

UNVEILING THE CRIMINAL NETWORKS BEHIND TRADITIONAL CHINESE MEDICINE IN THE NETHERLANDS AND THE EU

Photo: Britta Jaschinski/ IUCN NL

IUCN National Committee of The Netherlands

Bears in Mind

SPOTS Save & Protect Our Treasures

EARTH LEAGUE INTERNATIONAL

COLOFON



Photo: Willem van Zijl via Getty Images

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ACRONYMS

BRI	Belt and Road Initiative
CAGR	Compound Annual Growth Rate
CAM	Complementary and Alternative Medicine
CIB	Confidential Intelligence Brief
CMP	Chinese Medicine and Pharmaco-therapy
CITES	the Convention on International Trade in Endangered Species of Wild Fauna and Flora
EARS	European Alliance of Rescue Centers and Sanctuaries
EAZA	European Association of Zoos and Aquaria
EU	European Union
HSR	Health Silk Road
IBA	International Association of Bear Research & Management
ICD	International Classification of Diseases
IWT	Illegal Wildlife Trade
MFC	Medical Fauna of China
NATCM	National Administration of traditional Chinese Medicine
NVWA	De Nederlandse Voedsel- en Warenautoriteit
OTCM	Official TCM, listed in the Pharmacopoeia of the People's Republic of China
TCM	Traditional Chinese Medicines
UNTOC	United Nations Convention against Transnational Organized Crime
WHO	World Health Organization



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Photo: Rhino Horn | Joanna Gilkeson, USFWS | U.S. Fish and Wildlife Service Headquarters | Flickr

EXECUTIVE SUMMARY

Worldwide, wildlife is under pressure. Change in land use, habitat loss leading to human wildlife conflicts, climate change and also wildlife trade, legal and illegal, are the main causes for the substantial loss of wildlife worldwide. An increasing pressure on wildlife also derives from traditional medicines. In some traditional medicines animal parts are used from species that are (critically) endangered.

According to the World Health Organisation an estimated 88% of all countries worldwide use traditional medicine, including herbal and animal based medicines, acupuncture, yoga, indigenous therapies and others. Traditional medicines are estimated to be used by 60% of the world's population and are extensively included in the public health system in some countries. According to the WHO, traditional medicines are often the only option for a large proportion of the world's population.

The global trade in wildlife affects ~24% of terrestrial vertebrates, and demand for traditional medicine ingredients containing animal parts is a high profile driver. Traditional Chinese medicine ("TCM") represents a suite of hugely valuable economic markets, predicted to reach 5 trillion yuan (approximately 1 trillion USD) by 2030, with the associated concerns that this will increase already severe pressures on wildlife. TCM is rapidly expanding worldwide as a key pillar of the country's Belt and Road Initiative ("BRI") and conservation groups say demand for treatments using animal products is driving a surge in illegal trafficking of wildlife. It is expected that the use of traditional Chinese medicine will (substantially) increase over time, also in Europe.

Animals, both wild and domesticated, are being used in a specific part of TCM. They are being bred for TCM or poached in the wild. For example, for harvesting bear bile, bears are often kept in small barren cages, living their life under continuous stress and pain. In the case of poaching, wild animals are killed and the relevant parts extracted from the animal (i.e. the horn of a rhinoceros).

Some of these animals are endangered and threatened with extinction (i.e. rhinoceros, pangolin and saiga). Our project focuses on TCM, as its scale and global impact is substantially higher than of other traditional medicines and because it is renowned for its use of (wild) animal parts of endangered species such as pangolin, big cats and the rhinoceros.

IUCN NL, stichting SPOTS, Bears in Mind and Earth League International (ELI) initiated a project to establish whether there is a market in the Netherlands for TCM containing illegally used and traded (wild) animal parts (hereinafter referred to as 'illegal TCM products') and, if so, how these (wild) animal parts are smuggled into the Netherlands. On behalf of these organizations ELI was commissioned to investigate this trade.The intelligence-led operations started in September 2021 and ended in December 2022 and aimed to compile and analyze information on the trafficking routes, the main destinations, modus operandi and the key drivers.



Photo: Britta Jaschinski

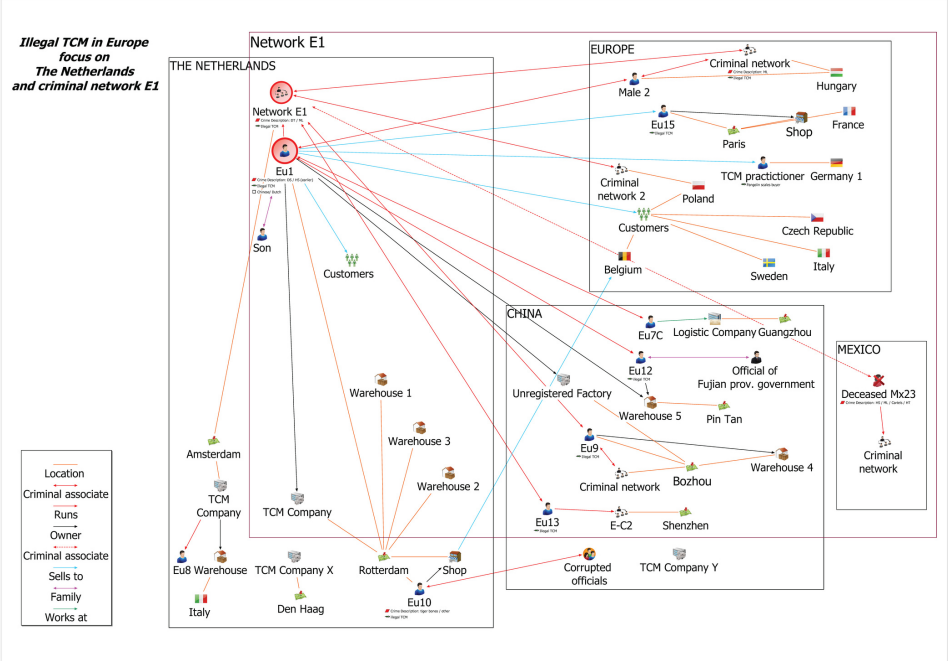
A summary of the main findings of ELI's investigation is set out below. All findings are backed by evidence collected and analyzed by ELI. The Confidential Intelligence Brief (CIB) produced by ELI has been shared with the relevant law enforcement agencies, that supported their ongoing investigation on this issue in the Netherlands.

Through their investigation, ELI was able to identify 10 Persons of Interest (PoI) in the Netherlands and the Republic of San Marino. The investigation identified at least two criminal groups: one in the Netherlands and one in the Republic of San Marino that are involved in the trade of illegal TCM products.

The key PoIs identified by ELI have solid, fully functioning networks allowing them to smuggle illegal TCM products (i.e. containing pangolin scales or rhino horn) without major effort. The preferred means of transport is via the railway between China and Europe, which is part of the Chinese Belt and Road Initiative. However, it is also very easy for them to switch to sea or air cargo. Traffickers often bribe high-level police and customs officers to get support in passing borders.

The investigation shows that the customers are medical practitioners and retailers (TCM shops) throughout Europe selling legal and illegal TCM products.

The network in the Netherlands is, according to ELI's findings, also involved in other serious crimes such as money laundering, drugs trafficking and was until 2012 involved in human trafficking of Chinese individuals to western countries such as the European Union (EU) Member States. The network in the Republic of San Marino is also involved in money laundering. In other words, with respect to both networks there is convergence with other serious crimes.



Crime map © Earth League International

INTRODUCTION

This report presents the findings of the investigative activities performed to unveil the criminal networks in the Netherlands involved in sourcing and trading illegal TCM products into the Netherlands and the EU. It also provides an overview of what TCM entails and its impact on populations of specific species.

