

CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA



Seventieth meeting of the Standing Committee
Rosa Khutor, Sochi (Russian Federation), 1-5 October 2018

ILLEGAL TIGRE TRADE IN THE CZECH REPUBLIC

This document has been submitted by the Czech Republic in relation to agenda item 51.¹

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Illegal Tiger Trade in the Czech Republic

*The Law Enforcement Report, compiled by The Czech Environmental Inspectorate (CEI)
September 2018*

Introduction

In recent years, the involvement of the Vietnamese community in wildlife trafficking has increased considerably in the Czech Republic. The community mentioned focuses primarily on highly profitable and valuable commodities such as ivory, rhino horns, tiger bones and products thereof. Wildlife trafficking is highly developed, organized and does not involve merely activities of individuals but organized groups that have international ties and operate not only in the Czech Republic but also in other countries. Vietnamese criminal groups show strong ability to cooperate across the Central Europe and flexibility when it comes to seizing opportunities as well as options that open to them. The wildlife products are primarily sent to Vietnam but are also consumed by the community living in Europe. The Vietnamese gangs based in the Czech Republic have their power base located in Prague from where they span to several other places and their activities are usually linked to Vietnamese markets (mainly in the SAPA market in Prague). Wildlife trafficking is usually associated with other illegal activities (such as drug trafficking, counterfeiting, fraud and corruption). Given its nature, such activity can be considered as transnational organized wildlife crime.



Since 2013, the CEI has seen an increase in seizures of tiger body parts and tiger products. These are not seizures involving imports to the EU, but exports or seizures of goods traded within the Czech Republic. Tiger skeletons, tiger teeth, claws, broths, bouillon cubes or tiger whiskers have been seized. All of these seizures were associated with the activities of the Vietnamese community operating in the Czech Republic.

Examples of tiger seizures in the Czech Republic

1) 1 tiger skeleton - in Svitavy on January 1, 2013

During the inspection of a van at a rest area, customs officers found a black plastic bag containing 7.6 kg of bones. They contacted the CEI inspectors who determined that the bones were a complete tiger skeleton. The bones were transported by a Vietnamese citizen, who said he had received them from a breeding facility in Slovakia. A detailed examination revealed that the skeleton consisted of the remains of two tigers. The skull belonged to a young individual (complete teeth, little tooth wear, little ossification of bone connections). The skeleton, however, according to the vertebral state (bone growth) belonged to an old animal kept in captivity in a

small space for a long time. According to the bone coloring and bone condition, the skull had undergone a different taxidermy procedure than the rest of the skeleton.



2) **2 tiger skeletons in loudspeakers - at Václav Havel Airport in Prague on June 26, 2013**

During the inspection of cargo consignments exported from Prague to Hanoi, two complete skeletons of tigers hidden in loudspeakers were found. The bones were covered with plastic and duct tape, imperfectly treated, uncleaned (i.e. with blood and tissue residue) and canine teeth were removed from the skulls. The tiger skeletons pointed to cruel treatment - the bodies were cut into several parts (cut off spine, broken pelvis and heads of ribs, etc.). One animal had older wounds in the pelvis area - a broken and poorly healed sacrum, causing the animal to suffer great pain. The total weight of the skeletons was 12.04 kg. The skeletons belonged to adult animals, but the exact age of the animals could not be determined. The sender of the consignment was a person who used a false name and was impossible to trace. During the investigation, however, it was found that the same sender sent several cargo consignments from the Czech Republic to Vietnam lately, each with a different ID document number (passport). All of the consignments were declared as personal belongings, household items and clothing.



3) **Tiger tooth pendant - at Václav Havel Airport in Prague on September 18, 2013**

During imports inspection, jewelry made from a tiger's tooth was found on a Vietnamese citizen travelling from Vietnam to the Czech Republic. The importer said he had received the jewelry as a gift. Interestingly, the tooth was not a canine tooth but a molar tooth (M₁) from the right side of the lower jaw, it was 4.5 cm long and modified to look like a canine tooth. The tooth enamel was filed down, while the back root of the tooth was cut off.



4) **Tiger teeth and claws and rhino skin - at Václav Havel Airport in Prague, on December 17, 2013**

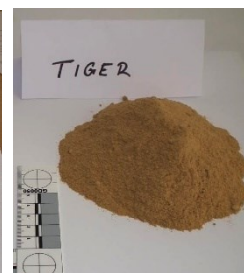
In the personal luggage of a Vietnamese citizen traveling from Prague to Hanoi, 16 claws and 2 tiger teeth as well as 25 pieces of dried rhino skin of about 50x30cm were found. The woman did not provide any information on the origin of the items, she left the Czech Republic during the investigation and was unable to be traced.



5) **Operation Osseus - teeth, claws, whiskers, broths, powders - on July 2, 2014**

During house searches that were part of a longer-term investigation (under the operation name Osseus), the following was confiscated:

- 9 tiger teeth (7 carnassials, 2 incisors, 2 canines, one of which is set in jewelry)
- 1 tiger whisker (14 cm long)
- 4 tiger claws
- 2 bottles of **cloudy fluid** containing, according to genetic analysis, biological material from a tiger
- 1 bottle of **clear liquid** and two pieces of tissue about 7x4x2 cm in size containing, according to genetic analysis, biological material from a tiger
- 2 bags with **light brown fine powder** (total weight 1.05 kg) containing, according to genetic analysis, biological material from a tiger
- 1 glass filled with light brown fine powder containing, according to genetic analysis, biological material from a tiger



Three Vietnamese nationals were arrested and prosecuted for the illegal trade in protected species. Two offenders were sentenced to 5 years, one offender for 3 years of unconditional imprisonment but they filed an appeal against the judgement and the trial continues.

