

# Summary and Overview

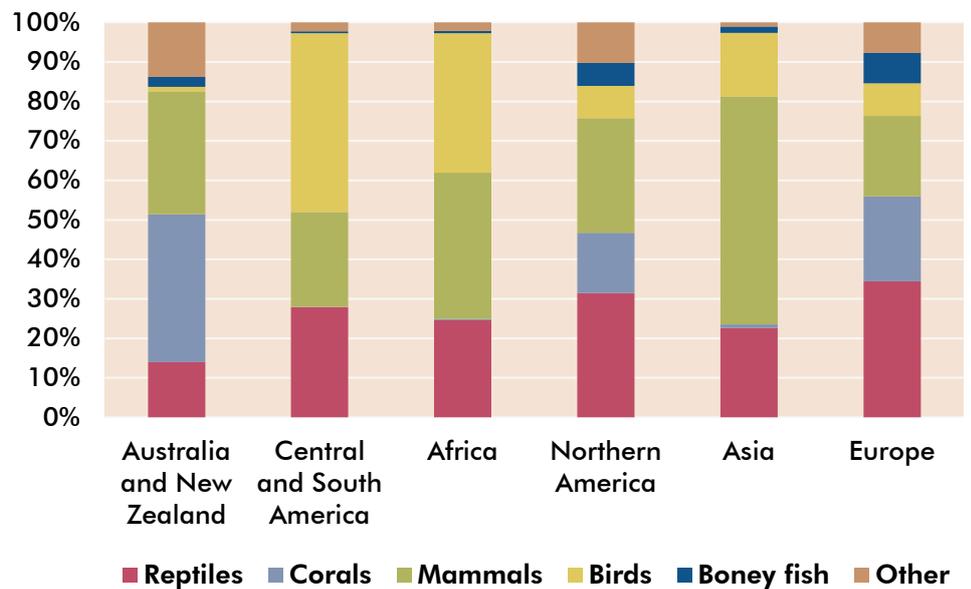
The trafficking of wildlife is increasingly recognised as both a specialised area of organized crime and a significant threat to many plant and animal species. In response to this growing awareness, UNODC has been mandated to build a Global Programme on Wildlife and Forest Crime, and research is a key part of this Programme. This report represents the first global wildlife crime assessment conducted by UNODC, with the support of the International Consortium on Combating Wildlife Crime (ICWC), making use of the global seizure database “World WISE”.

A work in progress, the World WISE database currently contains over 164,000 seizures from 120 countries. It is rooted in data submitted by the parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora, known as CITES. These data were shared with UNODC through ICWC. Another ICWC partner, the World Customs Organization, contributed data from its Customs Enforcement Network (CEN). These CEN seizures are often made due to CITES violations, so most of the data in World WISE involve CITES listed species.

The nature of this data source affects the scope of this report. CITES lays out rules for trade in over 35,000 protected species, and it requires its parties to penalise trade in violation of these rules. But there are many crimes affecting wildlife that have nothing to do with these species. For example:

- the millions of species that are **not listed by CITES** may be illegally harvested and traded internationally, as is frequently the case in timber and fish trafficking;
- CITES is limited to regulating international trade, so the illegal harvesting of wildlife, such as the **poaching** of protected species, does not fall within its scope;

**Fig. 1** Share of all seizure incidents in World WISE by taxonomic class and region, aggregated 1999-2015



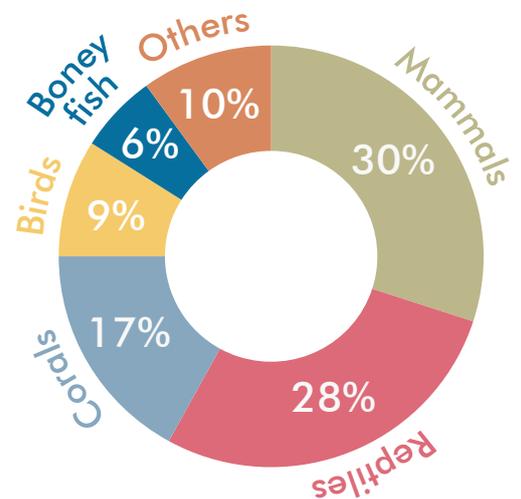
Source: World WISE

--- **domestic markets** for wildlife are also beyond its jurisdiction, so long as the products concerned cannot be proven to have crossed borders in contravention of CITES rules.