OBJECTIVES AND SCOPE

This is a joint project between IUCN NL, stichting SPOTS, Bears in Mind and ELI and (financially) supported by the Dutch Postcode Lottery. Traditional medicines, especially traditional Chinese medicines (TCM), are one of the drivers of the illegal trade in endangered (wild) animals, and IUCN NL, stichting SPOTS and Bears in Mind agreed to work together to investigate this topic.

According to the latest Traffic report on seizures of CITES-listed wildlife in the EU in 2021, the most frequently seized commodity type was medicinals (plant-and animal-derived medicinals which comprises medicines, extracts and cosmetics); accounting for 1117 seizure records (27% of the total 2021 seizures). Animal-derived medicinals in 2021 accounted for 17% of the medicinals trade. Trade continued in medicinal products containing i.e. seahorse and sturgeon, with an increase in seizures of medicinal products involving rhino horn from < 1% in 2020 to 5% in 2021 (84 specimens). With 11% of the total seizures in CITES-listed wildlife in the EU, the Netherlands takes the third position after Germany (25%) and France (22%).

Despite the scale of this trade, illegal trade driven by traditional Chinese medicines as well as the role the EU plays in this trade, is largely unknown and requires further investigation. ELI's intelligence-led operations started in September 2021 and ended in December 2022. The goal was to examine if there is indeed a market for illegal TCM products in the Netherlands and the European Union. And if so, compile and analyze information on the trafficking routes, the main destinations, and the key drivers.

IUCN NL, stichting SPOTS, Bears in Mind and ELI also wish to raise awareness among politicians and the wider public in the Netherlands about the issues and impact this trade of illegal TCM has on specific species.

Through the investigation and the raising of awareness, the organizations hope to influence the Dutch government to decide to strengthen the capacities and (financial) resources of the relevant Dutch authorities to investigate and prosecute traders of these illegal products. Moreover, the organizations hope that the Dutch government will emphasize the role TCM is playing in the illegal wildlife trade during CITES and biodiversity summits and as well address it during WHO summits since traditional medicines were included in their International Classification of Diseases (ICD) in 2019 (eleventh Revision, ICD-11).

The report will elaborate on the various human-caused pressures on wildlife in chapter 1. Chapters 2 and 3 provide a general background on traditional medicine and will give a more detailed explanation regarding TCM and the use of animal parts therein. This is based on open source information and primarily taken from the study: "Beyond the Pharmacopoeia: To what extent is trade for "TCM" limited to official TCM taxa?". Chapter 4 will elaborate on the expectation that the use of TCM will substantially increase in the near future. Chapter 5 elaborates on the key findings from ELI's investigation into the trade in illegal animal parts relating to TCM.

When we refer in this report to 'illegal TCM products' we refer to TCM that is made whilst using illegally obtained -or inhumanely harvested- and traded (wild) animal parts.



Photo: baby sea turtles © Britta Jaschinski

METHODOLOGY

ELI undertook multiple missions to the Netherlands between 2021 and 2022. The focus of the intelligence-led operation was to unveil the central nodes, mechanisms, and structure of the entire criminal supply chain, with a bottom-up – top-down approach. Emphasis was on the illegal wildlife goods providers, the traders, the transporters, and the sellers in the Netherlands and the suppliers in China.

The ELI team undertook a series of activities aimed at collecting as much information as possible on the illegal supply chains and the wildlife criminal networks. The activities included field interviews, several surveillance operations and the use of undercover operatives. Furthermore, using local sources, ELI collected intelligence and monitored the targets for the duration of the investigation and produced a detailed Confidential Intelligence Brief (CIB).

The CIB contains finished, actionable and cohesive intelligence and includes the analysis of patterns, the modus operandi of the criminal network(s) involved including the names of key players and a broader mapping of their associates and enablers. This CIB has been shared with relevant authorities in the Netherlands and contains evidence of illegal activity collected during the operations in the form of photos, personal information, illegal goods in their possession, products of the social media analysis (SMA) and crime maps.



Photo: © Gineke Mons

1. SETTING THE SCENE: WILDLIFE UNDER PRESSURE

Wildlife population density has decreased by more than two-thirds in less than 50 years, according to the Living Planet Report 2022. Many factors contribute to the diminishing of wildlife populations and biodiversity decline, such as change in land use, habitat loss leading to human wildlife conflicts and climate change. Wildlife trade, legal and illegal, are important (and increasing) factors leading to losses. The focus of this research report is on this trade and its consequences.

ILLEGAL WILDLIFE TRADE

The illegal and unsustainable trade in wildlife is a major and growing threat to biodiversity, estimated to be worth between USD$7 and 23 billion per year, making wildlife crime one of the most lucrative illegal businesses, often run by sophisticated, international, and well-organized criminal networks seeking to exploit the high rewards and low risks of the trade. The IWT is recognized by many governments as a major threat to biodiversity. For example, African savanna elephants (*Loxodonta africana*) show a 60% decline in numbers and the population of African forest elephants (*Loxodonta cyclotis*) has declined by 86% over the past decades. This decline is attributed to poaching for ivory, as well as the ongoing conversion of their habitats, primarily to agricultural and other land uses. The Western black rhino (*Diceros bicornis ssp. longipes*) was officially declared extinct primarily due to poaching in 2011. China's pangolin (*Manis pentadactyla*) population has declined by an estimated 94% since the 1960s primarily due to trade for consumption and as an ingredient for TCM, while international trade in its bile and paws has contributed to a global decline of 31% in Asiatic black bear (*Ursus thibetanus*) populations.

The conservation of charismatic animals like elephants and rhinos has received considerable global attention, but other species are under severe pressure as well due to the illegal trade.

These include mammals such as lions (Panthera leo), tigers (*Panthera tigris*), cheetah (*Acinonyx jubatus*), jaguars (*Panthera onca*) and snow leopards (*Panthera uncia*), non-human primates (e.g. great apes, monkeys), pangolins (*Manis spp*) - most likely the world's most heavily trafficked mammal- reptiles and also fish such as the totoaba (*Totoaba macdonaldi*). The totoaba is living in the Gulf of Cortez in the same waters as the vaquita (*Phocoena sinus*) - a small porpoise. Of the latter, probably less than 10 individuals remain as they are caught as bycatch in the fishing nets used to catch the totoaba. Many other species of reptiles, birds, amphibians, fish, invertebrates are also significantly impacted by poaching and illegal trade and require urgent attention.



Photo: Totoaba bladders, © Earnest Tse/Alamy Stock Photo



Photo: pangolin scales © Britta Jaschinski/IUCN NL

The demand for wildlife products is in part fueled by the perceived medicinal value of some animal parts (i.e. rhino horn and pangolin scales) or the social status that is associated with them. Other drivers of demand include the exotic pet trade and private collections of rare flora and fauna.

The accelerating decline in wildlife populations will have long-term negative impacts on local communities as it deprives communities of their natural capital and livelihoods —USD$70 billion per year is lost due to crimes affecting natural resources — deepens poverty and inequality, and threatens national security by causing instability and fueling conflicts. In many developing countries, wildlife is a driver for tourism revenues, job creation, and sustainable development. Wildlife also brings significant ecological and cultural benefits to regions around the world.

2. A CLOSER LOOK: TRADITIONAL MEDICINES

According to the World Health Organisation an estimated 88% of all countries worldwide use traditional medicine, such as herbal medicines, acupuncture, yoga, indigenous therapies and others. 177 WHO member states report the use of traditional medicine. Traditional medicines are estimated to be used by 60% of the world's population and are included within public health systems in some countries. According to the WHO, when it comes to medicinal care, traditional medicines are often the only option for a large proportion of the world's population and thus play an essential role in health care, especially in primary health care.