6) **1 tiger claw - at Václav Havel Airport in Prague on January 5, 2016**

A tiger claw (as determined by genetic analysis) was found in the baggage of a Vietnamese citizen travelling from Prague to Hanoi. The person said that they had bought the claw from an unknown person in December 2015 in front of a Kaufland store in Domažlice for 200 CZK. The baggage also contained a bottle of Finlandia vodka filled with an unknown fluid in which there were pieces of animal tissue. Though it was suspected that the liquid might be tiger broth, it was not possible to extract sufficient amount of DNA from the sample for genetic analysis.

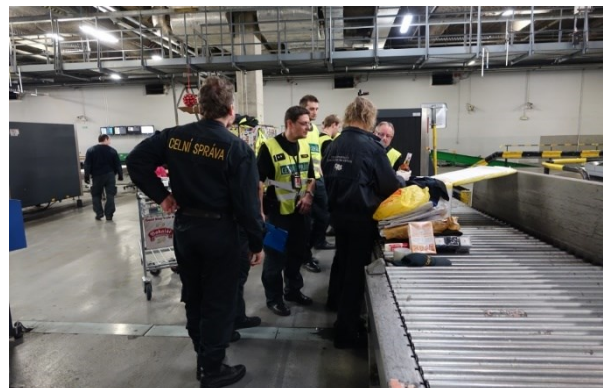
7) **Operation Kostka - tiger claws and gallbladder, March 15, 2016**

During house searches that were part of a long-term investigation (under the operation name Kostka), 7 tiger claws and 2 tiger gallbladders (as determined by genetic DNA analysis) were found in possession of a Vietnamese citizen. The case is still under investigation.



The Operation Tiger Eye

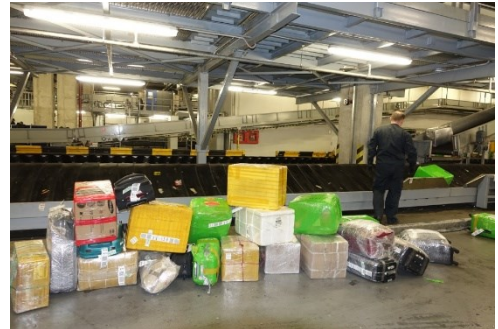
The operation under the name Tiger Eye took place at Václav Havel Airport in Prague between January and March 2016. The operation targeted passengers travelling from Prague to Vietnam with the objective to seize illegally exported CITES products, to identify concealment methods and to determine lines as well as routes used for moving the products. The Customs Administration of the Czech Republic and the Czech Environmental Inspectorate took part in the operation. The airport was asked to facilitate inspections of luggage at the baggage handling facility and provide airport security staff (for inspections of cabin baggage). Prior to the start of the operation, the most frequently used flights to Vietnam were identified - at that time these included flights via Moscow to Hanoi operated by Aeroflot, flights via Dubai to Ho Chi Minh City operated by Emirates. Moreover, flights to Vietnam via Frankfurt, Amsterdam, Milan and Paris were also inspected.





For the purpose of the operation, joint teams of customs officers and CEI inspectors were created. The operation was also supported by a customs canine unit (wildlife detector dogs). Each inspection shift consisted of 15-18 customs officers and 2 wildlife inspectors. All baggage to Vietnam was carefully checked using an X-ray scanner, suspicious luggage was opened and physically inspected. Altogether, 7,340 bags were checked using the X-ray scanner, of which 2,279 pieces of luggage were opened and inspected.

It was found that Vietnamese citizens travel to Vietnam with a different type of luggage than the usual passengers. They rarely use suitcases but large carton or polystyrene boxes, usually 2-3 checked bags of this type per person. A quite diverse range of goods is exported this way - cosmetics, chocolates, alcohol, baby formulas, engine parts, heating, clocks, microwaves and so on. Recently issued passports belonging to people other than the passengers and a passport of a wanted person were found in the luggage. In **44 cases**, suspected wildlife products were seized - these included tiger products, bear bile, leopard canines, musk, medicine containing saiga horn, dried meat, etc.



The most serious finding was the **export of different types of broths, liquids and matters** in non-original packaging. The results of DNA analyses confirmed that some of the products **contained tiger DNA**. Many fluids also contained *Cannabis sativa* extract. Unfortunately, part of the DNA analyzes failed since it was impossible to isolate sufficient quantity and quality of DNA. We were more successful in analyzing the liquid samples (a type of "wine", probably produced by alcohol maceration or short-term boiling) rather than the solid samples - bouillon cubes, which were boiled for a long time. As the result, DNA was destroyed and analyzes were usually unsuccessful.



Samples of the most interesting seizures:

Bouillon cube - January 16, 2016

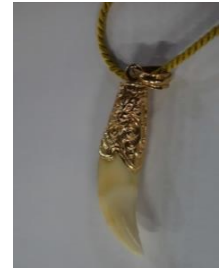
In the baggage of a young woman traveling to Vietnam, a brown cube and an oily matter packed in plastic and in a jar of Vichy cream were found. The cube was solid light brown, 5x4 cm in size. It was supposed to be made by boiling horse bones and it was intended for relatives in Vietnam to treat pain and promote growth. Because of the suspicion



that it could be a tiger broth, mitochondrial DNA analysis was performed. Unfortunately, it was not possible to isolate enough DNA for the analysis. Chemical analysis proved the presence of marijuana.

Jewelry with leopard canine - January 18, 2016

A Vietnamese citizen exported a jewel with a pendant containing a canine tooth. Genetic analysis showed that the tooth belonged to an extremely rare Amur leopard (*Panthera pardus orientalis*).



Bouillon cube - February 1, 2016

A dark cube (7x3x4x cm in size) of organic origin (consistency of solid jelly) was found in the baggage of a Vietnamese citizen travelling to Hanoi. It was supposed to be a gift from a friend for a grandmother. DNA isolation was performed but unfortunately it was impossible to isolate sufficient quantity and quality of DNA from the sample. The bouillon cube was therefore returned to the person.



