martinique (dependent territory of France)	18
Mayotte (dependent territory of France)	17
Aruba (dependent territory of the Netherlands)	11
Cambodia	11
El Salvador	11
French Polynesia (dependent territory of France)	11
Republic of Korea	10
Romania	9
Central African Republic	8
Macao SAR (dependent territory of China)	8
Afghanistan	6
Qatar	6
Isle of Man (dependent territory of the UK)	4
Monaco	4
Somalia	4
Cyprus	3
Jersey (dependent territory of the UK)	3
Bonaire, Saint Eustatius and Saba (dependent territory of the Netherlands)	2
Venezuela (Bolivarian Republic of)	2
Bermuda (dependent territory of the UK)	1

Annex II: Additional detailed analysis from section 2.2. Quantitative analysis of seizure records.

Top 5 specimen types in more detail

Non-living coral: accounted for 22% of all specimen types (20,068 seizure records).
- 3,231 seizure records (32,309 items) and another 16,814 seizure records (~133 tonnes).
- 96% of records belonged to the order Scleractinia (stony corals).
- 59% of records were allegedly coming from the Cook Islands (20%), Fiji (19%), Australia (9%), Indonesia (7%), and Tonga (4%).
- 76% of records were allegedly destined for New Zealand (64%), Germany (5%), Denmark (2%), France (1%) and the Czech Republic (1%).

Live: accounted for 14% of all specimen types (12,289 seizure records).
- 11,978 seizure records (724,253 items) and another 290 seizure records (~130 tonnes).
- 63% of records belonged to Psittaciformes or Parrots (27%), testudines or turtles (18%), Caryophyllales [primarily cacti] (8%), Orchidales or orchids (6%) and Serpentes or snakes (5%).
- 11% of records were allegedly coming from Thailand (3%), Spain (3%), France (3%), the Netherlands (2%), and Indonesia (1%).
- 14% of records were allegedly destined for France (4%), Japan (3%), Spain (2%), the UK (2%) and the Germany (2%).

Medicines: accounted for 10% of all specimen types (8,788 seizure records).
- 7,800 seizure records (724,253 items) and another 628 seizure records (~7 tonnes).
- 63% of records belonged to Asterales [all costus] (10%), Orchidales or orchids (15%), Artiodactyla [mostly musk deer and bovids] (11%), Liliales or lilys (8%), and Carnivora [mostly bears and cats] (5%).
- 63% of records were allegedly coming from the China and Hong Kong Special Administrative Region (SAR) (45%), the USA (6%), Singapore (5%), Malaysia (4%), and Thailand (4%).
- 63% of records were allegedly destined for New Zealand (27%), the Netherlands (20%), the UK (8%), Australia (5%) and Germany (3%).

Shells: accounted for 10% of all specimen types (7,702 seizure records).
- 1,130 seizure records (7,448 items) and another 6,571 seizure records (~6) tonnes.
- 99% of records belonged to Veneroida [giant clams] (81%), Nautilida [nautilus] (9%), Mesogastropoda [conch] (9%), Testudines or turtles (<1%), and Scleractinia or stony corals (<1%).
- 61% of records were allegedly coming from the Cook Islands (22%), Fiji (17%), Vanuatu (8%), Tonga (8%), and Samoa (7%).
- 71% of records were allegedly destined for New Zealand (66%), France (2%), Germany (1%), Australia (<1%) and Poland (<1%).

Meat

This category accounted for 7% of all specimen types (6,162 seizure records).
- 469 seizure records (169,403items) and another 5,595 seizure records (~187 tonnes).

- 92% of records belonged to Crocodylia (69%), Mesogastropoda [conch] (9%), Veneroida [giant clams] (8%), Cetacea or cetaceans (3%), and Sauria [mostly lizards] (3%).
- 69% of records were allegedly coming from the Australia (64%), the USA (2%), Tonga (1%) Curaçao (1%), and Samoa (<1%).
- 57% of records were allegedly destined for New Zealand (52%), the Netherlands (2%), France (1%), Germany (<1%) and Denmark (<1%).

Top 5 genera in more detail

***Tridacna* spp. (giant clams):** accounted for 6% of all genera (5,555 seizure records).
- 365 seizure records (7,574 items) and another 5,189 seizure records (~4.3 tonnes).
- 96% of records were shells.
- 75% of records were allegedly coming from the Cook Islands (28%), Fiji (20%), Tonga (10%), Samoa (10%), and French Polynesia (8%).
- 74% of records were allegedly destined for New Zealand.

***Pocillopora* spp. (brush corals):** accounted for 5% of all genera (4,382 seizure records).
- 48 seizure records (118 items) and another 5,189 seizure records (~1.6 tonnes).
- 99% of records were non-living corals.
- 70% of records were allegedly coming from Fiji (30%), the Cook Islands (22%), French Polynesia (7%), Australia (6%) and Samoa (5%).
- 75% of records were allegedly destined for New Zealand.

***Panax* spp. (ginseng):** accounted for 4% of all genera (3,941 seizure records).
- 392 seizure records (16,860 items) and another 3,480 seizure records (~2.6 tonnes).
- 99% of records were roots (91%), medicines (5%) and dried plants (3%).
- 83% of records were allegedly coming from China including Hong Kong Special Administrative Region (SAR) and Taiwan Province of China (54%), the USA (13%), Canada (7%), Malaysia (6%), and Singapore (3%).
- 68% of records were allegedly destined for New Zealand (53%), the Netherlands (9%), the UK (3%), Australia (2%) and China including Macao SAR (1%).

