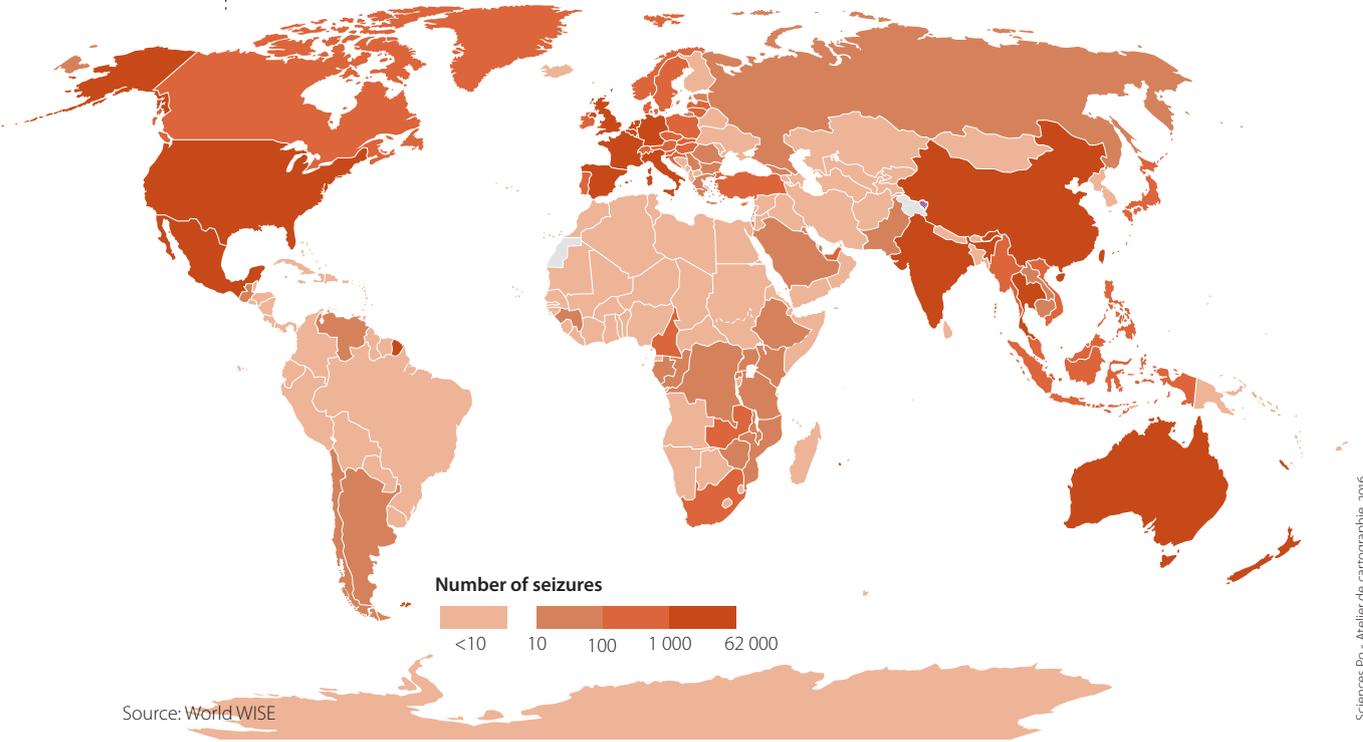


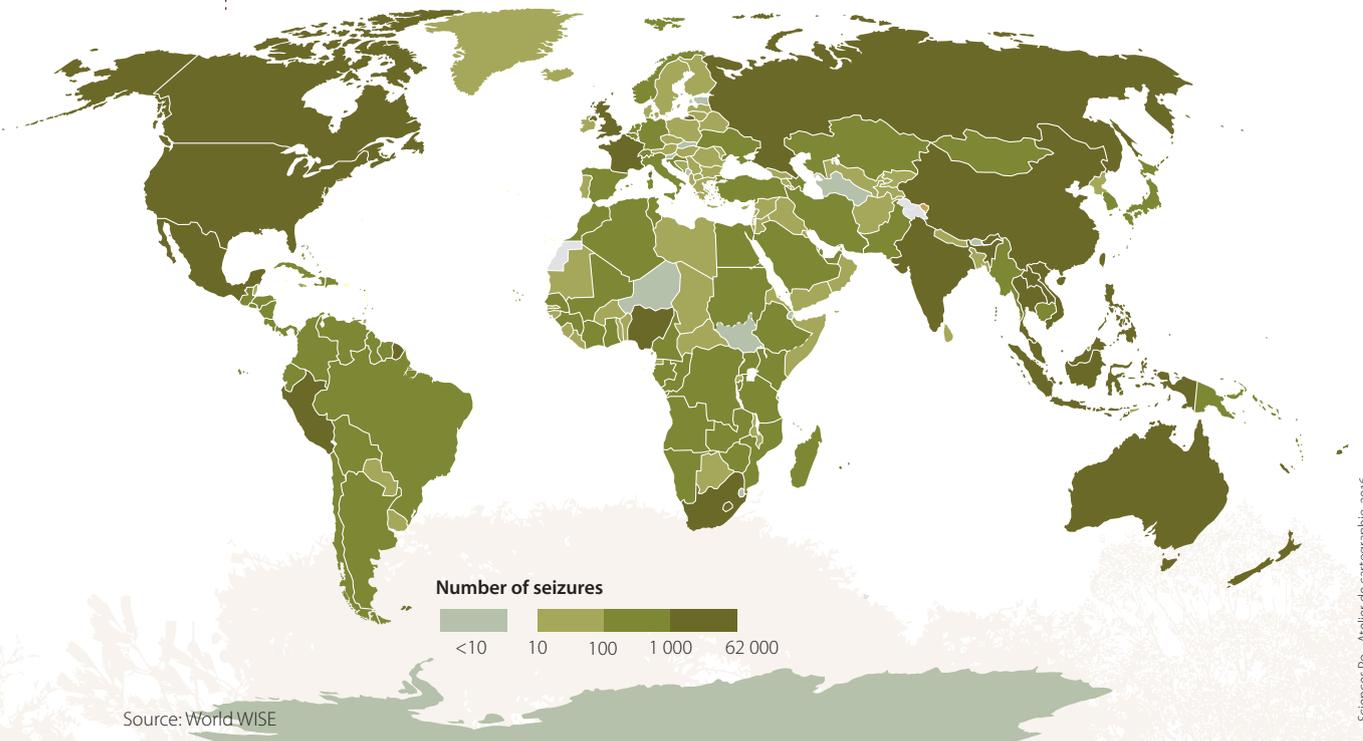
The World Wildlife Seizures (World WISE) database

Map 1 Total number of seizures reported by country, 2004-2015



Note: The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations. Dashed lines represent undetermined boundaries. The dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas). The final boundary between the Republic of the Sudan and the Republic of South Sudan has not yet been determined.

Map 2 Total number of seizures, by countries identified as source, 2004-2015



Note: The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations. Dashed lines represent undetermined boundaries. The dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas). The final boundary between the Republic of the Sudan and the Republic of South Sudan has not yet been determined.



To better understand wildlife crime, UNODC resolved to compile a global database of seizure incidents. The following chapter gives a brief explanation of the way the World Wildlife Seizure database (World WISE) was assembled and structured. For a complete description of the database and the methodology of this study more generally, please see the online methodological annex to this report at: <http://www.unodc.org/unodc/en/data-and-analysis/wildlife.html>

Given the variety of ways wildlife crime can be defined, compiling a global database of seizure incidents would appear to be a daunting task. Fortunately, an international mechanism for reporting wildlife seizure data already exists: the Annual and Biennial Reports submitted by CITES parties. As UNODC and the CITES Secretariat are partners in the International Consortium on Combating Wildlife Crime (ICCWC), it was possible to secure access to these public data.¹

Another ICCWC partner, the WCO, also gathers some wildlife seizure data, through its CEN database, and access was granted to harvest this information. WCO-CEN data are a large component of the seizure database of the European Commission Enforcement Working Group, known as EU-TWIX, and permission was received from the Working Group to include the EU-TWIX data. This base was enhanced through the collection of data assembled by other regional Wildlife Enforcement



Indicators of organized wildlife crime

By its nature, organized crime is clandestine, so the evidentiary base of policy discussion is often weak. Indicators of organized crime take many forms, some very specific to the crime involved. Those involving the trafficking of contraband do hold one indicator in common, however: the seizure incident.