Thus, by focusing on CITES-related seizures, the core data used in this report do not cover all aspects of wildlife crime. In addition to these core data, however, additional research was performed for this report by a range of species experts. Making use of this additional research, other forms of illegal harvest and trade are considered where this activity is relevant to the markets examined. Consequently, for the purposes of this report, “wildlife crime” refers to **harvesting and trade contrary to national law**, particularly, but not exclusively, the national laws implemented in fulfilment of CITES obligations.

The World WISE database is still under development, and there remain gaps in its geographic and temporal coverage. In addition, there are inherent limitations on the uses of seizure data, and not all seizure data are of equal quality. With these limitations in mind, World WISE is used cautiously in this report.

**Fig. 2** Share of taxonomic class among total aggregated seizures in World WISE by region, aggregated 1999-2015



Source: World WISE

That said, even a cursory analysis of World WISE illustrates the diversity of wildlife crime. Nearly 7,000 species have been seized, including not only mammals but reptiles, corals, birds, and fish. No single species is responsible for more than 6% of the seizure incidents. Virtually every country in the world plays a role, and no single country is identified as the



source of more than 15% of the total number of seized shipments captured in the database. Suspected traffickers of some 80 nationalities have been identified, illustrating the fact that wildlife crime is truly a global issue.

All regions of the world play a role as a source, transit, or destination for contraband wildlife, although certain types of wildlife are strongly associated with each region. Birds are

most strongly associated with Central and South America; mammals with Africa and Asia; reptiles with Europe and North America; and corals with Oceania.

While wildlife crime occurs across the world, some species and regions are more affected than others. To prioritise the use of limited resources, some quantification of the threats posed by wildlife trafficking flows is necessary.

And while looking at the number of times a particular species or region is implicated can give some general insights, not all seizures are equal. Some comprise multiple container loads of illegal wildlife, while others involve a single item in the hand baggage of a tourist. Plumbing the depths of these data requires an additional element, something that takes into account the scale of the seizure.



### Interpreting seizures

Like a pixel in a snapshot, wildlife seizures can be misleading in isolation, but when combined in great numbers can yield penetrating insight into a hidden world. 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 the trafficking or shed much light on law enforcement capacity.

The real value of seizure data comes not from what they say about the country making the seizure, but what they say about the rest of the trafficking chain. Most CITES-related wildlife seizures are made when the goods are being transported, and the source and destination of the shipment are specified in the vast majority of recorded seizure incidents. Rich detail can be culled concerning the routes and techniques used by the traffickers, and even which interdiction strategies are most successful. Triangulated with qualitative research, they can provide a key data source for understanding the mechanics of wildlife crime.

Comparing and aggregating wildlife seizures is complicated, however, because of the variety of products involved. For example, the seizure of a box of 10,000 dried seahorses is very different in every respect from the seizure of a shipping container of illegally harvested rosewood logs, or a suitcase with three rhino horns. They cannot be treated as equivalent, by simply counting the seizure incidents. The number of specimens cannot be counted: the wildlife is often processed before shipment, so the number of ani-

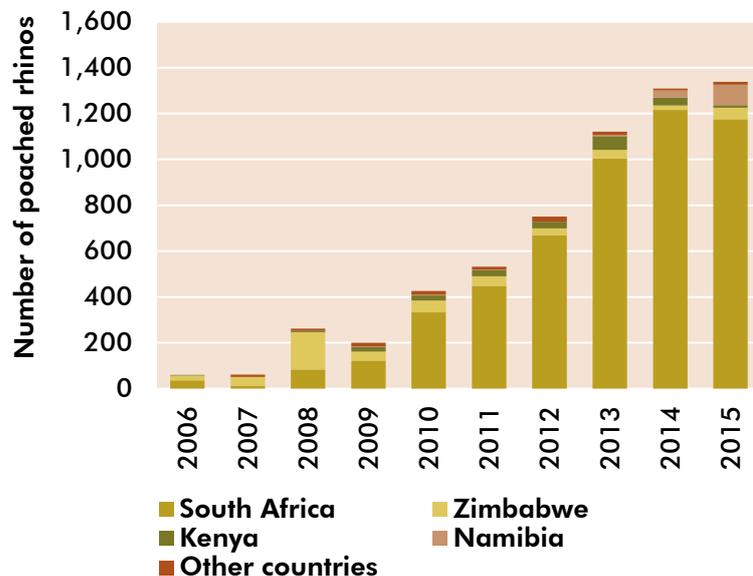
mals or plants involved is often unclear, and it would be unreasonable to equate a seahorse with a rhinoceros. They also cannot be compared on the basis of weight, since the crude mass of the wildlife in no way captures its significance.