The present interpreter stated the following about this type of goods: *"It's cooked in the mountains in Vietnam using the bones of mountain goats and tiger bones. It is cooked for a long time until it forms a mash. The product is then dried but I do not know exactly how long. Alcohol is not added during cooking. The goats must be from mountains because they are "clean". The cube is put in a liqueur and drunk. It's good as a cure for bones and joints. Such broths are cooked in the mountains near Laos, you have to travel for a long time. There are also fakes available, so we do not believe each other anymore in Vietnam. If we want guaranteed quality, we go to get these things personally and then we distribute it to friends. If the goods are distributed differently, someone will replace them with a fake or take it a bit."*

Bottle of milky white tiger broth - February 6, 2016

An elderly man (a pensioner of Vietnamese nationality) on a wheelchair travelling to Vietnam exported a milk bottle containing milky white liquid and a jar containing an ointment. He stated that the liquid was a plant extract, which is used against pain. He did not know what the ointment was produced from. Genetic analysis confirmed **the presence of tiger DNA** in the liquid, the ointment couldn't be analyzed. The man did not return to the Czech Republic from Vietnam, so the criminal case was deferred. The seizure points to the possible use of **handicapped elderly people to smuggle illegal goods**; it is assumed that persons in the wheelchairs are less likely to be inspected.

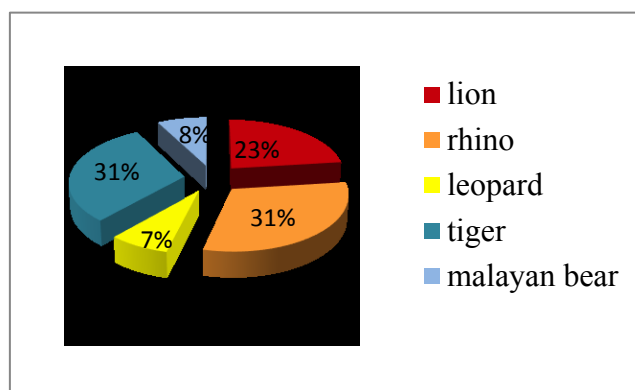


Bouillon cube - February 8, 2016



A cube of animal material weighing 126 g, having the size of 9.5x6.5x1x5 cm and a solid gel consistency was found in the baggage of a Vietnamese citizen. The exporter said it was **made of tiger** but after consulting with an attorney he retracted his statement and said it was a horse product. A mitochondrial DNA analysis was performed, unfortunately not enough DNA could be isolated.

Graph: Results of DNA analysis of seized wildlife goods during operations in the Czech Republic



An interesting observation made during the operation was the response of the Vietnamese community to the ongoing inspections which points to the quick distribution of information and high flexibility. In the first weeks of the operation, the checked baggage was packed in a plastic wrap, later wrapped in a rope and after a few weeks secured with locked chains, apparently in an attempt to prevent baggage from being inspected or opened.

At the beginning of 2017, the Customs Administration and the CEI carried out a similar operation called **Operation Sandokan**, which was focused not on passengers but on cargo consignments exported from the Czech Republic to Vietnam. However, the response of the Vietnamese community and companies was even faster than during the Operation Tiger Eye. Right after the first day, when many tons of exported goods were inspected, the number of cargo consignments to Vietnam dropped. It can be assumed that "friendly companies" were probably warned by the airport staff.

Based on experience from operations Tiger Eye and Sandokan (and from previous Interpol operations RAMP, Cage, Thunderbird, etc.), the Czech authorities concluded that this type of operation (intensified control activity over 1-2 months) do not return results adequate to the effort and capacity used. In the Czech case, despite interesting findings, this method does not lead to the detection of organized crime and therefore does not justify the use of time as well as the personnel capacities it requires. In order to detect more serious organized illegal activities, it is necessary to focus on long-term targeted investigations.

Inspections of tigers in the Czech Republic

As a result of the increasing number of seizures, the following questions have to be asked:

- What tigers are involved in the trade?
- Who is supplying them?
- How is the trafficking organized?
- How and where does it take place?

For this reason, in 2015, the CEI decided to carry out an **inspection of all tigers held in captivity** in the Czech Republic. A detailed analysis of records in the CITES Register (the database of issued CITES permits, EU exemptions and registration documents)

showed that there were officially about **174 tigers in the Czech Republic** - 130 of them kept in private facilities (19 subjects in total) and 34 tigers in zoos. The records showed a **large movement of tigers** - there were 155 tiger records related to exports and deaths as well as a total of 404 tigers which were reported to be in the Czech Republic during last years.



The inspectors incrementally performed **inspection of all tigers** in order to check the kept live animals and their documents and to verify the circumstances of deaths and exports. At the same time, the inspectors carried out **sampling for DNA analysis**. **Large discrepancies in documents**, unreported deaths, keeping and transfers were found during the inspections. For example according the documents one tiger should be exported to Pakistan in 2007, same tiger was reported as exported to Romania in 2009 and same tiger was logged off from CITES Register in 2015... One tiger female was reported as dead and transferred to taxidermy and by another document she was live and sold to Italy in next year... Some animals were interchanged, while other **tigers disappeared completely**. Inaccuracies and discrepancies in the records were rampant to the degree that inspectors assumed that it wasn't only negligence on the part of keepers but the intention to prevent tigers from being controlled or complicate inspections.



The vast majority of tigers are to be marked by a microchip as documented in the records. The possibility of confusion of the tigers and potential frauds contributes to the fact that the **physical reading of the microchips**, which the tigers in the captivity are usually individually marked, **is practically impossible**. Most of tigers are non-contact animals and reading of microchip can not be done without the general anesthesia. Microchip readers have a range of only 15 cm and, in addition, any grid or other metallic elements interfere with the transmission of the transmitted signal. During the inspections, it was possible to read the microchip in only about 10% of animals.

