

CITES-listed Wildlife Trade of the Czech Republic

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Abstract

Wildlife trade involves many animal and plant species and their products. CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) aims on protecting endangered plants and animals from being overharvested for the purposes of international trade through system of regulations, permits and monitoring. CITES Trade Database is a tool dedicated for the evidence of international trade of endangered wildlife species. We used records from the CITES Trade Database to conduct the analysis of the legal wildlife trade in the Czech Republic in the period 2008-2018. A total amount of 12,615 shipment records were extracted from CITES Trade Database. Amongst most imported taxons belong mammals (mostly genuses *Ursus* and *Panthera*) and reptiles (primarily genuses *Varanus* and *Triocerus*), while most exported taxons are birds (prevailing genuses *Platycercus*, *Polytelis* and *Falco*) and mammals (especially genus *Lemur*). While the export records showed an increasing trend, the imports were culminating around the average level of 642.3 records per year and lowest amount in the last year of the period. We emphasise smuggling of snowdrops and tigers and their products, which were reported to be seized, but with lack of records in legal trade.

Keywords: wildlife, international, trade, CITES, endangered species, Czech Republic

Introduction

Biological resource use represents one of the key threats to animal and plant species triggering the overall biodiversity loss (Joppa et al., 2016). Wildlife trade is one of the major causes of driving depletion of the Earth's living natural resources, underlying the biodiversity loss, while on the other hand, the utilitarian value of wild animals, plants, their products and derivatives contributes to the fulfilment of human needs, and provides a space for incentives for protection of natural habitats and ecosystems (Broad, Mulliken

and Roe, 2003). Wildlife trade is an economic activity carried out at local, national and international level (Broad, Mulliken and Roe, 2003) and may have both positive and negative consequences for conservation of biological diversity, but also for the local livelihoods of the poor in developing countries depending on harvesting wildlife species (Cooney et al., 2015).

CITES aims on protecting species from overharvesting for international trade through regulating it by a system of restrictions and permits imposed on listing of the species traded or potentially threatened by trade (Harfoot et al., 2018). The CITES Trade Database was developed in order to record the trade of live species, but also their products, to monitor trade levels, and identify where trade might adversely affect wild populations (CITES, 2013). The Database consists of reported legal wildlife trade, both import and export, of CITES Parties (Harfoot et al., 2018). The CITES Trade Database is the largest public dataset regarding international wildlife trade, however there are limits of its use related to data processing, lack of data, but also aggregation of confidential primary shipment records (Berec and Šetlíková, 2018). The user is allowed to select data variables as the year range, exporting and importing countries, source of species or specimens traded, purpose of transaction, type of product and taxon (CITES, 2013). The Database contains over 16 mil. shipment records from 1975 to 2014. During this time, a shift from predominantly wild-sourced mammals, birds, reptiles, invertebrates and plants towards more captive-sourced ones is shown (Harfoot et al., 2018).

The main control body of CITES in the Czech Republic is the Czech Environmental Inspectorate (ČIŽP), which monitors compliance with CITES laws, may impose measures and fines for breach of the law, detects and confiscates suspicious CITES specimens (ČIŽP, 2010). Czech Republic has seized considerable quantities of live plants and seeds, mostly cacti, orchids and snowdrops, live birds of prey and parrots, and live reptiles (Kecse-Nagy et al., 2006). One of the final controls of the Czech Environmental Inspectorate focusing on tigers bred in captivity took place in 2016, and revealed numerous violation of laws considering doubts concerning tiger records, disappeared animals, mismatched documents, high reported mortality etc., which indicated the organised trade of tiger products. During spring of the same year a joint operation „Tiger Eye“ at the Václav Havel Airport confirmed smuggling of tiger and other wildlife products (Czech Environmental Inspectorate, 2016).

Methods and Data

The aim of this paper is to analyse the volume of international wildlife trade of the Czech Republic. The CITES Trade Database was used to examine the volume of international wildlife trade of the country. Trade records for CITES-listed species for the period 2008-2018. Both imports and exports of the Czech Republic were extracted in the form of comparative table. Each record describes a single shipment between two countries. It specifies not only the states of export and import, but also the source of the traded