The importance ascribed to a wildlife seizure depends on the purpose of the analysis. Organized crime is crime committed for material gain, and the extent of this gain is of great relevance for traffickers. Thus, to capture the criminal significance of a wildlife seizure, it makes sense to assign a monetary value to it. To provide this valuation, over one million declared import values were statistically assessed and each seizure assigned a monetary value based on this dataset. The valuation process is discussed in Chapter 2 and fully explained in an on-line methodological annex to this report. These values are not presented as a proxy for the true

black market price, but they can act as a yardstick, giving a sense of the relative value of a seahorse to a rhino horn to a rosewood log.

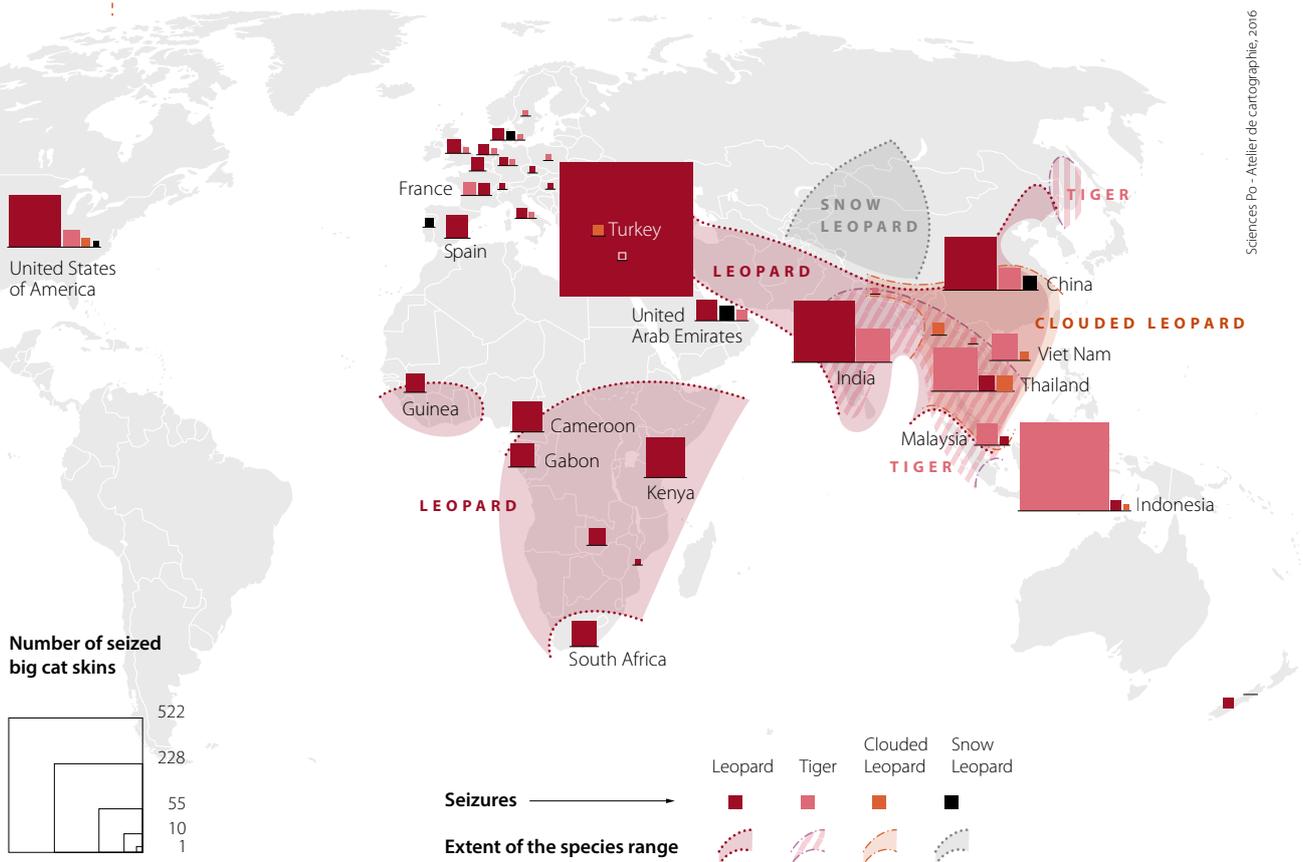
Finally, for a number of reasons, seizures of individual species of wildlife are highly volatile. For example, the average year-on-year variation in the total weight of ivory seized globally between 1997 and 2011 was 33%, with increases and decreases equally represented. Changes in both national and international regulations can have dramatic impact, as goods that were previously legal suddenly become subject to strict regulation. As a result, discussion of trends on a species basis is difficult, and the clearest trends are seen where poaching is documented in a species with a small and concentrated population, such as rhinos in South Africa (Chapter 7).