A seizure is made when contraband is detected by law enforcement authorities. Like a pixel in a snapshot, these incidents can be misleading in isolation, but, when combined in great numbers and triangulated with other information, can yield penetrating insight into a hidden world. Seizure data can be easily misinterpreted, however, and often mean the opposite of what might be supposed. The seizure of contraband is reliant on two factors:

- The presence of contraband in the jurisdiction of the seizing authority;
- The proactive effort to detect and interdict that contraband.

Thus, the quantity of seizures indicates both the presence of a problem and the initiative of the relevant authorities in addressing it. Countries that dedicate the most effort to fighting trafficking may have higher seizure totals than similarly situated counterparts. High-performing countries are often transit countries, neither the source nor the destination of the illicit flow. High levels of seizures are not necessarily an indicator of culpability, and are often precisely the opposite.

In contrast, to avoid detection, traffickers favour those countries with limited interdiction capacity. Even countries with a good law enforcement capacity do not inspect their exports the way that they inspect their imports, so contraband sourced in countries with weak capacities is highly unlikely to be seized at origin. Furthermore, corruption is essential to many contraband flows, and seizures are not made where the relevant officials are complicit.

Fortunately, seizure data are not just spots on a map. Each seizure incident can provide multiple pieces of information on the nature of an illicit market. Whether transported by sea freight, air freight, personal courier, or post, it is often possible to determine where the contraband originated, transited, and was destined. Each seizure incident, therefore, has the potential to reflect on the entire trafficking chain, including the role of states where the contraband went undetected.

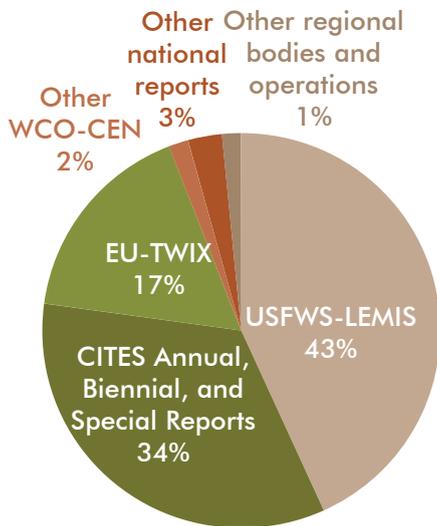
In addition, a seizure allows a great deal of information to be harvested about the identity and methods of the traffickers, when the confiscating authorities take the initiative to record these details. Aside from routes, the preferred methods of conveyance and concealment can be documented. The age, gender, and nationalities of those associated with the shipment can be recorded, as well as the laws used to charge them. By linking each seizure to onward processing through the criminal

justice system, it is possible to determine which approaches are most effective in convicting traffickers. By noting the enforcement authorities responsible, resources can be allocated to those best positioned to interdict contraband flows.

That said, the quality of seizure data vary greatly, in terms of completeness and coverage. Some seizure reports leave out key data, such as the source and destination of the shipment. The way products are classed and measured varies greatly between jurisdictions, and conversion ratios are needed to amalgamate comparable products. There is a clear need for international standardisation of these records, and capacity building for those who collect them.

Thus, while seizures are an imperfect indicator, they have the potential to provide important insights when aggregated in sufficient volumes. They cannot be taken at face value or interpreted mechanically, but they represent concrete evidence of criminal activity that is otherwise obscured from view. Combined with research on the underlining criminal markets, they help inform, and challenge, our understanding of wildlife crime.

