In the last *World Wildlife Crime Report*, several species of reptiles appeared among the most trafficked species in the world, including crocodilians, lizards, snakes, tortoises and freshwater turtles. The same species remain prominent in the analysis conducted for this report. The three largest markets for illegally traded reptiles that appear in the seizure records are:

- Reptile skin or shells used in the décor or fashion industries;
- Reptile meat organs, or venom consumed as a food, tonic or medicine;
- Live reptiles used as pets, for zoos, or breeding.

Because the smuggling of live reptiles often results in high mortality rates, seizures involving live reptiles or whole reptile bodies are included in the analysis below as “live reptile equivalents.” In addition, species known to be widely used for their meat or skin or widely farmed were excluded, so the analysis below focuses on wild-sourced species that are likely to be traded as pets or among reptile collectors and breeders.

The last *World Wildlife Crime Report* focused on the illegal skin trade, highlighting the ways that unregulated collection of wild pythons and boas can introduce illegally caught skins into the legal fashion industry. Since this time, however, according to the CITES Secretariat, fashion brands, designers and department stores have expanded their support to reptile conservation programmes around the world. While small leather items (such as handbags, wallets, belts, and shoes) continue to be the single largest category of reptile products seized, the number of live reptiles seized is comparable to the number of reptile skins from crocodilians, snakes, and lizards seized, and live reptile seized.

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According to World WISE, nine out of the top ten CITES-listed wild-sourced live reptile species seized in recent years, based on a head count, were tortoises and freshwater turtles (Figure 1). Consequently, this chapter pays particular attention to the illegal trade in live turtles and tortoises.
The majority of the live reptiles seized (70 per cent) were listed on Appendix II of CITES, with 18 per cent on Appendix I and 4 per cent on Appendix III. The remaining live reptiles seized for CITES violations were not identified down to a taxonomic level that allowed for an exact appendix listing classification. The top 10 CITES-listed live reptile species seized, excluding food species, are indicated in the table 1 below, along with their Appendix listing and IUCN status.

In addition to World WISE data, the chapter uses qualitative data based on a series of 30 interviews with reptile experts and people involved in the live reptile trade during 2019. Live reptiles detected in illegal international trade come from several different parts of the world, including South Asia, Central Asia, South-East Asia, East Africa and West Africa. Based on World WISE seizure data, India is the leading national source of seizures and is the source of a variety

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**Fig. 1** Share of broad reptile groups in total number of live reptile equivalents seized, 2007-2017*

**Fig. 2** Share of top ten CITES-listed live reptiles seized, 2007-2017

**Fig. 3** Share of source countries for the top ten live reptile species seized,* 2007-2017

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*Excluding food species. Includes bodies.

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*Includes live specimens and bodies. Based on 6,015 seizure events.

*Includes bodies.

**The top ten live reptile species seized represent 33% of all reptiles seized when looking only at bodies and live specimens.
of species, most notably the Indian star tortoise (*Geochelone elegans*). Uzbekistan appears prominently due to the indigenous Russian tortoise (*Testudo horsfieldii*). Madagascar is seen as the source of seizures of at least 30 species of reptiles, but most prominently the radiated tortoise (*Astrochelys radiata*). The black pond turtle (*Geoclemys hamiltonii*) is seized from a wide range of source countries, including India, Indonesia, Malaysia, Pakistan and Thailand.

The wide range of seizure source locations makes it difficult to generalize about the means of collection. Based on interviews with international reptile traders, poachers collect animals by hand or with snares, pitfall traps, fishing line or funnel traps, and sometimes specialized hunting dogs. The advent of YouTube and other video sharing sites has resulted in an abundance of “how to” videos promoting the best ways to catch certain species, especially in South-East Asia. Most poachers living in the range area collect reptiles opportunistically for secondary income and keep them at their homes until middlemen come to collect them. They may also breed and grow-out reptiles.