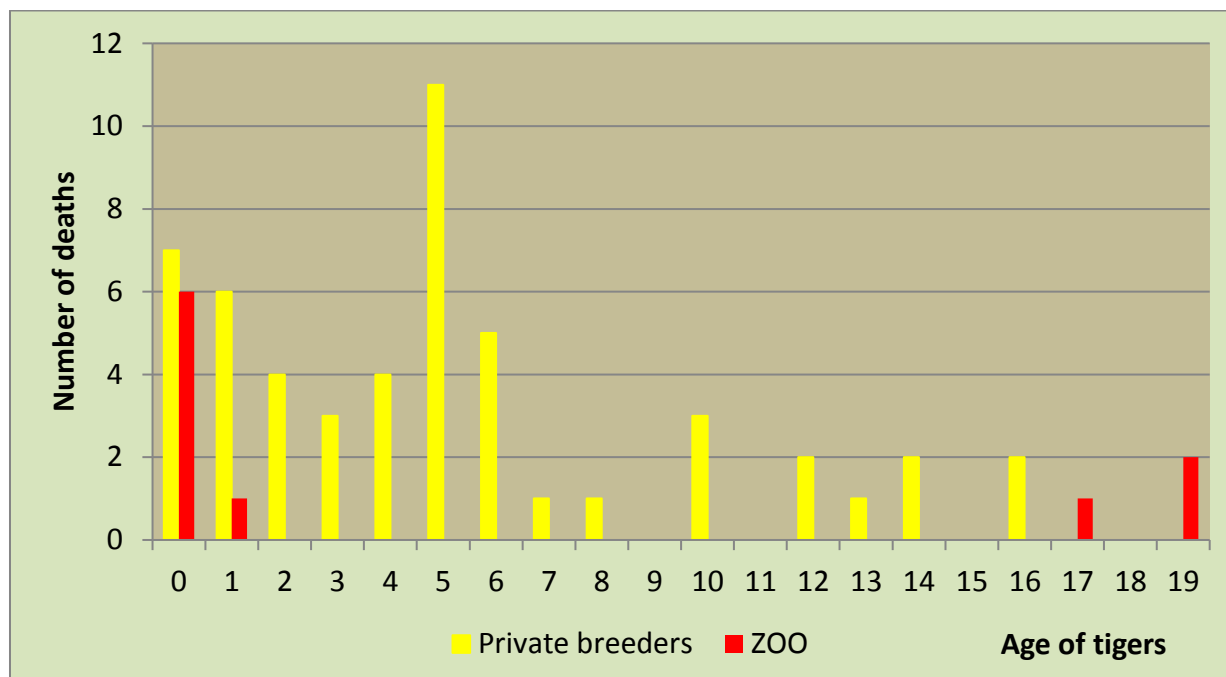
Checking the identity of tigers according to identification photographs of stripes is very difficult and practically inapplicable, especially if you should

inspect more animals. The animals tend change their facial expression or turn sideways at different angles, part of the body is covered by bars or other barriers, the skin is stretched differently on the body – all these possibilities are making the detailed features hard to clearly see during the inspection and there cannot be 100% certainty of specimen's identity. In addition, the comparison of an animal with photographs is always based on the subjective assessment of inspectors; in Europe, therefore, identification photographs are not used (see also EU legislation). Given the irregularities, problems with individual marking and the great circulation of animals, it was unclear whether these are actually the tigers to which the documents were issued or whether the original animals were replaced, and they still use the original documents.



The inspections revealed **suspicious and high mortality of tigers**. In the wild and zoos, the normal life span of tigers is about 20 years. Czech zoos show normal mortality but in private breeding facilities **tigers live only very low age (4-5 years)**, the highest mortality is around the 5th year.

Graph: Age-dependent mortality of tigers in the Czech Republic



At this age, the animals are very young and should be in full strength, so there is no reason for them to die in mass as reported. Such high mortality either points to utterly **inappropriate breeding conditions** or the **huge genetic burden** of animals, for example due to inbreeding (family breeding - targeted selection of white or gold tigers) or the deliberate killing of tigers for the **illegal wildlife trade**.

Fig: Breeding conditions, especially size of cages, are very often inappropriate



Unfortunately, the **handling of dead bodies** is not properly legislated in the Czech Republic nor the EU. According to the Veterinary Act, an animal carcass is to be transferred to a rendering plant. However, this transfer does not need be confirmed or documented (at best, the rendering plant only confirms the weight of meat received without any specification of species). Reporting of the cause of death or method of disposal of the body does not require proof of the cause of death nor the disposal of the body. This situation facilitates the processing of dead bodies of tigers that are illegally made into tiger products.

In Europe, **tigers are intensively traded** and being moved relatively quickly from one country to another, sometimes across multiple countries in a short period of time. The reason for this trade and movement remains unclear. Unfortunately, not all EU member states have introduced specimen registrations such as the Czech Republic, so it is very often not possible to find out where and by whom the tigers were sold and how they were moved across Europe. It is not even possible to determine how many tigers are actually in the EU and where exactly. According to the records of the Czech CITES Register, 71 tigers were sold to/from the Czech Republic within the EU between the years 2015-2017. Of course, exports outside the EU, including Asian countries, take place as well. In 2006-2017, 57 tigers were exported from the Czech Republic to non-EU countries. From the point of view of enforcement authorities, some exports from recent years are suspicious, as these tigers were exported to Vietnam and Thailand

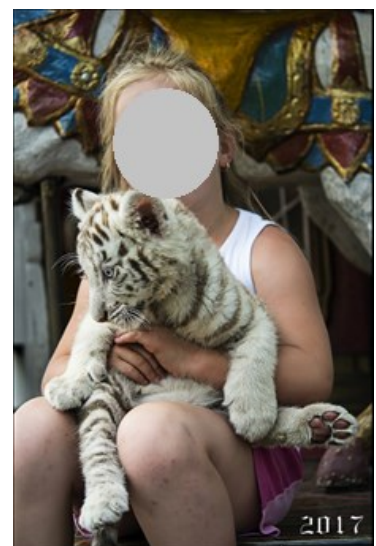


into facilities that are presented as environmental, conservation facilities or zoos but there is information available that points to their links to the illegal wildlife trade or other illegal activities. Although these are captive-bred tigers, the trade in these individuals should be thoroughly controlled and receiving facilities meticulously inspected. If the check is done only formally, it tends to facilitate illegal trafficking rather than eliminate it.