Fig. 1 Share of data sources in total World WISE seizure incidents, aggregated 2005-2014



Source: World WISE

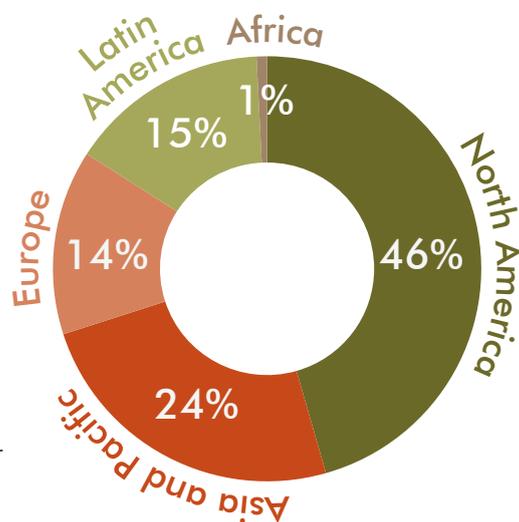
Networks (including the Association of Southeast Asian Nations' Wildlife Enforcement Network, ASEAN-WEN, and the Lusaka Agreement Taskforce), operational data, national reports (particularly the LEMIS system of the United States Fish and Wildlife Service) and other sources.²

The entire World WISE database held over 164,000 seizures at the end of October 2015, the time at which analysis for this report was initiated. These data come from seizures dating back as far as 1999, however. The earliest years of the database are not internationally representative. Most contributors were able to give data from about 2005, and therefore most of the analysis in this report is based on the decade from 2005 through 2014; the database holds 132,144 seizures from 120 countries for this period.

At present, World WISE is based mainly on existing data sources, and while it includes a number of countries that had not previously submitted wildlife seizure data, there remain significant gaps in both geographic and temporal coverage. Future work would be needed to address these gaps, including the collection of retrospective seizure data.

Combining national reports from 120 countries presented a number of methodological challenges, which are discussed in the on-line methodological supplement to this report. One

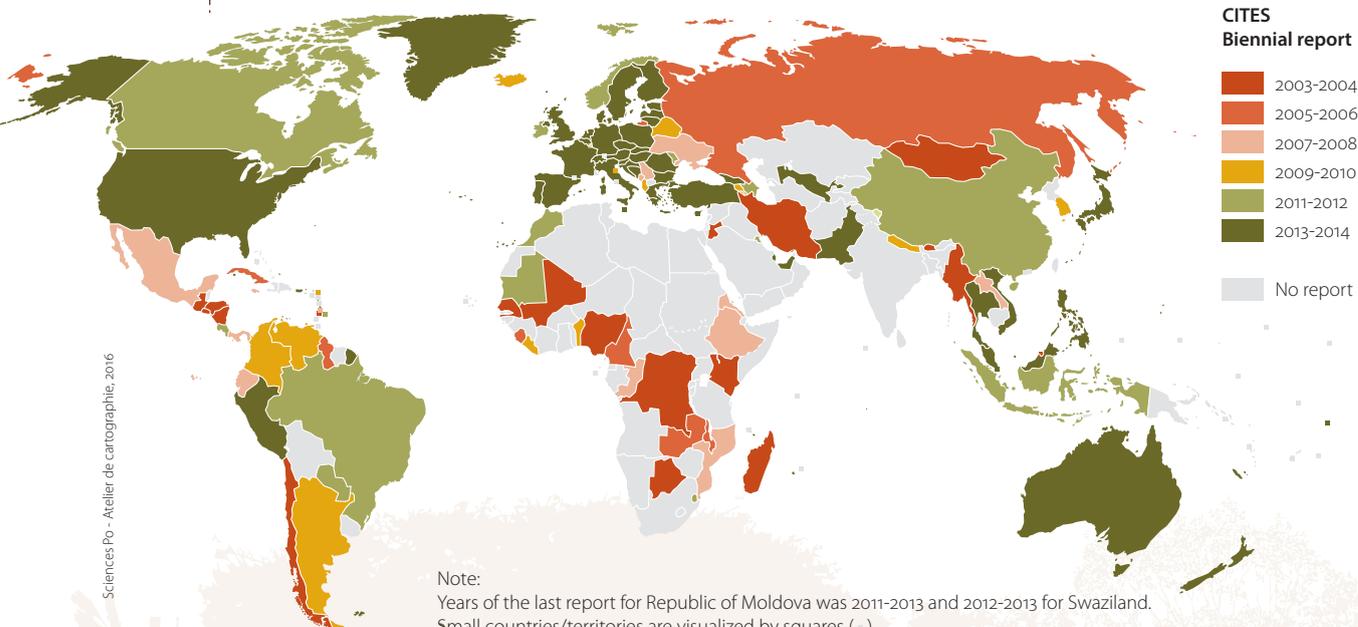
Fig. 2 Share of total seizure incidents in World WISE by region, aggregated 2005-2014