Photo: Inho Lee Getty Images Signature

TRADITIONAL MEDICINES

Traditional medicine (TM), variously known as ethno-medicine, folk medicine, native healing or complementary and alternative medicine (CAM), is an ancient and culture-bound method of healing which humans have used to cope and deal with various diseases threatening their existence and survival; it is a broad and diverse set of practices.

This may perhaps explain why there is no single universally accepted definition of the term. One of the most acceptable definitions of TM has been provided by the World Health Organization (WHO). Traditional medicines, according to WHO are "*the sum total of the knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health, as well as in the prevention, diagnosis, improvement or treatment of physical and mental illnesses*".

Herbal remedies are frequently used in TM for the treatment of diseases. However, traditional medicine is a wider area, where the use of animals (e.g. in Africa vultures (*Accipitridae spp.*) are used in traditional medicine), fungi, or other components of nature (rocks, minerals, etc.) can also be included for the treatment of conditions or diseases.

Since traditional medicines are linked with different cultures, there are a variety of different practices worldwide. The most widely used traditional medicine systems today include those of China (traditional Chinese medicines - TCM), India (such as Ayurveda), and Africa (traditional African medicine, muthi).

TRADITIONAL CHINESE MEDICINES

Traditional Chinese Medicine, often abbreviated as TCM, is a collective name for a variety of traditional medical practices from China. Traditionally many countries in Asia, such as Laos and Vietnam, have been influenced by TCM. Due to the Belt and Road Initiative (see Chapter 4), TCM is now finding its way to other parts of the world.

TCM is a medical system that has been used for thousands of years to prevent, diagnose, and treat disease. Two concepts that are unique and fundamental to Chinese medicine are Qi (usually translated as "vital energy") and yin and yang (the harmony of all the opposite elements and forces that make up existence). These two concepts form what we might call the roots of Chinese medicine.

TCM provides guidelines for both the practitioner and patient on how to best facilitate harmony between yin and yang in any set of circumstances and how to create and circulate an abundance of Qi to sustain health and wellbeing. The ultimate goal of TCM treatment is to balance yin and yang by promoting the natural flow of Qi. Practices used in TCM include: acupuncture and acupressure, herbal medicine, nutrition, massage and exercise, such as tai chi.

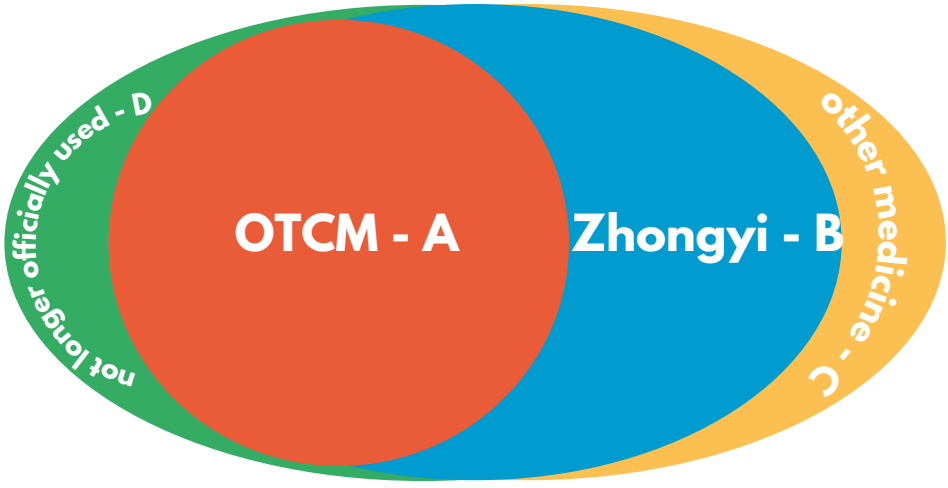
TCM encompassess many facets. For example; certain ingredients (herbal,- and/or animal based) can be processed in medicines, capsules, food or supplements that would remedy a disturbance in yin and yang. TCM treatments are even used for skin improvement.


Photo: Netfalls s via Canva Pro

OTCM & ZHONGYI DIFFERENCE

When considering medicines used in TCM that include (wild) animal parts, a distinction must be made between Official TCM that is officially recognized by the Government of China in the so-called "Pharmacopoeia of the People's Republic of China" (OTCM) and TCM that has been used throughout the centuries often referred to as "zhongyi" (Zhonghyi). Besides the animals used for OTCM and Zhongyi, there is a significant trade in wild animal species that are not specifically listed therein. It is thought that these unlisted species involve substitutes for listed wild animals. For a schematic representation of the difference in use of animal parts, please see this figure taken from the study: "Beyond the Pharmacopoeia: To what extent is trade for "TCM" limited to official TCM taxa?". In this report we will focus on Zones A to D, as seen on the graphic below, since these are most relevant for our report.

Figure 1 below gives a schematic representation of these different Zones.



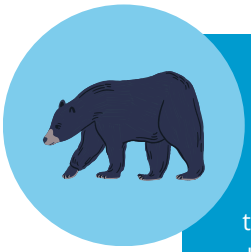
PHARMACOPOEIA - ZONE A

Official TCM, listed in the Pharmacopoeia of the People's Republic of China - OTCM

OTCM is officially recognized by the Government of the People's Republic of China, which is described in the Pharmacopoeia of the People's Republic of China and is also practiced in state hospitals and performed by professional doctors etc. OTCM lists 70 wild animal species which may be used in traditional medicines. The Pharmacopoeia lists two types of medicinal materials: traditional Chinese medicines (plant- and animal-origin medicinal materials), and patent medicines (chemical medicines and biological products that may also include animal-origin materials).

Of the 70 officially named animal species, some 15% of these are listed on the IUCN Red List of Threatened Species. These include the saiga antelope (*Saiga tatarica* - critically endangered), forest musk deer (*Moschus berezovskii* - endangered), alpine musk deer (*Moschus chrysogaster* - endangered) and the Reeves turtle (*Mauremys reevesii* - endangered). In addition, seven species classified as vulnerable are used, including a number of species of seahorses (*Hippocampus spp.*).

Besides the 70 recognized animals used in OTCM, animals which are not officially named are also used as ingredients in certain patented medicines. This is referred to as 'inferred OTCM', it includes for example:



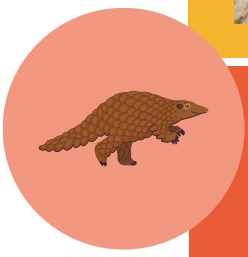
Bear: bear bile is used as an ingredient in 13 medicines patented by OTCM such as Tan Re Qing. In 2020, it was discovered that injection with bear bile was prescribed in OTCM as a treatment against coronavirus. Two of the three bear species known to be used for this purpose are listed as 'vulnerable' on the IUCN Red List of Threatened Species: the Asiatic black bear and the Sun bear (*Helarctos malayanus*).







Leopard: According to statistics, there are 45 kinds of Chinese patented medicines containing "leopard bones" in China. The term used for 'leopard bone' in TCM (豹骨 / bao [leopard] gu [bone]) is ambiguous, as the generic character for leopard – 豹 (bao) – could be used to refer to leopard (*Panthera pardus ssp*), snow leopard, clouded leopard (*Neofelis nebulosa*) or even other species such as jaguar. All of these big cats are listed as 'vulnerable' on the IUCN Red List of Threatened Species.



Pangolin has been officially removed from the OTCM, but the animal's scales are still named as a key ingredient in at least eight patented medicines, including Zaizao Wan, and Awei Huapi Gao. Of the eight known subspecies, three pangolin species are 'critically endangered', two - as 'vulnerable' and three 'endangered' on the IUCN Red List of Threatened Species.



LEOPARD

Similar to tigers, China is both a source and consumer of leopard products although the number of leopards in China is not enough to support Chinese demand for, or products that purportedly contain, leopards. There are less than 450 wild leopards (*Panthera pardus japonenis*) left in China, according to estimations (Li, 2020). According to statistics, there are 45 kinds of Chinese patented medicines containing leopard bones in China.