At this early point in the trafficking chain, prices paid are often very low. For example, illegal market prices for turtles in the Philippines range from US$1-15 per turtle at the source. These are sold for 10 to 100 times that at the retail level. Radiated tortoises (*Astrochelys radiata*) from Madagascar are sold for US$2-10 at source, while they are sold to the end consumer for US$1,000-2,000 (for a one- to three-year-old animal, depending on the colour).16

Interviews with reptile traders around the world suggested that contraband reptiles may be laundered through captive breeding operations. International traders say that some suppliers will illegally source gravid females from the wild, so that they lay their eggs at their farm, and they then declare the offspring to be captive-bred. “Niche” species, with very specific or lesser-known ecologies, diets and behaviours that make them difficult or costly to breed in captivity, are typical targets for this sort of laundering.17

### Trafficking

The intention of this kind of wildlife trafficking is to get the animals to arrive alive at their final destination. To reduce mortality rates due to suffocation, dehydration, starvation or otherwise, most international trafficking of live reptiles occurs by air. 56 percent of the live reptile seizure incidents in World WISE that included transport information involved air transport.

According to interviews with reptile dealers around the world, turtles and tortoises are a good product to sell because they tend to sell for higher prices than other reptiles and survive transportation well, providing higher profit margins. Some turtle and tortoise species are valuable enough to air courier, making use of carry-on or checked luggage. Some experts interviewed reported cases involving their homes until middlemen come to collect them. They may also breed and grow-out reptiles.
airport personnel facilitating the trafficking of ploughshare tortoises (Astrophels yniphora), for example. A smaller number of seizures of large to very large shipments (i.e. several hundred or thousands of live specimens) have also been documented suggesting the involvement of well-organized criminal networks, consisting of collectors, local traders, wholesalers, exporters and importers.

Based on seizures, Asia is the main destination (or possible transit destination) for the illegal live reptile trade. East and South-East Asia, followed by the United States of America and Europe, are the main destinations for tortoise and freshwater turtle species. Trafficking routes are in constant flux with traffickers seeking out emerging transit opportunities and concentrating their activities in major air transit hubs. These hubs provide more direct flight options that reduce the transit time necessary to get trafficked live reptiles to their destination, limiting deaths in transit. The trafficking flow map at the beginning of the chapter provides an overview of some of the current trafficking routes.

Small-scale seizures of less than 15 reptiles per shipment accounted for 80 per cent of seizures in World WISE. For these small-scale seizures, the 15 most valuable species seized represented only 9 per cent of shipments; the large majority of shipments were of less valuable species. Many seizures of tortoises and freshwater turtles seem to involve small numbers of animals carried or kept as personal pets or souvenirs. Trends in the illegal trade in tortoises and freshwater turtles, though, do differ geographically, with a relatively large number of seizures in Europe and North America involving smaller quantities of specimens per event, whilst a smaller number of seizures in Asia resulted in much greater quantities of specimens seized. A smaller number of seizures of large to very large shipments (i.e. several hundred or thousands of live specimens) have also been documented suggesting the involvement of well-organized criminal networks, consisting of collectors, local traders, wholesalers, exporters and importers.

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WhatsApp groups have also been used to traffic reptiles since the Facebook crackdown. These groups are smaller than those from Facebook because WhatsApp limits the number of people that can join groups. Perhaps partly as a result, these splintered groups have become more specialized, with some focusing on specific species. Some groups also moved to Telegram, which has no group member limit. In some cases, these moves have made illegal activity more difficult to detect because they make use of encoded private messaging applications.

Fig. 4 | Share of the most reported final destination or transit countries for the top ten live reptile species seized, * 2007-2017

Source: UNODC World WISE Database

* Excluding food species. Includes bodies.
per cent of the seized cheetahs was liaison (32 cheetahs). The destination for 69 were Ethiopia (67 cheetahs) and Somalia (known in 62 per cent of cases), main countries of origin for these shipments. Together, these data provide a more complete picture of the live cheetah trade: 144 live cheetah seizures from 2005 to 2019, accounting for 213 live seized cheetahs. These numbers do not include domestic seizures or seizures for the skin trade, which are some of the additional threats to the species. The main countries of origin for these shipments (known in 62 per cent of cases), were Ethiopia (67 cheetahs) and Somalia (32 cheetahs). The destination for 69 per cent of the seized cheetahs was unknown, but it is worth noting that of these seizures, Somalia (including Somalia) seized 111 cheetahs and the United Arab Emirates seized 53 cheetahs between 2005 and 2019.