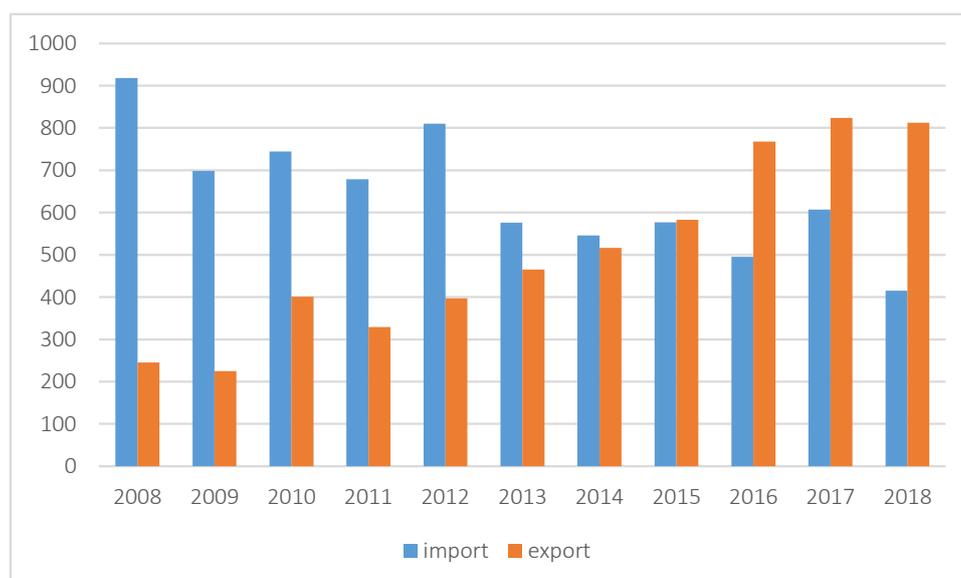
product, type of product, quantity, purpose of trade, and also biological systematization of the traded product.

A total of 12,615 shipment records were extracted from CITES Trade Database into a semicolon separated Excel file. This extraction resulted in 7,065 import records and 5,550 export records. Our method did not exclude any of these records as it aimed to capture all records of legal wildlife trade of the Czech Republic during selected period across all taxonomic groups to bring out a general overview of wildlife trade of the Czech Republic. Our approach marginalize the reported quantity volume of each record that would require setting data equivalents across the heterogeneous types of products. This represents the limit of our research. For the purposes of analysis we used the toolkit of Excel to separate and count cases, or determinate the modus in order to clasify the most traded taxons.

Results

The legal wildlife trade volumes of the Czech Republic were analysed and visualised in Graph 1. In 2008 the highest amount of import records was entered (918), although there is a less visible trend of lowering the amounts in next years with overall average 642.3 records per year, the lowest volume was recorded in 2018 (415). The situation of the volumes of export records is quite opposite with the growing number of records each year. The only exception is the year 2009, when the volume recorded decreased to the minimal volume recorded (225), but with huge increase of volume in the next year, that outweighed this mild fall, and a mild fall of 12 number in the last year of the analysed period. The maximum volume of export records was entered in 2017 (824) and the overall average was 505.9 records per year.

Graph 1: The volumes of Czech Republic import and export records (2008-2018)



Source: CITES Trade Database, authors.

For the closer overview of the taxons traded in the Czech Republic, we analysed the records of imports and exports for each group, resp. class of animals and kingdom of plants (Table 1).

Tab. 1: Total wildlife trade records of the Czech Republic (2008-2018)

Taxon (class) with class examples	Export records	Import records
Actinopteri (ray-finned fishes)	7	47
Amphibia (frogs, toads, salamanders)	67	58
Anthozoa (sea anemones, corals)	0	1,025
Arachnida (spiders)	14	10
Aves (ducks, hummingbirds, owls)	2,230	375
Bivalvia (clams, oysters, mussels)	0	28
Dipneusti (lungfishes)	0	1
Elasmobranchii (sharks, rays, sawfishes)	0	9
Gastropoda (sea snails)	0	9
Hirudinoidea (leeches)	0	5
Hydrozoa (jellyfishes)	0	7
Insecta (beetles, bees, dragonflies, etc.)	1	160
Mammalia (kangaroos, pandas, zebras, etc.)	980	1,253
Reptilia (sea turtles, crocodiles, agamas)	549	1,644
Plantae (flowering and non-flowering plants)	1,702	2,434
Total	5,550	7,065

Note: Plantae is an exception as it is not a class, but a kingdom. The Database does not provide class systematization in plant cases.

Source: CITES Trade Database, authors.

To determinate the most traded families and genres of above mentioned groups we took a closer look into the data. We may conclude that in case of Actinopteri those were mainly fishes of Osteoglossiformes order (within family Osteoglossidae genus *Scleropages* is significant in import records only with no evidence in export) and Acipenseriformes (Acipenseridae family, where genus *Acipenser* plays important role in both export and import).

In case of Amphibia those were mostly Anura frogs and toads (genus *Mantella* and then *Agalychnis* in import records, while genus *Dendrobates* in export records).