Cuddling with cubs

Trade in tigers is also related to the phenomenon that has recently become increasingly important in the Czech Republic (and probably in other countries as well) - **cuddling with cubs**. The popularity of this entertainment, which takes advantage of human emotions, has grown very much in the country. People love the cubs of big cats and are willing to pay a substantial amount of money for "cuddling" with the cubs or taking pictures with them. These are **commercial and highly profitable activities**, which are offered by more and more entities. It involves cuddling and photographing young cubs (including events in schools and nurseries where the children are free to play with the tiger

and lion cubs - however, it cannot be stressed enough that this teaches the children absolutely the wrong approach to protecting endangered species), a walk with big cats, loaning big cats for corporate events, photography workshops or commercially offered experiences. Operators of these events usually tell people that these are



rescued cubs rejected by their mother, that the cubs are tame and used to human contact, etc. However, the reality is quite different. The cubs are forcibly taken from their mother at the age of several weeks and raised artificially using bottles to facilitate their "taming". The female is then allowed to mate again so it can produce more offspring. After several years of this cycle,

the female dies as the result of complete exhaustion of her organism. It was documented in the Czech Republic that a female tiger was forced to have cubs four times in just 2 years. It totally contradicts the biological setting of the species, leads to excessive exhaustion of the mother's organism, and it is a question of whether it should not be considered as a cruelty... The cubs are suitable for “cuddling” only for a few months - until 1 year old, after that becomes dangerous due to its size and strength for children, and a new baby is needed. Ethologically speaking, these are socially disturbed individuals who, due to artificial breeding, will never be capable of normal natural behavior in adulthood. Their involvement in the next breed can therefore be very problematic. These so-called “contact zoos” do not engage in captive breeding in the sense of species protection, nor do they take part in rescuing orphans as they present. The purpose of such zoos is the intentional, commercial and excessive production of cubs, whose fate is at least controversial. The connection with the illegal wildlife trade in tiger products and the high mortality of young animals in Czech breeding facilities is quite obvious.



Investigations in the Czech Republic

The inspectors tried to find out more about the trade in tiger products and products that the Vietnamese community is interested in. In Vietnam, the word for tiger is *hồ*, when it is entered into Wikipedia, instead of information about this endangered species, the website returns words “cao hồ”, which means *tiger concentrate, long boiled broth made from tiger bones or skeletons. Tigers are an expensive commodity and they are processed through a number of complicated stages. 100 g of tiger concentrate is sold for 1,000 USD...*



Fig: A process of production of “tiger bouillon”

When googling “cao hồ”, Google returns 702,000 hyperlinks, including photos of tiger bouillon cubes, recipes and instruction videos explaining how to boil and prepare tiger broth. North Vietnam is allegedly the center of broth production. It is obvious that this type of product is very well-known among the Vietnamese community and the trade with it is probably widespread.

The results of inspections focused on tigers in the Czech Republic have shown that something rather strange is happening with tigers here, suggesting the possibility that tiger products are produced directly in the Czech Republic and exported to Asia. This would lead to a **change in**

the understanding of the overall trade in tigers (there are many countries where tigers are kept in larger numbers and where this type of trade can take place).

On the basis of the above-mentioned suspicions and collected information, the CEI filed a **criminal complaint in October 2016** and forwarded all the information to the Customs Administration of the Czech Republic as the competent authority for criminal proceedings. It took more than a year to collect more detailed information that suggested that there was an **organized group operating in the Czech Republic that engaged in killing of tigers as well as the production and distribution of tiger products**. It took another year to uncover and document the group's activities. The organization consisted of 3 main levels:

- a tiger breeder
- a middleman/taxidermist (processor)
- a Vietnamese trader.

The breeder kept several dozen tigers and lions in his breeding facility. Animals were killed (shot dead) based on the Vietnamese trader's orders. The Vietnamese trader was not interested in albino or otherwise color mutated tigers, he was interested only in tigers with natural colors. The taxidermist processed the tigers for skin, meat and bones. Subsequently, they as well as the Vietnamese trader took part in the production of tiger broth. Other Vietnamese citizens were also involved in the distribution. In the SAPA market in Prague, there was even **a tasting bar where tiger broth tastings were offered to potential buyers**. Part of the **tiger products were smuggled by air to Vietnam**.

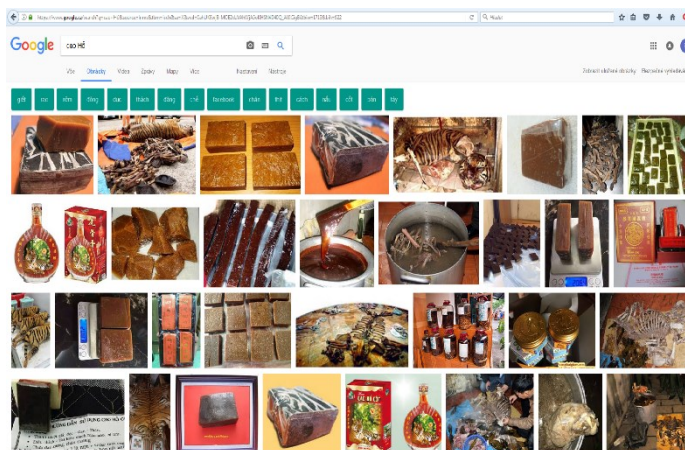
The price of the tiger bouillon cube was about 1500 CZK (60 euro)/g, while the price of the skin ranged between 2300 to 4000 euro and the claws were sold for 2500 CZK (100 euro) each. Up to 10 kg of bouillon could be produced from a single tiger.