Prices for a live cheetah on the black market can reach up to US$15,000, which is 50 times what illegal traders in Africa receive (anywhere from US$200 to 300). Survivorship of cheetahs, both adults and cubs, in the illegal trade is quite low, between 30 to 52 per cent. Juvenile mortality is even higher, as many as five out of six cubs taken from the wild will die before they reach their final destination and many kept as pets will die due to the fact that most owners do not know how to properly care for them, generating an ongoing demand for new individuals. Given the ongoing risks to cheetahs from habitat loss, human-wildlife conflict, and poaching, and their significant decline in population from an estimated 14,000 in 1975 to 7,100 in 2016, the illegal trade is non-negligible threat. At the 70th meeting of the CITES Standing Committee in 2018, Ethiopian, Kenyan and Yemeni authorities noted that the illegal trade spans a far wider range of countries and that its volume is largely underestimated, posing a significant threat to wild populations. In 2014, experts suspected that some South African breeding facilities were laundering wild-sourced cheetahs as captive-bred. In 2016, CITES recognized that South African breeding operations were important to wild populations: the global decline of the cheetah (Acinonyx jubatus), 2015.

Commercial trade in wild cheetahs has been prohibited since 1975; however, there is an annual export quota in place for three countries pertaining to trophies and live trade (5 from Botswana, 50 from Namibia and 150 from Zimbabwe). See CITES Appendix I (available at: https://www.cites.org/en/app/appendices.php); UNEP-WCMC, The Species website (available at: www.speciesplus.net). World WISE data were supplemented with seizure records provided by the Cheetah Conservation Fund (CCF). Only verified seizures with animals recorded present at CCF safehouses where included in the analysis. Animals that died during confiscation and on route to a safehouse were included. The source country was known for 71% of these seizures (355 cheetahs) and the destination was known only for 18% (38 cheetahs).


Durant et al. 2015, op. cit; Tricorache et al. 2018, op. cit.


CITES Seventieth meeting of the Standing Committee (SC70), Inf. 44, Supplemental information on illegal trade in cheetah (acinonyx jubatus), 2018.


This rise in online markets allows hobbyists, and not only traders, to import and breed on a small scale and sell directly to other hobbyists, both to supplement their income and fund their hobby. In doing so they cut out the middleman and the overhead costs involved in brick and mortar operations. Private sellers are less exposed to law enforcement and specialized shipping services make it easy to ship from home.

In addition to these virtual meeting places, large reptile shows often act as rallying points for collectors and dealers to build relationships and trade merchandise. Sales of illegally imported reptiles at such shows are generally pre-arranged via social media and private messaging so the dealer can meet buyers outside the show to avoid law enforcement scrutiny as well as avoid the risk of returning with unsold trafficked animals.

In September 2019, Austrian customs at Vienna International Airport intercepted an Austrian national living in the Philippines with a suitcase filled with 43 venomous snakes and 45 other reptiles. His plan was to cross the open border between Austria and Germany and sell the animals at Terraristika Hamm, a quarterly trade fair that claims to be the largest of its sort in the world. Dealers at shows find different ways of circumventing legislation and bans on selling protected species. These include laundering the animals as captive bred, marking animals that are illegal to trade as “display only” in order to ensure dealers are officially acting within the law. Dealers can also label animals as being sold for “scientific or educational purposes only” in order, for example, to bypass legislation preventing commercial trade in turtle specimens smaller than 4 inches (10.2 cm). After some scandals, most of the larger reptile shows in recent times have stricter controls to prevent these kinds of operations. A greater focus on traceability and proof of valid captive breeding claims would also help prevent these abuses.