In a submission to the 18th CITES Conference of the Parties in 2019, China claimed that "only the outstanding stockpile of leopard bones held by pharmaceutical factories and verified by the national forestry authorities can be used for medicinal purposes." However, the amounts of leopard bone held in verified stockpiles in 2006 or at any point since, have never been made public.

In 2020, EIA found at least 24 TCM manufacturers in China said to manufacture and sell plasters and pills using leopard bone from the stockpile. According to a study by Ning, F.G. referred to in a CITES report on the legal and illegal trade in big cats (2022), at least 1,000 leopards on an annual basis would be required for the production of Hongmao medicinal wine to address the annual consumption thereof. Meaning approximately 14,000 leopards from the time of the 2006 stockpile closure to the 2020 EIA report have been used for one product alone (Ning, F.G., 2018).



Photo: bones of a big cat © Britta Jaschinski/ IUCN NL



Photo: ©Photocech Getty Images Pro

USE OF BEAR IN TCM

The use of bear parts and especially bile has been an important base ingredient in TCM for thousands of years. In TCM, bear bile is a cold medicine, used as a cure for a variety of liver diseases such as viral hepatitis, fibrosis or liver cancer. It is included in medicines for a wide range of ailments, most often associated with the liver, gallbladder and eye. But it's also used for a variety of non-medical purposes, such as in tea, shampoo, toothpaste and as a 'cure' for hangovers. While hunting bears for their gallbladders (that contain the bile) is no longer legal in China, bear farms were introduced across Asia from the 1980s onwards to supply the market for bear bile. Bile is routinely extracted from these captive bears without killing them. In China, dried bile powder is now the only legal product produced by farms, and is permitted for use only as an ingredient in over-the-counter or prescription processed TCM products, known as 'patent' products (National Pharmacopeia Committee). This means that no unprocessed bile products are legally sold. The annual legal production (output) of bear bile in China is about 30 tons, however, it still cannot meet the demand. Moreover, since early 2020, the Chinese government has recommended using Tan Re Qing, an injection containing bear bile, to treat severe and critical cases of COVID-19, further increasing demand.

The most common bear species found on bear farms in China are Asiatic black bears, with estimates of more than 10,000 bears being kept on commercial farms in China and as many as 20,000 in total throughout Asia. Bears on these farms often suffer from extremely poor husbandry conditions and cruel extraction procedures. While latex and metal catheters are still used, the only method of bile extraction actually allowed under current regulations in China is to surgically create a fistula from the gallbladder to the abdomen where bile can drip freely from. Apart from the mental trauma of being confined in an extremely small space, the bears also suffer a litany of health problems including cancer, infections and blindness. Conditions in Chinese bile farms are alarming, with bears often (temporarily) kept in crush cages (deliberately too small for animals to stand or move much to facilitate the extraction procedure).

Photo: Byrdyak Getty Images

Conditions are sometimes so unsanitary, and bears so sick, that public health concerns have been raised about consuming farmed bile. If the bears live long enough, they can be ´bile milked´ for decades. However, they usually stop producing bile after ten years, at which point they are killed and their body parts sold. To restock these farmed bears, wild bears are poached, putting pressure on the vulnerable wild population in the region.

Synthetic alternatives have been chemically developed. Several pharmaceutical companies manufacture synthetic UDCA (ursodeoxycholic acid, also known as ursodiol, which is one of the acids found in bear bile, and there is evidence that it is medically effective for treating certain liver diseases and gallstones). They use bile from cows or pigs for the use in conventional Western medicine, also used to dissolve gallstones. However, many TCM practitioners still reject these pharmaceutical substitutes because of their synthetic nature and in Asia the primary source for UDCA has remained bile and gallbladder from bears. Studies are ongoing to shed light on consumer preference and behavior in China, which is influenced by complex factors, with the choice to consume wild, farmed or synthetic products influenced by advice from doctors or family members, individual preferences, knowledge or prior experiences with the product. There is evidence that factors such as price and availability play a key role in choices that consumers make, meaning that many consumers with an overall preference for wild bile may only consume legal farmed or synthetic products.



Photo: ©Bears in Mind

ZHONGYI - ZONE B

Currently consumed, listed in the MFC, but not listed in the Pharmacopoeia

Zhongyi includes animals listed in the Medical Fauna of China (MFC). These kinds of medicines are named in pre-twentieth century texts and have traditionally been widely used, but are no longer officially recognized by the Government of China. These types of medicines may include animals which, by tradition and belief, are still targeted and greatly used. The entire Medical Fauna of China lists 2,275 animal species and 66 subspecies used in or as traditional medicine.

Of these 2,275 species and 66 subspecies, 170 (about 7%) are classified are listed on the IUCN Red List, including 62 endangered species (EN) and 30 critically endangered species (CR). For a schematic representation of the animals listed on the IUCN Red List, please see this figure taken from the study: "Beyond the Pharmacopoeia: To what extent is trade for "TCM" limited to official TCM taxa?".

TCM

It is often stated that animal-based traditional Chinese medicine is based on practices that have a 2,000-plus year history. However, Chee (2021) concludes in her book Mao's Bestiary: Medicinal Animals and Modern China, that the use of animal-parts in the past was nowhere near the abundant level they are at today. According to her research around 400 animals were cited in the 16th century "Compendium of Materia Medica," whereas more than 2,300 are listed today in the Medical Fauna of China. 'Instead, the industry as it exists now, was purposefully developed, expanded, and promoted over the last century. Today, it is more closely linked to politics and profit, than to ancient culture and tradition', Chee (2021).

OTHER MEDICINES - ZONE C

Currently consumed, some history of use, but mostly novel medicines and health products

Research shows that there is a substantial trade in traditional medicines derived from wild animal species that are not explicitly listed in Pharmacopoeia or the Medical Fauna of China - and which are therefore likely to have little or no prior textual support for their use. It is thought that these involve most likely substitutions for listed animal species.

As specific (wild) animal species known to be used for TCM become more threatened and more difficult to harvest, they are substituted by (wild) animal species that belong to the same family, like the big cats (*Felidae*). For example, lion and jaguar bones are used instead of tiger bones, other species of the pangolin are used instead of the Chinese pangolin and different subspecies of seahorses are being used instead of the endemic Chinese seahorse for instance. As an example, between 2001 and 2019 95,589 seahorses were seized during attempts to smuggle them out of Mexico. This practice of substituting one species for another, leads to an additional substantial increase of pressure on species which are sometimes already threatened with extinction.



Photo: © Britta Jaschinski/ IUCN NL

FARMING LIONS FOR TCM

Due to demand for tigers and tiger products, there is an increase in farmed cats worldwide. An example is the lion which is used as a tiger substitute. According to a study made on behalf of CITES, South Africa has the biggest breeding industry for big cats. In this country, animals such as jaguars, tigers, leopards, cheetahs and lions are being farmed on a large scale - the lion is the animal most bred. According to the above mentioned study there are more than 200 lion farms in South Africa with approximately 8,000-12,000 lions kept in captivity, whilst in the wild, South Africa has only approximately 3,000 lions left.

The study sets out that cubs are removed from their mothers to allow the female to produce cubs more quickly. The young cubs are being 'raised' by paying volunteers and later used in tourism as photography props or in excursions; e.g. tourists can walk with 'wild' lions. When the lion gets too old and too dangerous for these kinds of activities, they are shot in the canned hunting industry. The bones or the whole skeleton of the lion are subsequently exported, mainly to Asia, to be used in TCM as a replacement for tigers. The documentary Blood Lions launched in 2015, sheds light on the lion breeding industry.

Although South Africa placed a ban on export of bones and skeletons of lions in 2019, there are still reports that trade is happening. There is also an increase in farmed lions in Southeast Asia, which are reported to be kept in tiger breeding facilities.