Source: World WISE

issue that deserves discussion is the need to convert seizures to common units, at least within specific markets. For example, timber seizures may be reported in terms of log or container counts, weight, or volume. They may also involve different sorts of commodities, including logs, sawn wood,

Map 3 Latest Biennial Report submitted to CITES by country and year, 2003-2014³



Note: Years of the last report for Republic of Moldova was 2011-2013 and 2012-2013 for Swaziland. Small countries/territories are visualized by squares (-)

Sources: CITES

Note: The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations. Dashed lines represent undetermined boundaries. The dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas). The final boundary between the Republic of the Sudan and the Republic of South Sudan has not yet been determined.

The variable availability and quality of seizure data

Within the CITES Management Authorities, there appears to be considerable variation in the capacity to collect seizure information. Some appear to be poorly placed to request data from those 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. It can be difficult to distinguish between states that fail to report due to lack of capacity to assemble the data, and those that have little enforcement activity to report.

There is also considerable variation in the quality of the data compiled. 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.

Many countries gave more detailed information as to the exact location where the seizure was made – this information could be used to create maps of vulnerable locations – but since this information was available for less than half the seizures, it is not fully utilised in this report.

Seizures are not the only evidence of wildlife crime, of course, and World WISE is very much a work in progress. In the future, the seizure data could be usefully supplemented with other criminal justice data, including information deriving from arrests, prosecutions, and convictions. Price data would also be extremely helpful in understanding the nature of wildlife contraband markets. But seizure data, properly interpreted, remain the single best indicator of wildlife crime, and efforts continue to consolidate and standardise this information.

Fig. 3 Percentage of seizure incidents in World WISE that include specific data fields, aggregated 1999-2015



Source: World WISE

and other products. For each species, the academic and trade literature were consulted to provide conversion formulas. These conversions are discussed further in the case study chapters that comprise the bulk of this report and in the online methodological annex.

The process of assembling these data has been instructive on many levels.

Data collection began with harvesting seizure data submitted to CITES. In the past, this has been done through two mechanisms. Every second year, parties to CITES have been requested to submit Biennial Reports containing information on efforts made to implement the Convention, including data on law enforcement, such as seizures. Unfortunately, not all CITES parties fulfil this obligation, and many that do respond do not present all requested information. Only a small share of Biennial Reports contain seizure data. Some parties include seizure data in their Annual Reports, which are meant to document information on legal trade and CITES permits issued.

By analysing the records submitted, it is possible to determine the sorts of information parties gather in the normal course of business. For example, most of the seizures reported contained information about the source of the shipment (87%) and the destination of the shipment (80%). Those that did not include this information were often the result of domestic enforcement, so there was no “shipment” to speak of. Much less often, however, did the seizure data include information on the countries transited before the seizure (2%).

Why wildlife crime needs a common unit

To discuss the global market in fruit, apples and oranges must be compared. To discuss the global market for wildlife contraband, it is similarly necessary to compare a wide range of dissimilar commodities. Is wildlife crime increasing? Where is the problem most acute? Which species are trafficked in the largest volumes? To answer these questions, data on wildlife crime must be aggregated, and this requires some standard unit of comparison.