The first documented processing of a tiger for broth production took place in December 2017. Subsequently, suspects of Vietnamese nationality intended to travel to Vietnam from a German airport. The Customs Administration informed its German counterparts and 2 Vietnamese were arrested on January 2, 2018 at the airport in Stuttgart. The suspects smuggled:

- 3 blocks of bouillon of 3.2 kg wrapped in bakery paper
- a jelly matter weighing 0.3 kg
- an animal matter weighing 40 g
- a chain with a claw
- bones and claws wrapped in a cloth

The second documented processing of a tiger took place in May 2018. On May 4, a dead tiger was transferred from the breeder to the processor. In the shed next to the house, the tiger was gutted, and the body was placed in a freezer. On May 13th, the processor along with the Vietnamese trader processed the meat, bones and claws then distributed it to the Vietnamese community.

On May 19, 2018, another tiger was delivered from the breeder, the processor skinned the animal and hanged it on a hook. On May 22, the rest was cut into smaller pieces, which were cooked for 2 days and then the meat was removed. Subsequently, the Vietnamese trader, along with the processor, cut the boiled bones of the tiger using an electric saw and then cooked them in several



cooking pots for another 6 days. The result was a jelly brown bouillon in molds and liquid containing alcohol poured into 1-liter glass bottles “VODKA BOŽKOV”.

Fig: A tiger slaughterhouse and a dead tiger found during the Operation Trophy



On July 15, 2018, **another tiger was shot dead in the facility of the breeder** - based on the order for which the Vietnamese trader had paid about 120,000 CZK (4700 euro). The breeder managed to get a vet's confirmation of the animal's death (the veterinarian did not see the dead animal and yet he signed that it died of natural causes) and a confirmation of the alleged delivery of the carcass to a rendering plant. The tiger's body was immediately transferred to the processor.

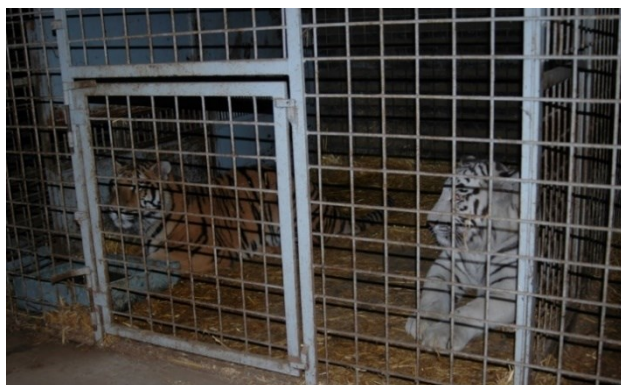
In the early morning hours on Monday, July 16, 2018, the realization of **Operation Trophy** began involving 175 customs officers, 40 police officers, 6 inspectors, 2 veterinarians and an expert witness specialized in welfare. 7 house searches and 3 inspections of non-residential premises (including the "tasting bar" in the SAPA market) were carried out.

The breeder's facility

According to the CITES Register, 44 live tigers and about 80 lions were supposed to be found in the breeder's facility, but part of the animals were missing (about 16 missing tigers). Tiger and bear skins, dozens of tiger claws and a substantial amount of cash was seized. Documentation including CITES documents which were also seized for further evaluation. The big cats were kept in the breeding facility in confined spaces, often on concrete or paved ground, always several animals together (which is in stark contrast to the basic ethological requirements for keeping – tiger is a reclusive territorial animal).



Fig.: Tiger quarters in the breeding facility



The tiger quarters were mostly concrete cubicles without open-air runs and besides the water tank without any equipment and enrichment. Most of the animal quarters had not been cleaned

for a long time, with feces and remnants of spoiled food. The conditions will be the subject of expert opinion. This main breeding facility is area without public access. In a different location, the breeder runs two other objects in the form of zooparks accessible to the public, where they offered cuddling and photographing with tiger and lion cubs. Animals were moved to these facilities as necessary. At the same time, they offered the big cats for filming and advertising purposes. For example, the breeder owns 12 lions who performed in the Carmen musical - 2 young males (twins) were specially trained for the musical, the animals could be used for about 1 year, after that they were replaced by new two. Lions trained this way are not suitable for other uses and they spend the rest of their lives in a small concrete enclosure.

Fig.: Tiger and lion skins, dozens claws were found



The middleman's facility

A **dead tiger** was found during the inspection of the processor's object. The inspectors found the animal had a microchip - according to the database, it was a 4-year-old young male from France with genuine CITES documents. In-situ examination of the body revealed a bullet wound on the neck and a bloody orbit. It was proven by an autopsy that the animal was killed when it was shot with a bullet in the throat (in the spinal cord), in the pre-death spasm the tiger poked out his eye and was finished off with a 2nd shot under the forelimb.



Fig.: A dead tiger found during the house-searches, the body examination





Fig.: Transport of the tiger body to an expert autopsy

There were many bodies of animals in different stages of decomposition, some of which were stored in freezers, but the rotting carcasses were spread around the plot or they were stored in different types of vessels. The terrible smell made the operation more difficult.