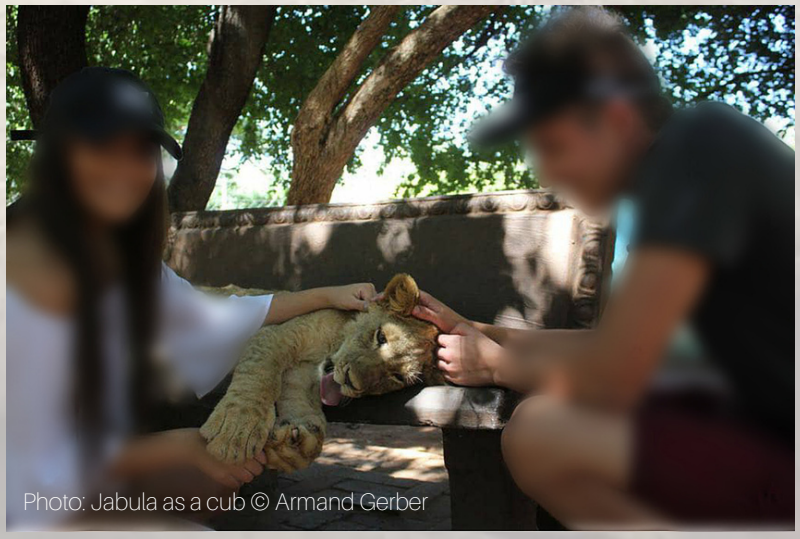


Photo: Jabula as a cub © Armand Gerber



Photo: Slaughtered Jabula © SPCA Bloemfontein

Photo: Jabula as a juvenile © Armand Gerber

PAST TCM - ZONE D

Listed in MFC, listed in Pharmacopoeia, but no longer consumed

Finally, there is TCM that is named in the MFC as well as recognized by the Government as OTCM, but is no longer used officially. An example are body parts of the tiger, an animal which was used in OTCM for a long time. The Chinese government banned it from the official Pharmacopoeia, however, the tiger is still heavily poached for its body parts and even farmed on tiger farms.

Many TCM that fall outside the scope of 'Official TCM' are traded online, for example through pharmaceutical sites, or are being sold in food shops. Consumers undertake personal research online to understand potential remedies for their complaint or ailment; in these cases there is no intervention by a recognized TCM doctor giving official prescriptions to the patient.



Photo: Tiger farm

3. IMPACT TRADITIONAL CHINESE MEDICINE ON WILDLIFE

As it is anticipated that the use of TCM will increase, and plants and animal parts are used as ingredients in some forms of TCM, it is important to establish the impact this has on populations of specific species which are (critically) endangered.

It is difficult to get reliable estimates on the volumes of (wild) animal parts used for the preparation of TCM, as much of the trade is conducted illegally. Unfortunately, illegal trade in (wild) animal parts is still abundant, even within the EU. The latest report published by TRAFFIC shows a significant part (approx. 27%) of the seizures of illegal wildlife products in the EU in 2021 are related to medicinal products. Well known animals used for this purpose are rhinoceros, tiger and pangolin. These animals are all (critically) endangered.They are mainly traded in relation to the preparation of TCM. The exact extent of this illegal trade is unknown. However, evidence from seizures show that there is a vast trade in, for example, pangolins. In the latest World Wildlife Crime Report from UNODC, the role of illegal TCM products is also mentioned as a source of concern. According to this report:

"Pangolins are now arguably the most heavily trafficked wild mammal in the world. Since 2014, there has been a 10-fold increase in the number of whole pangolin equivalents seized globally. Pangolin products have been used in traditional Chinese medicine for thousands of years to treat a wide range of ailments".

PANGOLIN

According to a TRAFFIC report from 2022, more than 330 tonnes of pangolins and their parts have been seized through enforcement actions in Asia from 2015 to 2021, pointing to a sustained threat to the world's most trafficked mammal. As an indication of how many pangolins this would equate to, the UNODC has developed a calculation method where the assumption is that each pangolin killed for the illegal trade produced an average of 500 grams of scales. So, 330 tonnes would represent about 660,000 pangolin equivalents. Pangolins are seized whole, both dead or alive, and also as parts and therefore the actual volumes could be higher since the weights of seizures are not always made public. Scales, which are widely used in traditional medicine, accounted for a majority of what was seized in Asia. More than half the weight of pangolins and parts seized in Asia originated in Africa, indicating the continued capture of pangolins in Africa to feed Asian demand.



Photo: Pangolin scales © Britta Jaschinski/ IUCN NL

Besides iconic species, a number of other animals are also poached and illegally traded for the production of TCM. For example, the Tokay gecko (*Gecko gecko*) has been used in TCM for hundreds of years and is sold throughout East and Southeast Asia in dried form or preserved in alcohol. This animal is heavily poached and traded throughout its range, and TCM trade is an important driver for poaching. It is estimated that more than one million tokay geckos are traded annually. All of this suggests a flourishing illegal trade in wild animals driven by TCM, in which seizures only show the tip of the iceberg.

To get some idea of the trade for TCM, one can investigate the legal trade in animals for TCM. The best base for this is CITES. To regulate the trade in wild animal and plant species to safeguard certain species from overexploitation, the CITES Convention was introduced. CITES is a trade agreement and regulates the trade in endangered species. Currently 184 countries have signed the CITES Convention, including China, and more than 38,000 species are listed in the Appendices of the CITES legal framework. In the decision making process whether an animal should be included in one of the appendices of CITES, the IUCN Red List is often used as a frame of reference. In many cases if an animal is classified as (critically) endangered on the IUCN Red List, it is also classified in one of the Appendices of CITES.

The species covered by CITES are listed in three Appendices:

- **Appendix I** are species that are (seriously) threatened with extinction; commercial trade in wild specimens is therefore prohibited. However, there are a number of exemptions to this general prohibition.
- **Appendix II** lists species that are not necessarily threatened with extinction but that may become so unless trade is closely controlled. International trade in specimens of Appendix-II species may be authorized by the granting of an export permit or re-export certificate.
- **Appendix III** is a list of species included at the request of a Party that already regulates trade in the species and that needs the cooperation of other countries to prevent unsustainable or illegal exploitation. International trade is allowed only on presentation of the appropriate permits or certificates.