Number of African rhinos poached by country, 2006-2015



Source: Emslie et al 2016

## Map 1 Seizures of big cat skins, by species, aggregated 2005-2014



Sources: World WISE and IUCN Red list

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 approach taken in aggregating seizures in this report is different from the one that would be needed if the purpose of the analysis were to measure conservation impact. To do this, each seizure would need to be converted into live equivalents, and this number compared to estimates of the remaining population, taking into account the reproductive prospects of the species. For example, World WISE includes 380 tiger skin seizures between 2005 and 2014, worth only about US\$4 million. But there are only perhaps 3,000 tigers left in the wild, so the ecological impact of these 380 skins is much more than their monetary value (see Chapter 5).

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. Together,

just a few types of wildlife can account for just under 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.

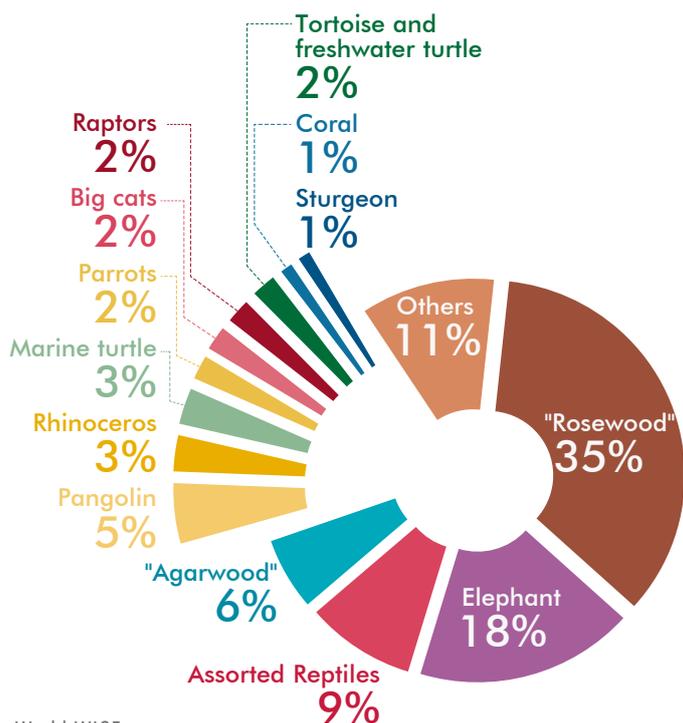
Keeping this diversity in mind, illicit wildlife markets, and the traffickers

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



**Fig. 3** 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

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 into seven large industrial sectors that make use of wild sourced inputs:

- Seafood
- Pets, zoos, and breeding
- Food, medicine, and tonics
- Art, décor, and jewellery
- Cosmetics and perfume
- Fashion
- Furniture

As explained further below, some wildlife trafficking flows primarily feed illicit retail markets, while others feed into the licit trade. 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 briefly.

Each case study lends special insights into the ways wildlife trafficking is perpetrated, suggesting the drivers and dynamics of the criminal trade. The following is a summary of key findings about the role of transnational organized crime in the markets for these internationally protected species.

### Vulnerability to organized crime

The benefits of regulating licit trade of wildlife have been discussed on many occasions. The parties to CITES have asserted that commercial trade may be beneficial to the conservation of species and ecosystems, and to the development of local people. The aim of this research is not to discuss such benefits, but rather to analyse the nature of illicit wildlife markets and assess the ways in which illicit trade interacts with licit trade. Information on the linkages between licit and illicit trade is important for targeting interventions to address the vulnerabilities of the licit trade and to strengthen the global regulatory system.

In some case studies reviewed, it appears that the legal and illegal markets remain fairly distinct. For example, products made of elephant ivory can be legally bought and sold

**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	

in many countries. Most countries allow for the sale of antique ivory, such as pianos with ivory keys, because the elephants were killed before international controls were in place. There are also countries where dealing in freshly-taken ivory is allowed, including countries where elephants naturally range.