If the objective is to measure the environmental impact of any given wildlife crime incident, then it would make sense to calculate the number of wild lives lost. Since some species are more threatened than others, measuring the impact of these lost lives would require an assessment of the share of the extant population lost in any given incident. To be more accurate, the ability of each species to recover through reproduction would have to be factored into the impact assessment. If all species were accorded equal intrinsic value, then some common unit of relative loss

"Medicinals"

Among the most frequently encountered product classes found in wildlife seizures are those termed "medicine" or "derivatives". 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 and cosmetics 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. Examples include cosmetic face masks containing orchid extract of an unspecified species, dietary supplements with American ginseng, "caviar" face creams, and cobra venom analgesic salves.

There are several problems with including these seizures in wildlife crime

analysis. While enforcement agents must seize non-compliant shipments, many of these incidents appear to be the result of ignorance or negligence, not criminal intent. The evidence for the presence of the controlled species is often limited to the labelling on the package, found alongside the name and address of the manufacturer. It is unlikely these items are being produced by criminal organizations making use of poached materials. 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.⁴

closely related species. Medicinal and cosmetic products are among the more problematic (see Box "Medicinals").

Resolving these complications is likely to require some time, and so World WISE remains a work in progress, particularly with regard to valuation. Nonetheless, it is possible to assign a value to close to two-thirds of the 164,000 seizures in the database by a method fully described in the online methodological annex to this report. Based on those seizures that can be priced, preliminary calculations can be made, and these figures provide an empirical basis for the focus of this study.

What are the biggest transnational wildlife contraband markets in the world?

Once the relative significance of each seizure is taken into account, a range of comparisons can be made. For example, the most significant species in trade, from a criminal markets perspective, can be identified. Given that some 7,000 species are trafficked, some sense of priority

could be aggregated across species to derive an overall assessment. This would be an exercise of considerable complexity, best suited to experts in the biology of the species concerned.

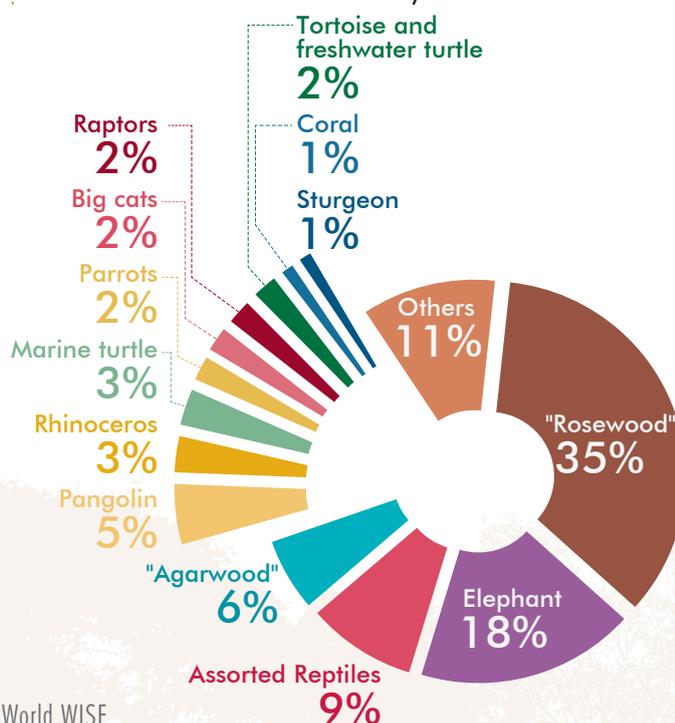
But if the objective is to measure transnational organized wildlife crime, a simpler metric is available: monetary valuation. Organized crime is crime committed for material gain. The material gain associated with any particular act of wildlife crime, therefore, captures its criminal significance.

The point of this valuation is not to calculate the true revenues accruing to criminals. It is to provide a common unit so that unlike specimens can be compared and aggregated. It is the relative value of each seizure that is most important. Of course, the value of any given specimen varies over time and between markets. But a rough relative value can be derived from prices in a single market from a set period of time. Once this relative value is established, it can be monitored for variation over time, as an index.