***Saussurea* spp. (kuth):** accounted for 4% of all genera (3,754 seizure records).
- 3,471 seizure records (518,493 items) and another 203 seizure records (~6.7 tonnes).
- 98% of records were medicines (94%), extracts (3%), and roots (1%).
- 79% of records were allegedly coming from the China including Hong Kong SAR, Macao SAR, and Taiwan Province of China (51%), Singapore (9%), Malaysia (9%), Switzerland (6%), and Australia (4%).
- 78% of records were allegedly destined for New Zealand (40%), the Netherlands (16%), Germany (10%), Australia (9%) and the UK (3%).

***Dalbergia* spp. (rosewood):** accounted for 4% of all genera (3,236 seizure records).
- 1,594 seizure records (166,529 items) and another 138 seizure records (~460 tonnes).
- 96% of records were wood products (47%), timber (42%), logs (5%), and carvings (2%).

- 30% of records were allegedly coming from the China including Hong Kong SAR, Taiwan Province of China, and Macao SAR (9%), India (7%), the USA (7%), Thailand (4%), and the UK (2%).
- 38% of records were allegedly destined for the UK (18%), Germany (14%), Australia (2%), the Netherlands (2%) and the USA (2%).

Top 5 origin Parties in more detail

China (including Hong Kong SAR, Macao SAR, and Taiwan Province of China): were reported as the origin for 9,266 seizure records: 59% of these involved 2,146 *Panax* spp. records (mainly 848 roots plus 782 kg), 1,894 *Saussurea* spp. records (mainly 284,555 medicines plus 142kg) and 1,401 *Dendrobium* spp. records (mainly 207 stems plus 328 kg).

Australia: was reported as the origin for 7,102 seizure records: 88% of these involved 4,571 *Crocodylia* records[22] (e.g. 525 meat plus 450 kg) and 1,676 Scleractinia records (e.g. 626 non-living stony corals plus 925 kg).

Cook Islands (non-Party): was reported as the origin for 5,699 seizure records: 98% of these involved 1,573 *Tridacna* spp. records (mainly 174 shells plus 1.7 tonnes) and 3,991 Scleractinia records (e.g. 66 non-living stony corals plus 1.4 tonnes).

Fiji: was reported as the origin for 5,285 seizure records: 91% of these involved 1,087 *Tridacna* spp. records (mainly 64 shells plus 835 kg) and 3,743 Scleractinia records (mainly 205 non-living stony corals plus 647kg).

The USA: was reported as the origin for 3,780 seizure records: 54% of these involved 820 *Crocodylia* genera records (mainly 1,380 small leather products, 223 bodies, and 9kg meat), 512 *Panax* spp. records (mainly 73 roots plus 597kg), 364 *Aloe* spp. records (mainly 35,387 medicines and 12,786 extracts), 340 Scleractinia records (mainly 1,035 non-living stony corals plus 121 kg

Top 5 destination Parties in more detail

New Zealand: was reported as the destination for 28,468 seizure records: 79% of these involved 4,089 *Tridacna* spp. records (mainly 453 shells plus 3.6 tonnes), 2,085 *Panax* spp. records (mainly 104 roots plus 902 kg), 3,834 Crocodylia records (mainly 204 meat plus 407 kg), and 12,394 Scleractinia records (mainly 669 non-living stony corals plus 5 tonnes).

Germany: was reported as the destination for 4,744 seizure records: 43% of these involved 449 *Dalbergia* spp. records (mainly 9,012 wood products plus 473kg), 358 *Saussurea* spp. records (mainly 120,357 medicines and 36,582 extracts), 278 *Aloe* spp. records (mainly 44,643 extracts) and 893 Scleractinia records (mainly 7,260 non-living stony corals plus 26kg).

The Netherlands: was reported as the destination for 3,800 seizure records: 54% of these involved 615 *Saussurea* spp. records (mainly 12,994 medicines), 367 *Panax* spp. records

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[22] Half of these were *Crocodylus* spp.

(mainly 250 roots plus 137kg and 188 medicines), and 1,081 Orchidales records (mainly 6,432 medicines, 847 derivatives, 178 dried plants plus 192kg).

The UK: was reported as the destination for 3,315 seizure records: 43% of these involved 592 *Dalbergia* spp. records (61,291 wood products plus 44 tonnes), 384 Orchidales records (mainly 546 live, 94,341 medicines plus 4.7 tonnes, and 10,311 extracts plus 392kg), 262 Crocodylia records (mainly 1,183 small leather products) and 182 *Aquilaria* spp. records (mainly 733 chips plus 432 kg, and 399 wood products plus 317 kg).

France: was reported as the destination for 2,105 seizure records: 49% of these involved 229 Elephant records (mainly 1,050 ivory products/pieces plus 80 kg, and 30 tusks plus 284 kg), 220 *Testudo* spp. records (mainly 860 live), 220 Scleractinia records (mainly 1,460 non-living stony corals plus 845 kg), 220 Serpentes records (mainly 477 small leather products, 132 live, and 163 skins), and 141 Psittaciformes records (mainly 305 live parrots and 50 bodies).