But these legal markets appear to be rather small in the amount of ivory they consume. Researchers have been cataloguing the items offered for sale in various national markets for decades, and the number of individual items counted rarely exceeds 20,000 objects. In contrast, based on population and poaching surveys, as well as seizure and forensic data, it appears hundreds of tons of illegal ivory are trafficked each year. Because the known legal demand is much smaller than the estimated illegal supply, it appears that the primary retail market for illicit ivory is itself illicit, and only a small share could be laundered through the legal markets (see Chapter 4).

Similarly, there is hardly any legal international market for Asian pangolin products today, yet tons are seized each year. The tiny legal international trade could not be providing cover for what is clearly a massive illegal one. Rhino horns are another product without a legal market – zero trade is permitted for commercial purposes and there is no domestic market in range states (for both markets, see Chapter 7). These markets are entirely illegal.

In some cases, however, it appears a large share of the illegally acquired wildlife is ultimately sold in a legal market. By introducing illegal products into licit markets, traffickers have access to a much broader pool of potential buyers. For example, the legal markets for wood and seafood are vast, and most of the world's fish and timber continues to come from wild sources (Fig. 5 and 6). Research conducted for this report has found that some species of fish (sturgeon) and some species

**Fig. 4** Number of pangolins legally traded and seized as contraband globally, aggregated 2007-2013



Source: For legal trade, CITES Trade Database; for seizures, World WISE

of timber (“rosewood” species, and those producing agarwood) may be illegally sourced yet sold in licit markets. These commodities have access to legal demand, because the buyers may be unaware of the illegal origin of the product.

The case studies conducted for this report indicate that certain markets are vulnerable to the infiltration of illegally sourced or trafficked wildlife:

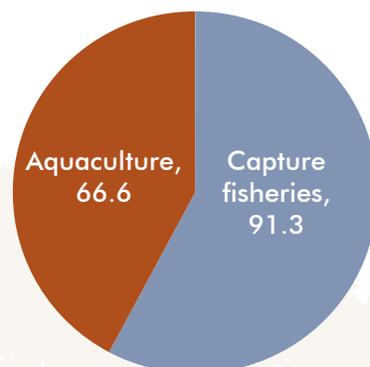
--- **Where there is no international regulation.** If the species involved are not CITES listed, such as certain species of rosewood, illegally sourced wildlife products can be freely traded internationally once they have departed their country of origin.

--- **At wild source.** In the source country, illegally acquired wildlife may be introduced into the legal supply chain before export, if harvest controls are weak, as appears to be the case with reptiles in some parts of the world.

--- **Farm laundering.** Captive breeding, or farming, operations can be used to launder illegally wild-sourced products, as indicated in the analysis of agarwood markets.

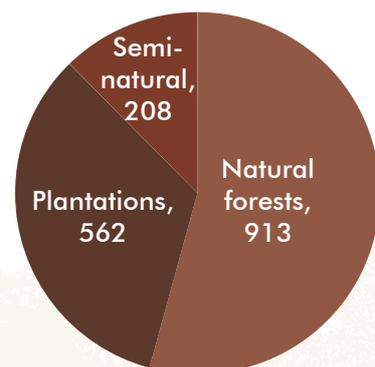
--- **Trafficking between two legal markets.** Where possession is uncontrolled in both source markets and destination markets, as in the case of African grey parrots, these two legal

**Fig. 5** Global production of fish by source (millions of metric tons), 2012



Source: FAO

**Fig. 6** Global production of industrial roundwood by source (millions of cubic metres), 2012



Source: FAO



markets can be connected by a single trafficker.

--- **Under cover of fraudulent paperwork.** By forging, fraudulently acquiring, or buying the required paperwork, contraband can become legal merchandise, as can be seen in many instances captured in the World WISE database.

Since many wildlife products suffer from similar vulnerabilities, it seems likely that these same dynamics apply to other species, although more research is needed to ascertain whether this is, in fact, the case. There also may be many other vulnerabilities that did not emerge in the case studies for this report.

### Where there is no international regulation

This vulnerability was detected during the case study on rosewood (Chapter 3). “Rosewood” is actually a broad trade name referring to a number of species used in fine furniture manufacture. This market has grown rapidly in recent years. In response, some rosewood species were CITES listed, but many were not. As CITES controls came into place, traders began to rapidly extract those species that were not listed. Source countries, alarmed at the rate of loss, put their own controls in place, including bans on the harvest and export of rosewood species. But without the help of the CITES system, these efforts appear to have made very little difference, and many metric tons of wood were legally imported nonetheless.