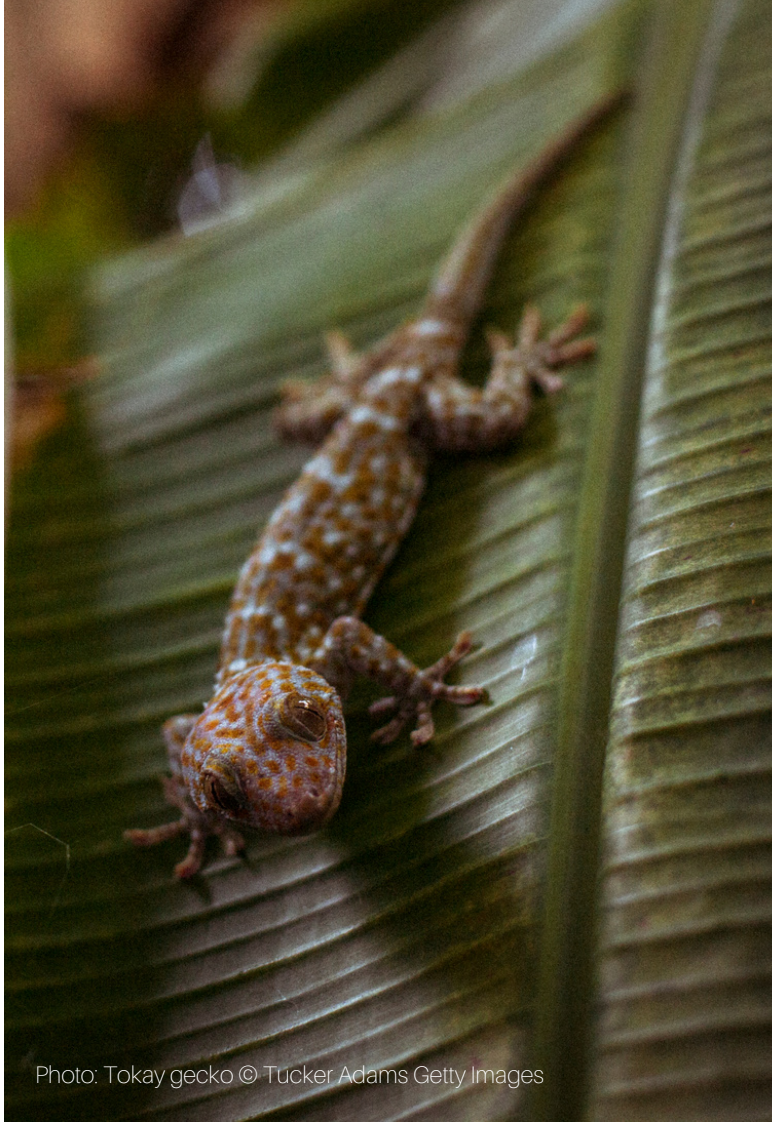


Photo: Tokay gecko © Tucker Adams Getty Images

Consequently, to be able to legally trade (wild) animal parts for the preparation of TCM, it must be determined if the relevant species is mentioned in one of the Appendices. If that is the case, the relevant permits need to be obtained. If it concerns an Appendix I listing, any commercial trade is prohibited, although exceptions are possible as mentioned above.

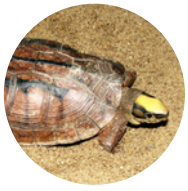
Researchers from the WildCRU, University of Oxford, World Animal Protection and China West Normal University, performed a study on wild animals legally traded for TCM, by researching CITES permits. In the study, only permits which explicitly mentioned trade for TCM were taken into account. Although the study gives a good estimate of the legal trade in animals and/or animal parts for TCM, CITES permits have their limitations and loopholes so also here, the numbers set out in the study are likely to represent a fraction of the actual trade.

According to this study, twelve species (17%) used in the OTCM are afforded some protection by a listing on the CITES appendices. Of these twelve species, ten (14%) are listed in Appendix II. With respect to Zhongyi the study sets out that 173 (~7%) species are listed on CITES appendices: 47 (2%) on Appendix I, 113 (4.8%) on Appendix II. This means that permits are needed for their import or export. For a schematic representation of these findings we refer to this figure taken from the aforementioned study.

To estimate the size of the trades in species for OTCM and Zhongyi from the ex- and import data was, according to the study, difficult due to the incompleteness of many CITES records. For the calculation of the size of the trades only species were counted if they had specific use for TCM. All species with existing alternate uses were discounted unless exported as medicines during the same period, or unless a body part specific to the medicinal use was listed. The study was therefore very cautious and probably underestimated the size and diversity of many imports related to TCM.

EXPORT FROM CHINA OF CITES LISTED ANIMAL SPECIES BETWEEN 2008-2018:

The aforementioned study concluded that sufficient evidence existed to link the export purpose to use as "TCM" for 32 animal species . Of these 32 species, nine species (28.1%) are OTCM species weighing in total 23,555.4 kg (Table 1).







Some examples:

- 18,793 kg was products from Reeves turtle (IUCN Red list: endangered);
- 1,415 kg were from Saiga antelope; (IUCN Red List:critically endangered); and
- 1,000.7 kg were of common seahorse (also referred to as spotted seahorse) (IUCN Red List: vulnerable)

Photos: Turtle: Torsten Blanck, Antelope: Victor Tyakht Getty Images, Seahorse: Namepic Getty Images

These numbers **only** represent the exports of medicines in their final forms, so the weight of the raw materials used to prepare these medicines is likely to be much higher. As it only concerns export, these numbers do not take in account any of the animal parts used domestically, so within Chinese borders, to prepare TCM.

The aforementioned study explained that it was difficult to calculate the relative size of recorded exports for **inferred OTCM, Zhongyi and unlisted species** as 'unknown units' were used in the CITES data. This made it impossible to know the size of the trade (see Table 1 of the study). For example, regarding the Siamese crocodile (*Crocodylus siamensis*) 411,600 unknown units of medicine were exported. This could represent either 412 g, 412 L, 411,600 kg or 411,600 L, leading to very different implications for the size of the trade.

What researchers could establish is that a minimum (excluding unknown quantities) of 5,344.5 kg of products of non-OTCM species were exported from China between 2008-2018, of which:

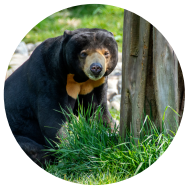
- 32.4 kg were inferred OTCM (i.e. bear bile);
- 4,688.6 kg were from species listed in the MFC; and
- 623.5 kg were unlisted, potentially species substitutions (i.e. Siamese crocodiles).

These findings indicate a potentially substantial export trade from China in TCM derived from (wild) animal species that are not explicitly listed in the Pharmacopoeia (i.e. those species listed as patent medicinal ingredients).

IMPORTS OF CITES LISTED ANIMAL SPECIES TO CHINA BETWEEN 2008-2018:

According to the aforementioned study, sufficient evidence existed for ten species listed in either the Pharmacopoeia or the MFC to determine with a high degree of confidence that the trade was intended to provide medicinal materials for "TCM". The imported quantities of these species were substantial: the combined imported weight of products from these ten species was 18,471.8 kg, of which:







- < 20% (3,438.7 kg) was for species listed in the Pharmacopeia (these figures, however, exclude 1,510,739 bodies of Tokay geckos, an OTCM species for which no weights were provided)
- 253.2 kg for for inferred OTCM (bear species, two of the three bear species known to be used for this purpose are listed as 'vulnerable on the IUCN Red List – the Sun bear and Asiatic black bear), and
- 14,780 kg of products ("extract" and oil) derived from the Burmese python an animal listed in the MFC (*Python bivittatus* - IUCN Red List: vulnerable).

Photos: Gecko: Dicky Oesin Getty Images, Bear: David Atkins Pexels, Python: Lunaric-67 Getty Images

These findings support the conclusion from the export data set out above that there is a substantial trade in animal species used for TCM that are not specifically listed in the Pharmacopoeia.

IMPORTS OF CITES-LISTED ANIMAL SPECIES AS POTENTIAL SUBSTITUTES FOR OTCM OR ZHONGYI

The study also focused on whether there were any animal species imported as medicinal materials that were not listed in either the Pharmacopoeia or MFC. And if so, how many species of conservation concern (mentioned on the IUCN Red List) were being imported for TCM which have little or no previous record of medicinal use.

As shown in this figure, they concluded that imports of seventeen species and three higher taxa were plausibly intended as a species substitution for an OTCM species (i.e. were not themselves listed in the Pharmacopoeia, but belonged to the same group of species that were listed). The seventeen species comprised nine seahorse species, five pangolin species, lion, Mountain zebra (*Equus zebra*) and Onager *(Equus hemionus*).

Sixteen imported species in China were unlisted in either the Pharmacopoeia or the MFC, but were plausibly imported as substitutes for species listed in the MFC. As set out in this figure this applies to the Gulf sturgeon *(Acipenser oxyrinchus desotoi*), six species of box turtles (*Terrapene spp.*), the Russell's viper (*Daboia russelii*), four species of tortoises (*Testudines spp.*), two species of cobra (*Elapidae spp.*), the Reticulated python (*Malayopython reticulatus*), and Checkered keelback *(Fowlea piscator*).