There were also hooks on which the dead tiger bodies would be placed, a gas cylinder and a gas cooker with a container full of unspecified animal material, a set of cookware and broth molds (samples were taken from the items for genetic analysis).

Fig: The equipment for boiling of tiger broths



Another 4 tiger skins (1 dry, 2 in the freezer, 1 in the liquid), a lion skin, 2 cougar skins, a skull with meat residue, 10 tiger claws and pieces of tissue were discovered.

A number of tiger products (bouillon and tiger wine) and ivory products were found during a house search of the Vietnamese trader.

Fig: A cube of bouillon, tiger skins



As part of the **evaluation of the collected evidence** and the preparation of the expert opinion, the CEI inspectors found that there were bullet holes in the 3 tiger skins seized at the processor's facility. Some skins were missing claws. Samples were taken from the items for genetic analysis. It was genetically determined that the skull belonged to an Amur tiger (*Panthera tigris altaica*) and still had deciduous teeth (along with the permanent ones), which suggests it was about 7-9 months old.

Fig. The examination of seized specimens – bullet holes, missing claws...



Fig: The skull of a young tiger cub (7-9 months old), deciduous teeth with the permanent ones



Fig.: Sampling for genetic analysis, tiger claws with pieces of tissue



Fig.: The examination of the container with unspecified animal material



The three suspects were taken into custody, after 2 months the breeder and Vietnamese trader were released from custody, but their prosecution continues (the middleman/processor remains in custody). The case is still under investigation and criminal proceedings continue. A great amount of information was gathered, based on which further investigations will be launched.

The case aroused tremendous interest in the public and caught media's attention, which triggered **some changes in legislation** and approaches to the breeding of big cats in the Czech Republic.

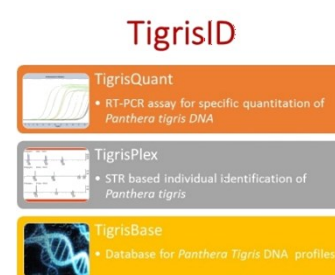
The genetic project TigrisID, the need for research and international collaboration

In contrast to DNA analysis of human DNA, analysis of non-human DNA is not yet routinely used and very well developed, while its use faces many limitations. Regarding tiger DNA analysis, only species-specific testing using common types of samples (blood, tissues, hair, etc.) is used more widely, other types of analysis are still under research.

During the investigation of tiger-related cases in the Czech Republic, there was the problem of how to detect DNA tiger in samples of processed bones, tiger wine, broths, pastes, etc. Without credible scientific evidence, trade in such products is almost impossible to detect and prove. For that reason, the CEI submitted a research proposal to the Ministry of the Interior in May 2016. The research project was approved, the project was awarded to the forensic laboratory Forensic DNA service and research work commenced in January 2018.

The project, which involves a renowned genetic laboratory with the status of judiciary expert and the CEI as a guarantor, is called **TigrisID** and covers 3 basic areas:

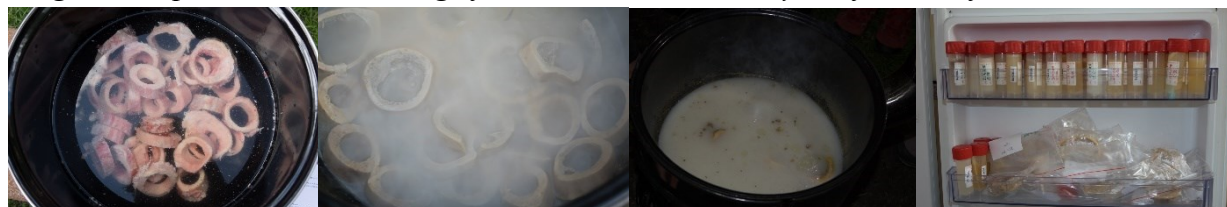
- **TigrisQuant** - development of a methodology for tiger DNA detection in **destroyed and heavy-processed materials**
- **TigrisPlex** - development of STR kits for the **individual identification of tigers**
- **TigrisBase** - creation of a **database of DNA profiles**.



For **species identification**, primers and probes for the amplification of the cytochrome b, cytochrome oxidase I and 12S rRNA mitochondrial genes are currently in the process of validating. Emphasis is placed on the sensitivity, robustness and resistance to inhibitor of the yield, and the ability to remove inhibitors.

The crucial question is whether DNA can be detected in processed materials at all. So far, it is generally accepted that DNA is destroyed by boiling, and that products prepared by boiling (especially with extended boiling) cannot be analyzed and so tiger content in such products cannot be proved. Tiger broths are prepared by extended boiling (up to 7 days), it is not clear how quickly DNA in bones is destroyed and how large fragments remain in the product in certain stages of its preparation. To verify, in April 2018 an experiment was performed - bone samples (bones of *Bos taurus* were processed in a similar way as the tiger bones) were boiled for 48 hours. Samples were continuously sampled and analyzed. Interim results show that even after 48 hours of boiling, DNA is retained in a quality that allows species identification of the donor using 12S rRNA, while certain parts of the proteins were retained as well. The research continues.

Fig.: An experiment with boiling of animal bones and analysis of a rate of DNA destruction



Another objective of the project is to develop a **functional analytical set of STR kits** for the individual identification of tigers that will be used to find an individually distinctive part of an animal's genome so that the animal could be identified and could not be interchanged with another (the equivalent of human DNA testing in criminology). The possibility of individual identification will not only help eliminate the exchanging of animals in breeding facilities and

during trades but also verify the possible origin/source of contraband (direct identity of animals or kinship), thereby providing evidence of links of organized illegal trade (identification of perpetrators). The **reference database** of the analyzed DNA profiles will facilitate a comparison of filed records with the recently obtained profiles from the seized illegal goods.