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Endnotes

1 See figure 3 on the share of type of wildlife among total seizures (aggregated on the basis of standard value) 2005-2016 on page 16 of the first World Wildlife Crime Report published by UNODC in 2016. Included in these most trafficked species are various species of python, boa, monitor, alligator, crocodile, and caiman, as well as turtles and tortoises.

2 Small leather products made of reptile skin are very common (more than 13,000 seizures) but two-thirds of these were of one or two items (such as two shoes). These seizures may be related to tourists or others who inadvertently travel internationally with products made of protected reptile skins, rather than the actions of traffickers. Reptile skin seizures are sometimes reported by weight or another unit (as are live reptiles less commonly), but based on those seizures in which a count is given, there were 386,156 reptile skins seized in World WISE, compared to 316,393 live reptiles. World WISE contains 5,099 seizures of live reptiles (99.2% in which a count is given), compared to 1,644 seizures of reptile skins (98% in which a count is given).

3 Note that the World WISE database separates taxidermy specimens from dead bodies so the whole reptile bodies mentioned here are not meant for the taxidermy market.

4 Looking at the volume of all reptile species seized, the top species illegally traded include a number that are primarily consumed for meat or the skin trade and/or are heavily fished with little need for wild-sourcing or conservation protection. They include, for example, the green iguana (Iguana iguana) and the ball python (Python regius), both of which are heavily farmed and in the top ten species for the legal reptile commercial trade based on number of live specimens, according to the CITES Trade Database. Also excluded are Varanus nebulosus (clouded monitor), Varanus bengalensis (bengal monitor), and Ptyas mucosus (oriental rat snake), excluded because they are primarily traded for the skin trade. Amphiesma cartilaginea (Asiatic softshell turtle), Mauremys reevesi (Chinese pond turtle), Testudo hermanni (Hermann’s tortoise), and Natra varia (Chinese cobra) are primarily consumed for their meat (as well as for traditional Chinese medicine for Chinese cobra), so were also removed. These species are not, first and foremost, traded for the live pet trade and have therefore been removed from the analysis.

5 The exception being the Malu uromastyx lizard (Uromastyx dispar).

6 All analyses nevertheless include all reptile types.

7 30% of reptiles seized had no CITES listing information and were excluded from this analysis.

8 The Red List of the International Union for the Conservation of Nature (IUCN) is a compilation of research about plant and animal species put together on a voluntary basis by interested scientists. This compilation involves the assignment of a threat status, from “least threatened” and “critically endangered” which is updated periodically, as well as an assessment of the population trend.


10 The yellow-spotted river turtle suffers from overfishing (partly as fisheries bycatch) and habitat loss in addition to harvesting for the pet trade. Its conservation status is unclear. Poaching in the wild for the pet trade is a major contributor to the decline in population numbers, so it was included in this list.

11 Cuora spp. is left at the genus level in this table because most seizures did not identify the specimens seized down to the species level. Cuora amboinensis, though, is number 14 in the top 15 seized reptile species for the live trade by count. The other reptiles in this top 15 seized were all identified down to the species level.

12 Except for the Southeast Asian box turtle (Cuora amboinensis) which is listed as vulnerable.

13 Decreasing for Cuora picturata (Southern Viet Nam box turtle), Cuora galbinifrons (Indochinese box turtle), Cuora yunnanensis (Yunnan box turtle) and Cuora bourreti (Bourret’s box turtle). Unspecified for Cuora trifasciata (golden coin turtle), Cuora mouhottii (keeled box turtle), Cuora flavomarginata (yellow-margined box turtle), Cuora zhousi (Zhou’s box turtle), Cuora mccordi (Mc Cord’s box turtle), Cuora amboinensis (Southeast Asian box turtle), Cuora auriculata (Yellow-headed box turtle) and Cuora pani (Pan’s box turtle).

14 See the Methodological Annex for details.

15 UNODC fieldwork. See Methodological Annex.

16 UNODC fieldwork.