The imported quantities relating to species substitution were substantial. Imports of substitutes for species listed in the Pharmacopoeia and MFC included:

- 2,193.8 kg of unlisted seahorse species;
- 21,749 kg of scales and skins of unlisted pangolin species;
- 135 kg of swim bladders of sturgeons;
- The medicinal part of *Panthera leo* is bone and so relevant imports were 166 bodies, 4 skeletons, 52 UU (units unknown) of bones, and 22 skulls;
- 44 kg of gall; and
- 30 kg of derivatives of unidentified Python species (*Pythonidae spp.*).



Photo: Gulf Sturgeon © Dan Rieck Getty Images

JAGUAR

Tiger body parts have traditionally been used in TCM. Poaching is the most immediate threat to wild tigers, mostly driven by the demand for TCM. The total number of tigers in the wild is estimated to be about 3,900. The animal became scarcer, but was also better protected internationally. Eventually the Chinese government removed the animal from the official Pharmacopoeia of the People's Republic of China. However, the demand for tiger body parts has not stopped. Parallel to it, a demand for tiger substitutes arose. These are found in other big cats such as lions , leopards, snow leopards, clouded leopards and jaguars.

Studies published by IUCN NL on the jaguar trade make clear that there is a large trade in jaguar parts to China. The jaguar is referred to as the 'American Tiger'. It is believed that jaguar parts are used as substitutes for tiger parts. For example, jaguar fangs are similar in size as tiger fangs, so buyers cannot distinguish between the two. The jaguar fangs are used for medicinal purposes, as well as to make pendants that Chinese nationals wear to symbolize social status. Jaguar bone wine is also very popular among Chinese residing in Suriname, surrounding countries, and Europe, including the Netherlands. It is most likely used as a substitute for tiger bone wine, which is advocated as a stimulant for those suffering from fatigue or bone-related ailments, such as arthritis and rheumatism. Jaguar paste is also used as another form of medicine. It is probably used as an adaptation of tiger paste. Jaguars are boiled for a week to produce the paste, which is used to treat arthritis pain, enhance general health, and increase sexual potency.

The Secretariat of CITES recently conducted research and analysis on the legal and illegal trade in big cats. According to this research *"Demand for tiger products is a threat to nearly all big cats, and, in many countries, this demand is driving poaching and trafficking of a variety of big cat species".*

Photo: © Hemera Technologies, Photo images

CONCLUSION

It can be concluded from the numbers set out in the study there is an abundant legal trade not only in animal species listed in the Pharmacopoeia and MFC - used for OTCM and Zhongyi -but also in animal species not listed in either text, but which are nonetheless traded for the purposes of supplying medicinal materials for the production of TCM. The researchers of the study also concluded that OTCM represents only one facet of "TCM", that different practitioners and consumers adhere to different facets, and that the markets they stimulate do drive a substantial global trade in wild animal species and their derivatives".

It should be noted that the size of the trade set out above only reflects the legal trade and is gathered from the CITES database. This, however, does not cover the illegal trade which is substantial as evidenced by the many confiscations and reports like those of TRAFFIC .



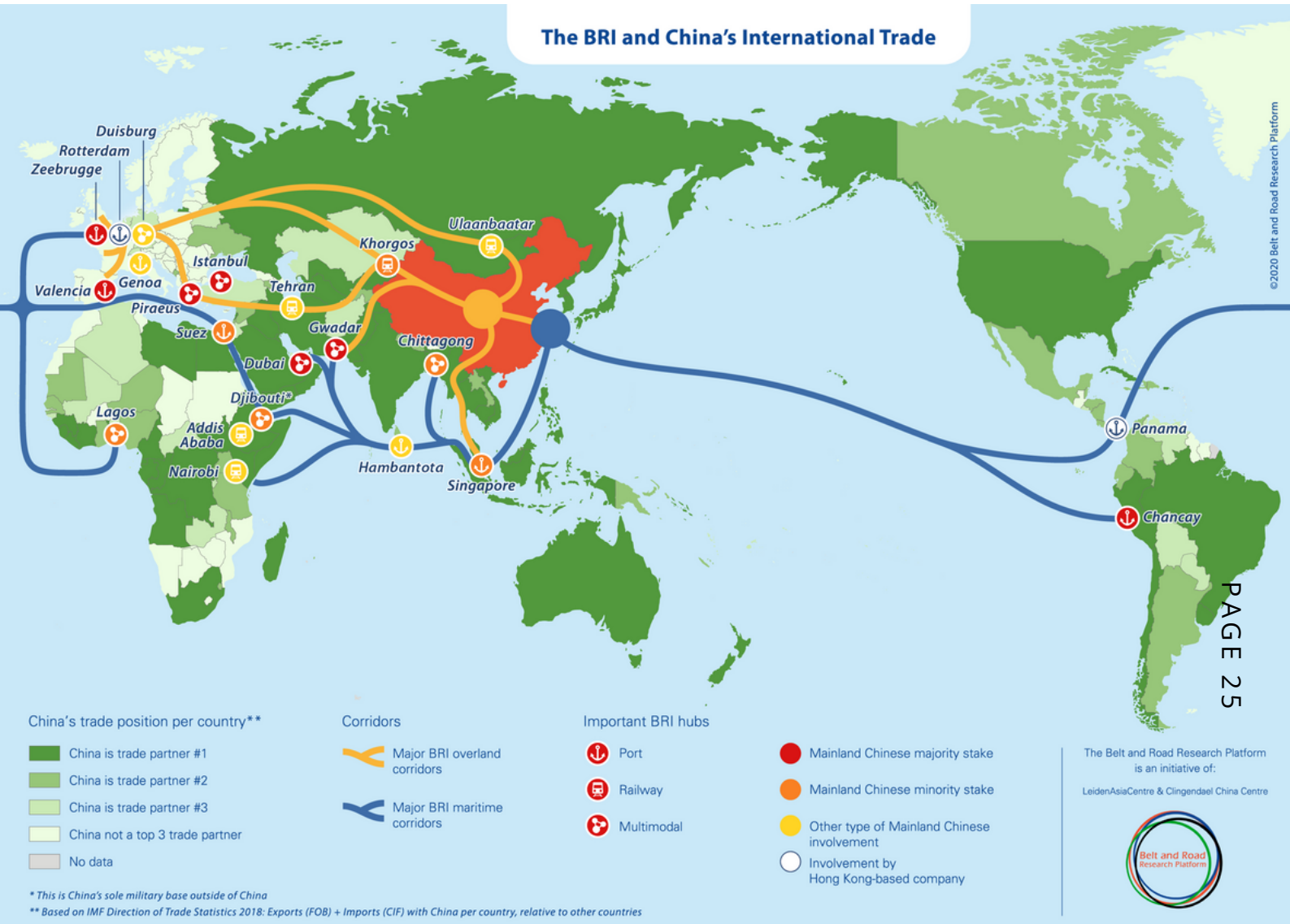
Photo: © Bears in Mind

4. EXPECTED INCREASE IN THE USE OF TCM

Several developments will most likely lead to a substantial increase in the global use of TCM. One of these developments is the Belt and Road Initiative (BRI). The BRI refers to a development strategy of the Chinese government, aimed at connection and cooperation between various countries and China. According to the head of the National Administration of Traditional Chinese Medicine (NATCM), quoted in an article from the World Federation of Chinese Medicine Societies in September 2022, TCM has evolved into a significant international collaboration field and expands to 196 countries and regions.