Without CITES, most countries cannot legally reject a shipment of rosewood simply because it was harvested or exported contrary to the laws of the source country. These countries have no basis in their domestic law for acknowledging the wildlife regulations of other countries. As a result, once the goods leave their home harbour, this illegally acquired wildlife can be legally traded in most countries around the world.

### Uncontrolled wild sourcing

The case study on reptile skins (Chapter 5) suggests another way that illegally sourced wildlife can enter legal markets: through uncontrolled wild sourcing. About half of the python skins legally traded internationally come from the wild. In some source countries, most of this collection is conducted informally by a large number of rural people scattered over a wide area. Pythons gathered in protected areas or otherwise illegally sourced may be sold domestically to legitimate tanneries in this way. The “laundering” takes place before CITES controls can take effect.

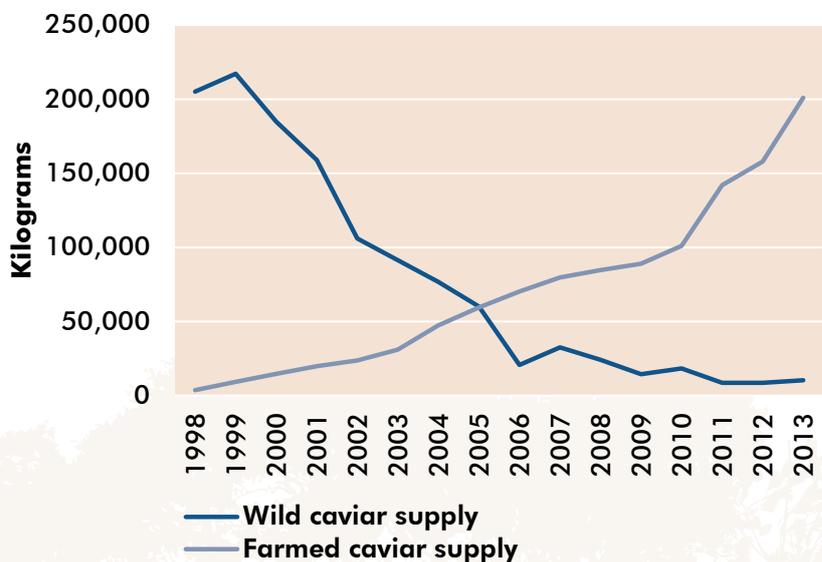
A similar dynamic used to be seen with illegal caviar (Chapter 9). Caviar is a processed product which is commonly supplied in bulk form for premium repackaging. In the past, legally acquired caviar was found to be mixed with illegally acquired caviar at various points in the supply chain, including in destination markets. The same is true with glass eels today (Chapter 9). Due to the decline of sturgeon species worldwide, most legal trade in caviar comes from farmed sources currently. Farming represents yet another point of vulnerability.

### Farm laundering

The agarwood case study (Chapter 6) makes clear that cultivation of wild species can be complicated. Since international controls are designed to protect the wild, farming would appear to be one answer. But in some cases, such as agarwood, cultivated alternatives are technically difficult and expensive to develop. They may also deliver products deemed inferior to wild products in key destination markets. In these instances, captive breeding facilities may be vulnerable to becoming laundering operations. These risks are particularly high in rapidly growing markets, where demand outstrips the licit supply capacity, such as agarwood.

In the past, agarwood was sourced from old growth forests, from trees decades or even centuries old. The ageing of agarwood in its distinct environment was believed to give each sample its own unique scent profile. Recent growth in the scale of demand has decimated these old populations, and launched a large number of ambitious cultivation operations. But trees take time to grow and the technology of agarwood production remains incomplete. Some experts are sceptical about the current capacity to produce

**Fig. 7** Wild-sourced caviar exported and aquaculture caviar production (kilograms), 1998-2013



Source: CITES Trade database, UNODC Research

quality agarwood, and yet many tons are legally exported each year.

## Trafficking between two legal markets

The case of the African grey parrot (Chapter 8) highlights how illicit trafficking between two completely legal domestic markets can occur. The African grey parrot is still relatively prevalent in the wild in parts of Central Africa, although some national populations have been decimated by illegal trade and habitat loss. In those countries where it is commonly found, there are limited restrictions on collection from the wild, since local demand is too small to have a negative impact on the species. But since experience has shown that foreign demand can lead to overharvesting, the species is CITES listed, with quotas or trade bans in place. In destination markets, the species is commonly bred for the pet trade, so African grey parrots are openly sold around the world.