An analytical test for individual identification will be tested in accordance with internationally recognized recommendations of International Society for Forensic Genetics for wildlife crime analysis, both in terms of system robustness and possible false-negative or false-positive results. The RT-PCR methodology will also be included, as isolated DNA must be accurately quantified to allow proper evaluation. It will be possible to simultaneously determine the presence of inhibitors and to determine the extent of DNA degradation. Bioinformatics analysis of the tiger sequence leads to selection of candidate STR loci, based on which a multiplex consisting of 6 STRs was proposed. The first multiplex is now being tested.

The STR marker method was chosen for individual identification because of its robustness and reliability. Moreover, when tested and validated, the STR markers will make it possible to use the method in any laboratory in the world (similar to human DNA testing). Another option is to test SNP markers, which do not have such variability, and their analysis requires expensive equipment, thus reducing the usefulness of the method in the future and greatly increases the cost of testing. According to the CEI information, the **TRACE Laboratory** in the UK is exploring the potential use of SNP markers for individual identification of tigers. Other research in this area is done by **The Nepal's Centre for Molecular Dynamics** who developed a DNA reference database containing genetic information on Nepal's tigers. This research was sponsored by USAID as The Nepal Tiger Genome Project. Maybe other scientific teams have been dealing with similar issues and **it would be very desirable to share the knowledge and experience as well as start a detailed discussion on the subject of forensic analyzes of tigers in addition to the illegal trade in products from tiger bodies.** From the perspective of the Czech Republic would be very useful to organize a **special international workshop** focused on tiger genetic research, possibilities of forensic analysis and enforcement experience with it.

In addition to focusing on individual identification and database creation, it is necessary to address the **extraction and detection of tiger DNA in processed materials** (broths, pastes, extracts) in order to effectively detect the illegal trade in tigers. According to available information, the Czech Republic is the only country that has been closely investigating this type of activity and is trying to perform genetic analysis of processed products in order to prove the presence of tiger DNA.

For the correct validation of the method, it is necessary to carry out a **population study** with a statistical calculation of potential affinity. To do this, it is necessary to obtain as many samples as possible from unrelated individuals (appropriate samples - tissue, hair, blood, saliva, droppings...). To this day, the CEI has collected about 220 samples from different tigers and about 20 samples of different types of processed products for the TigrisID project.



Fig.: Useable tiger samples – hair, droppings, saliva, blood...

Information on the TigrisID project was presented at the 28th session of the Interpol Wildlife Working Group in Singapore 2017 as a proposal for intersessional activity along with a request for cooperation from other countries. The project was also brought to the attention of the European Commission which expressed its support. Within the EU Enforcement Group, other Member States were asked to carry out tiger-focused inspections and eventually share any genetic samples of tigers (from living animals, seized animals or products that could contain tiger DNA). For the duration of the project (until 2022) it is possible **to perform necessary analyzes in the Forensic DNA service laboratory for free**. Currently, samples from the Slovak Republic have already been received and there are negotiations taking place with other countries as well. At the same time, the CEI has requested **cooperation from EAZA**, which in turn informed its member zoos. Some zoos (UK, Sweden) have already sent samples of their tigers and other samples are expected to be shared in the future. For this reason, the **Guidelines and Sampling Protocol** methodology guide has been prepared and distributed within the EU.



Fig.: Sampling of tigers in the Czech Republic

In April 2018, a Czech ministry delegation visited Vietnam and had a meeting with representatives of Vietnamese state authorities in Hanoi, where more detailed cooperation in different areas of the economy and the environment was discussed. The talks also touched on cooperation in relation to the CITES Convention with a reference to the Memorandum of Understanding concluded in November 2015, in which both countries committed themselves to intensified cooperation and inspections related to wildlife. In April 2018, the possibility of cooperation in the field of forensic wildlife analyzes, including the possible sharing of tiger samples, was discussed. The Czech Republic offered Vietnam the opportunity to carry out genetic analyzes for free and at the same time offered to share know-how, including training of experts.

Conclusion

Based on the above information, it is clear that the **illegal trade in tigers is likely to be larger than originally estimated**. The key finding is that it does not only take place in Asia but also in Europe. The illegal trade involves skins, claws, teeth and bones but also less recognizable types of goods such as broths, pastes or powders.

In Europe, there is a large number of captive tigers. These tigers are kept in zoos, private breeding facilities, circuses, etc. In many countries it is not known exactly how many captive tigers there are and what entities own them. Even within the EU, there is a variety of national legislation that leads to significant differences in the approach. Based on the investigation in the Czech Republic, captive tigers are probably the source of raw materials for the black market with tiger products. Individuals from the Vietnamese community buy tigers from private breeders

(probably not only dead but also live, who are then slaughtered). The tiger bodies are cooked to obtain bones and broth from the tissue. The processed bones and the so-called “tiger bouillon” are consumed both within the EU but also illegally exported to Vietnam or maybe other Asian countries. This export is carried out by air, mainly by employing mules and their luggage because of the smaller size of the products. According to available information, the use of cargo consignments for such purposes is not as common.

In summary, it can be stated that the problem outlined concerns captive tigers rather than wild populations. Many of these tigers represent no value for conservation of wild populations (hybrids of subspecies, socially disturbed animals, etc.) but if such tigers are traded for the production of tiger products and their distribution to the black market, this market is stimulated, while the demand expands as well as the consumer base. This situation certainly does not contribute to the protection of the remaining wild populations of tigers.



In the opinion of the Czech enforcement authorities, the trade in tigers including captive-bred tigers, should be significantly reduced in the future and stricter rules should be applied, together with detailed rules on the conditions and purpose of keeping in addition to the requirements for verification of suitable breeding facilities. Contact zoos, cuddling, excessive production of cubs, canned hunting or other commercial exploitation of tigers and other big cats should be completely banned, not only in the Czech Republic but in all CITES member countries, as it is in stark contrast to the protection of endangered species.

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