Unfortunately, it is not always possible to assign a price point to every seizure. Seizure data are often incomplete, and may be vague as to the

quantity seized. Finished products may simply be counted rather than weighed, or the packaging weighed along with the wildlife material. The wildlife involved may be logged at a high taxonomic level, and there may be stark price differences between

Fig. 4 Share of type of wildlife among total seizures (aggregated on the basis of standard value*) 2005-2014



Source: World WISE
*see online methodological annex for details



Table 1 Wildlife trade sectors, case study species-products, and other markets discussed

FURNITURE	ART, DÉCOR, JEWELRY (INVESTMENT)	FASHION	COSMETICS AND PERFUME	FOOD, MEDICINE, TONICS	PETS, ZOOS, BREEDING	SEAFOOD
Rosewood	Ivory	Reptile skins	Agarwood	Pangolin	Parrots	Caviar
		Big cat skins		Rhino horn	Freshwater turtles and tortoises	Marine turtles
				Bear bile	Great apes	

is essential in order to target interventions, and looking at seizure values aggregated by species between 2005 and 2015, a number of clear leaders can be identified. Together, just a few types of wildlife can account for 90% of the total.

A review of the data indicates that illegal wildlife markets do not correspond neatly to biological categories. Some markets make use of multiple species, while some species feed multiple distinct markets. For example, as is discussed in Chapter 5, the illegal exotic leathers trade makes use of a range of reptiles – including various species of python, crocodile, and lizard – poached for their skins. At the same time, pythons are illegally harvested not only for their skins, but their meat is eaten, their gallbladders are used in traditional medicine, and they are kept as pets. These different uses may see the same animal feeding into several criminal markets, sometimes in different parts of the world.

Keeping this diversity in mind, illicit wildlife markets, and the traffickers that feed them, can be highly specialised. With regard to destination markets, considerable attention has been given to open street markets where a wide range of protected species-products are often openly displayed. These markets are a reality, but they cannot account for the volumes of wildlife illegally harvested each year. Based on the locations of the largest seizures, border town bazars and back alleyways do not appear to be the venue where tons of fish, timber, and other wildlife products change hands. These volume commodities are usually marketed to specialists.

With regard to trafficking, there have also been seizures that suggest some groups are involved in smuggling multiple species. For example, ivory, rhino horn, and pangolin scales have been detected in the same shipment on multiple occasions. But these seizures are the exception rather than the rule, and most seizures in World WISE involve shipments of a single species. It is possible for the same trafficking group to move multiple commodities in separate shipments, of course, but the relative novelty of mixed shipments suggests that, as with dealers in destination markets, traffickers appear to specialise, trading in particular commodities where they know their buyers well.

In the end, it may be best to think of the international illegal wildlife trade as a series of related but distinct illicit markets, each of which must be independently assessed for its unique characteristics.

To better understand these markets, the most significant species in the seizure record were sorted by seven large industrial sectors that make use of wild sourced inputs: seafood; pets, zoos, and breeding; food, medicine, and tonics; art, décor, jewellery; cosmetics and perfume; fashion; and furniture. These legal industries can be contaminated by the introduction of illegal supply, and this vulnerability must be assessed to understand the criminal market. Key species-products for each sector are explored as case studies. Some secondary examples are also considered in boxes.

These following chapters examine each of these industrial sectors, and their

associated case study species-product, in some detail. The central question in each is whether and how illegally sourced wildlife may be feeding legitimate markets.

Endnotes

- 1 This cooperation is in line with the ICCWC Strategic Mission 2014-2016 and the ICCWC Strategic Programme 2016-2020. See <https://cites.org/eng/prog/iccwc.php/Strategy>
- 2 See the online methodological annex to this report for a complete description of the data sources.
- 3 See “Biennial Reports” at the CITES website: <https://cites.org/eng/resources/reports/biennial.php>
- 4 Steven G Newmaster, Meghan Grguric, Dhivya Shanmughanandhan, Sathishkumar Ramalingam and Subramanyam Ragupathy, “DNA barcoding detects contamination and substitution in North American herbal products.” *BMC Medicine*, Vol 11, p 222, 2013.