The problem comes when criminals circumvent the CITES system and wild sourced parrots are smuggled. With high rates of mortality between the wild and destination markets, many more parrots are taken than come to breed. Since collection is legal in some source countries, while breeding and sale are legal in many destination countries, most aspects of the market are conducted openly. Only a single trafficker is needed to subvert these two legal markets.

## Fraudulent paperwork

One issue that emerged across case studies is the role of fraudulent paperwork. For example, World WISE documents over 100 cases where Siamese rosewood was seized in Thailand over the years due to misdeclaration of species. Nearly 700 live raptors were seized by Belgian police in 2010 due to falsified CITES documents, the same year Czech authorities made a series of parrot seizures for similar reasons. As with antiquities, pharmaceuticals, or firearms, the proof

of wildlife legality is documentation, and this fact represents a source of criminal vulnerability.

In many cases, hiding wildlife shipments is impractical. Species such as rosewood are so bulky in marketable quantities that shipments are difficult to conceal, while live animals such as parrots or raptors may require special conditions to arrive intact. But customs agents cannot inspect every shipment, and may have difficulty in recognising endangered species even when they do. In these instances, fraudulent paperwork can be used to export the goods overtly.

The international illicit trade in live great apes (Chapter 8) would not be possible without corruption. Even as infants, apes are large, powerful, and too valuable to lose in transit. Past schemes have included false declarations of captive breeding, and purchased paperwork from corrupt officials. Fraudulent zoos may also be used for import purposes, when the true intent of the import is commercial trade. With rhinos (Chapter 7), the system of hunting permits was exploited, with pseudo-trophy hunters exporting horns to be sold in illicit markets.

More subtly, a system of species-based protections requires that all participants are capable of distinguishing species, but making these distinctions can be challenging. More crudely, paperwork may be forged, or old permits retained and altered for future exports, as has been detected in parrot markets (Chapter 8). Unused paperwork has even been publically offered for sale. As CITES moves to a system of electronic permitting, many of these abuses may be addressed, but the challenges of preventing corruption in such highly lucrative international markets may remain.

## Links to broader issues

Wildlife poaching and consumption are strongly associated with development and culture, so these two factors must be weighed in wildlife

crime prevention strategies. Poverty can provide incentives for poaching, but economic development can provide the means – as detailed in this report, road construction and forestry projects, for example, allow access to pristine and wildlife-rich areas. Habitat loss due to unsustainable land development often poses a greater threat than illegal hunting and gathering. Growing wealth is also a major driver of demand, as more people are able to afford luxury wildlife products formerly inaccessible to them. As economic development progresses in both range countries and destination markets, so will demands on wild areas.

It is often alleged that wildlife trafficking contributes to political violence, or even terrorism, but these claims should be scrutinised. As has been demonstrated in the regional transnational organized crime threat assessments produced by UNODC, territorial insurgent groups act like a surrogate state in many respects, taxing all economic activity, including the extraction and trade of natural resources. Combatants may harvest wildlife at a greater rate than the state, or they may not, depending on local circumstances and the particularities of the market. In some cases, violent conflict may stall the development of wild areas, while in others, long term conflict has stripped the contested area of its wildlife.

For example, it is often alleged that African terrorist groups are making large sums of money by poaching elephants for their ivory in the areas they control, but it is difficult to see how that is possible. Most of the insurgent groups active today are operating in elephant-poor areas, depleted, in part, due to years of conflict (Figure 10). In areas that do still retain elephants, like Garamba National Park, there are so many armed groups present that ivory is unlikely to provide a sustainable income to any of them. There are not enough elephants in these areas to make poaching a significant source of finance to non-state armed groups. Forensic analysis indicates that most



**Fig. 8** Number of African elephants (“definite” and “probable” population estimates) in 11 countries with insurgency and 43 countries at peace



Source: IUCN/SSC/AFESG African Elephant Specialist Group

of the illicit ivory is coming from just a few publically managed reserves, and the location of these reserves suggests that corruption, rather than conflict, is the primary enabler of elephant poaching (Chapter 4).