Although there is no Anthozoa export record, we distinguish Sclerentinia order with more families to be commonly imported such as Mussidae (mainly genus *Lobophyllia* and genus *Scolymia*), Faviidae (*Caulastraea* and *Favites*) and Caryophylliidae (mostly genus *Euphyllia*). The import of Bivalvia covers only species from Tridacnidae family with most *Tridacna* genus and few *Hippopus* genus records. There is only one import record in Dipneusti class, which is genus *Neoceratodus*, while import of Elasmobranchii class contains of solely genus *Potamotrygon*. Gastropoda import records cover *Strombus* genus only, while in case of Hirudinoidea the genus is *Hirudo*, and as for the Hydrozoa class records contain only *Distichopora* genus.

Regarding Arachnida, most traded orders were Araneae with genus *Brachypelma* prevailing in export records, and Scorpionidae with genus *Pandinus* in import records and no evidence of this taxon in export records.

There is only one export record of Insecta class, which is species from Papilionidae family, genus *Ornithoptera*. All import records contain the same family, but as for most traded genus *Ornithoptera* prevails with just a fewer records of genus *Troides*.

Among most traded Aves in Czech Republic, orders Psittaciformes and Falconiformes dominate in both imported and exported records, where in case of traded Psittaciformes pre-eminently genus *Cacatua* and *Amazona* is mostly imported, while *Platycercus* and then *Polytelis* is mainly exported. As for the Falconiformes, in both terms of import and export genus *Falco* is prevailing.

In class Mammalia, the most import records cover the order Carnivora and mostly genus *Ursus* and *Panthera*, while the most export records contain mostly the order Primates with the genus *Lemur*.

In case of Reptilia, the most import records indicates Sauria order with most members of families Varanidae (genus *Varanus* only) and Chamaeleonidae (although many different genus included, most records in genus *Trioceros*), later on also the order Serpentes and families Pythonidae with genus *Python* prevailing, and Boidae family without any significantly dominant genus, but with most records in genus *Corallus*. As for the export records, Serpentes and Sauria order dominate the records. Serpentes family Boidae is prevailing (firstly *Epicrates* and later *Boa* genus), while family Pythonidae with genus *Python* places second. Amongst Sauria order most records are in family Chamaeleonidae and genus *Chamaeleo* dominates.

As for Plantae, the most and significantly dominant order of import records is Orchidales, family Orchidaceae, amazingly with no record on export side. Most traded genus within this family is *Dendrobium*. The second most imported order is Caryophyllales with Cactaceae family only, but many members of various genuses, where just a little bit prevails the genus *Astrophytum*. Export records show the dominance of order Euphorbiales (*Euphorbia* genus only), followed by the order Caryophyllales with few records of family Portulacaceae and Didiereaceae, but many records of family Cactaceae with many different genuses included, but most records in genus *Copiapoa*.

Discussion

Our analysis of legal trade of the Czech Republic showed similar results of most traded taxons as the taxons that had been seized especially the plants like cacti and orchids, or animals like birds of prey and parrots, but also reptiles. However both the export and import records lack snowdrops at all, which brings us to the conclusion that these plants are traded only illegally (regarding Kecse-Nagy et al., 2006). As for the legal tiger trade the CITES Database carries „only“ 30 export records and 9 import records of *Panthera tigris*, although the genus *Panthera* itself belongs to the most traded genuses of imported

mammals. This fact leads to a conclusion of the eminent role of illegal trade of this species in comparison with the legal trade (regarding the Czech Environmental Inspectorate, 2016). It would seem to be very useful to have exact data of seized species and their products coming out of the illegal trade. Anyway, from the personal communication with the supervisor of the Department of nature conservation, forest and CITES and the Department of international biodiversity protection in CITES that took place during December 2019, it was revealed, that even these data can not provide accurate overview of the volume of illegal wildlife trade in the Czech Republic as far as the results and volume depends on number of workers.

Conclusion

Wildlife trade represents a major threat to the Earth's biodiversity. CITES aims on regulating the international trade through system of restrictions and permits, but it also monitors trade levels of particular species and products amongst parties that signed the Convention, and runs public database of shipment records.

The aim of this paper was to analyse the volume of international wildlife trade of the Czech Republic. The most traded taxons were identified. Subsequently, the analysis of absolute volumes of records in each group was carried out within selected period. Overall, it can be stated that legal wildlife trading consists of about 642.3 import and 505.9 export records on average each year. Most traded groups of animals are birds (especially parrots and birds of prey), mammals (mostly bears, big cats and primates), and reptiles (primarily varans, chameleons, pythons and boas). Most traded groups of plants are orchids, cacti, but also spruges. However, it is nearly impossible to determinate the volume of illegal wildlife trade.

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