Wildlife trafficking has been the source of insurgent finance in the past, however, and cannot be categorically discounted. For example, fieldwork

conducted for this report indicates that a large share of the rosewood entering international trade through the Gambia is actually sourced by rebel groups in the Casamance region of Senegal. This illegal cross border trade allows dealers on one side of the border to profit from instability on the other (Chapter 3).

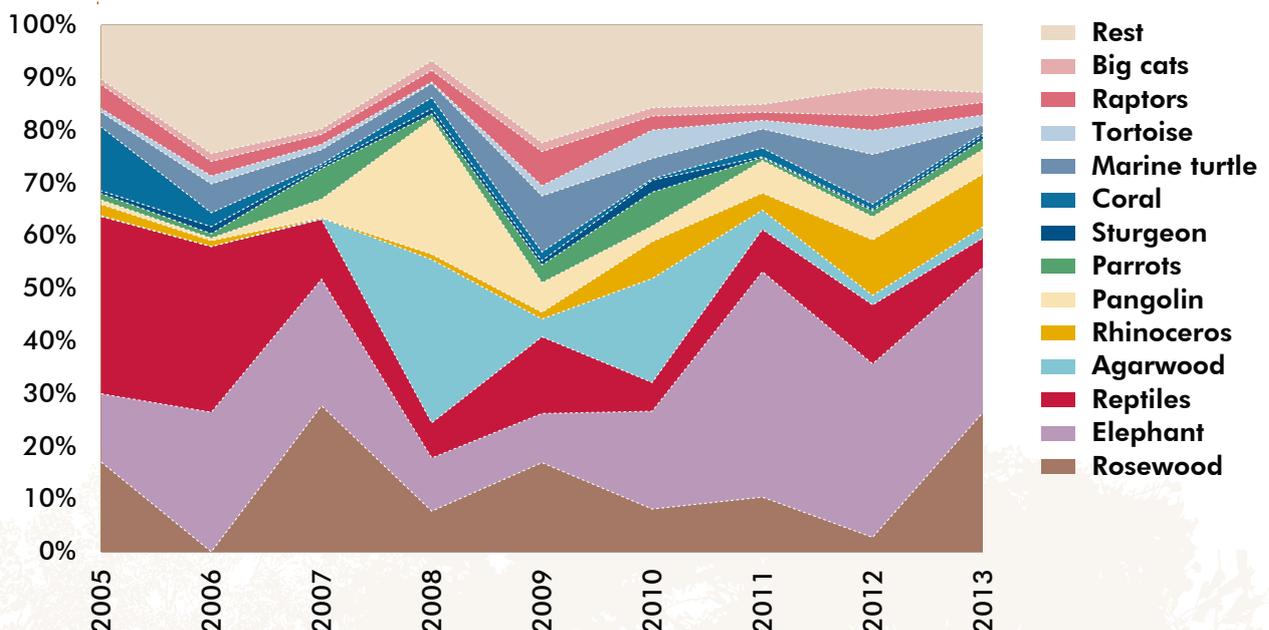
### How big is the market?

Many estimates have been touted for the annual value of illicit wildlife trade, but few with any transparency. While the markets for specific species products can be estimated with varying degrees of precision, it would be impossible to perform this level of analysis for all 7,000 species in World WISE, let alone all the species that do not experience CITES protection.

The point at which the product becomes “illegal” differs between species, and the value of illegal wildlife products can be substantially increased by legal value-added. While a US\$10 illegally harvested snake skin can be transformed into a US\$10,000 designer handbag sold in a boutique, it would be misleading to add this retail value to the illicit trade, because criminals do not generally operate designer boutiques.

Furthermore, wildlife markets are apparently subject to considerable volatility. This characteristic is evinced in several ways. The valuated World WISE data show the variability in the composition of the seizure record,

**Fig. 9** Share of type of wildlife among total seizures (standard value\*), 2005-2013



Source: World WISE  
\*see online methodological annex for details

which may, or may not, reflect underlying illicit flows. This value is often the result of a small number of very large seizures (Fig. 9).

In addition, there appears to be speculation in some of the highest value wildlife products, because prices and import volumes vary starkly year on year. In some cases, the market could have been influenced by the prospect of greater controls, resulting in panic buying or sell offs. International trade in pangolin products spiked just before zero export quotas were implemented (Chapter 7). The fact that international regulations can create or destroy markets is a characteristic shared among protected species products, enriching those who are able to anticipate these regulations. Given this level of volatility in both the seizure record and what is known about the underlying markets, it is nearly impossible to give an accurate and consistent estimate of the criminal revenues generated by wildlife trafficking.