The article also points to the fact that during the 14th Five-Year Plan period (2021-2025), China aims to jointly establish 30 high-quality TCM centers with countries along the Belt and Road Initiative. In the same article Chen Zhu, chairman of the Standing Committee of the National People's Congress is quoted: *"China is ready to work with Belt and Road countries to promote the preservation and innovation of TCM, enhance its role in combating the COVID-19 pandemic and jointly build a global community of health for all".*

New map of Belt and Road Initiave - Leiden Asia Centre



Post-pandemic recovery, China is expanding the BRI with new components, including the Health Silk Road (HSR), which is considered as a main priority on top of China's new BRI agenda. Exemplified by the HSR, China is now presenting a framework of Belt and Road 3.0 – an initiative that no longer only emphasizes conventional infrastructure projects, but is now also more considerate to high-tech telecommunication infrastructure, medical equipment & healthcare services. This development is confirmed by research by the Environmental Investigation Agency, which found that TCM is gaining ground in Africa, with an increasing number of African governments entering into official agreements with the Chinese government to support the development of TCM.

Another important development concerns the inclusion of traditional medicines by WHO in their International Classification of Diseases (ICD) in 2019 (eleventh Revision, ICD-11). The inclusion of traditional medicines, including TCM, in the WHO's ICD is seen as a crucial step, not only because it allows TCM to develop and spread more easily among WHO member states, but also because it allows TCM to benefit from improved service levels, education, research and regulation. In addition, advocates say that this decision contributes to the reform of the global health care system, the global expansion of TCM and the integration of TCM with Western medicine-based disciplines. Critics view TCM practices as unscientific, unsupported by clinical trials, and sometimes even dangerous. Conservation organizations fear that it will lead to a growing demand for TCM and fear its impact on endangered/ threatened (wild) animal and plant species that are used in TCM.

Next to this are developments around the use of TCM in China itself. China has approx. 1,412 billion citizens who all require, at various stages of their lives, some form of medical care. Problems in the pharmaceutical sector have become a major source of public criticism in the past. In August 2016, President Xi Jinping emphasized the importance of revitalizing and developing TCM. In the same year, China's State Council Information issued the Outline of the Strategic Plan on the Development of Traditional Chinese Medicine (2016-2030), which made TCM development a national strategy, with systemic plans for TCM development in the new era.

The National Healthcare Security Administration (NHSA) of China published the 2022 National Reimbursement Drug List (NRDL), which took effect on January 1, 2023. The adjusted list now covers 2,967 drugs; nearly half are traditional Chinese medicine. According to the Chinese government TCM has played a full role in treating COVID-19 patients. The use of Tanreqing Zhusheye (sputum-heat clearing injection) is seen as one of the treatments. One of the ingredients in Tanreqing Zhusheye is bear bile.

All these developments are expected to lead to an increase in the global use of TCM. Already, TCM centers are established around the world. The first TCM center in central and eastern Europe was founded in the Czech Republic in 2015. Today, TCM is registered in countries as diverse as Russia, Cuba and the UAE. TCM has become a key multi-billion-dollar export product from China with a footprint spanning 183 countries and regions. In 2021 the global Traditional Chinese Medicine market size was valued at USD 201,825.3 million and is expected to expand at a CAGR (compound annual growth rate) of 7.45% during the forecast period 2023-2027, reaching USD 310,628.44 million by 2027.



Photo: bear bile draining © Bears in Mind

5. CRIMINAL NETWORKS BEHIND THE TRADE IN ILLEGAL TCM PRODUCTS

From 2021 to 2022 ELI conducted information gathering and investigative operations in the Netherlands, Italy and the Republic of San Marino, both investigating Chinese and European trafficking networks. The aim of the intelligence-led operations was to understand the illegal TCM products market's supply chain in Europe, possibly from the product's origin country to the smuggling routes and transportation methods, as well as any transnational links between criminal networks. The intelligence gathered by ELI provides a good overview of the major aspects of the illegal TCM products smuggled into the Netherlands and some other European countries. Based on the intelligence gathered, it appears that there is significant evidence of environmental crime convergence, in which the environmental/ wildlife crimes committed by these trafficking networks overlap with other serious crimes, such as money laundering, human smuggling and drug trafficking.

SOPHISTICATED CRIMINAL NETWORKS

ELI's investigation identified two networks which appear to be driving the procurement and trafficking of plant and (wild) animal parts to be used for the production of TCM in the Netherlands. As these plants and (wild) animals are protected by law, their use is illegal. These networks seem to be self-perpetuating associations of individuals who operate by illegal means and unlawful schemes to obtain economic gains, irrespective of geographical areas of operation.

The networks ELI identified based on its intelligence display various indicators of organized crime groups as identified in the United Nations Convention on Transnational Organized Crime (UNTOC).

These include:

1. Existence of a structured group of three or more persons acting in concert for the aim of committing one or more serious crimes [...] to obtain a financial benefit". The networks identified are composed of many individuals. The individuals form groups which appear "structured", as per UNTOC definition: the groups appear well established, non-random and members have roles attributed to them (albeit not "formally defined").
2. These criminals make use of collaborative links, bribery and some have other business activities including legal commodities and business operations (i.e. legal TCM products)
3. The criminal activities (trade of illegal (wild) animal parts for TCM) are transnational as they occur in multiple locations, stretching from source sites in China to consumer markets in Europe, with criminal actors operating in multiple jurisdictions.

KEY FINDINGS

A summary of the main findings of ELI's intelligence is set out below. All findings are backed by evidence provided in the Confidential Intelligence Brief (CIB) produced by ELI and have been made available for law enforcement authorities.

Through their investigation, ELI was able to identify 10 Persons of Interest (PoIs) which seem to be linked to two networks in Europe. One network seems to be established in the Netherlands, the other in the Republic of San Marino. The PoIs and networks that ELI believes to have identified, combine legal and illegal TCM business. In ELI's experience, individuals involved in these networks and associated activities are often aware of the risks involved with smuggling legally protected plant and (wild) animal parts to be used as ingredients in traditional Chinese medicine. However, the profits to be made outweigh the low risk of being caught. It should be noted that ELI's findings are based on only three investigative missions in Europe, so it could be expected that the extent of the criminal networks may even be larger.

Network located in the Netherlands

The criminal network analysis performed by ELI suggests the existence of a robust criminal group, based in Rotterdam (the Netherlands), and operating in association with individuals in Budapest (Hungary), Poland and Bozhou (China). The network appears to run a robust TCM business, importing the products from China, mostly sourcing from Bozhou (Anhui Province), and selling them as a wholesaler to shops and other businesses all over Europe. The business is partially legal and illegal, as it sources and trades (wild) animal parts that are protected and unprotected by law. It seems that most of the customers of this network are located in the Netherlands, Italy, Poland, Czech Republic and Sweden, where it sells the animal parts to medical practitioners and retailers. The network appears to have a stable customer base of 800 individuals/ shops around Europe, buying legal and illegal products. A substantial part of these customers have a Chinese background.

ELI was told that the network purchases both legal and illegal animal parts in China and imports them to Europe preferably by train but also by air or sea cargo. The railway route that is used based on ELI's investigation, is part of the Belt and Road Initiative to increase the connectivity between China and Eurasia. Based on ELI's investigation, the illegal TCM products are often smuggled alongside legal TCM products, making the distinction between legal and illegal harder for customs to identify. According to ELI's intelligence, issues with unexpected controls are solved via associates of the networks working at customs in China and Europe. ELI was informed that once the goods are in the EU, they are transported to the Netherlands by van/ car. From the Netherlands they are then transported throughout the rest of the EU as there is generally freedom of movement and checks are rarely carried out.

ELI was informed that the network can import a variety of illegal animal parts into the EU including pangolin scales and other banned animal products. They were informed that, to avoid checks and possible confiscations, the illegal animal parts are sent as a variety of powdered mixed granules, to be later separated and ground.



Photo: Britta Jaschinski/IUCN NL

As such, customs authorities are not able to recognize the small particles, which can later be reprocessed into pills. ELI was informed that PoI1, the leader of this network, has recently bought new machines able to grind the granules and compress them into new pills ready to be distributed around Europe and sold.

ELI was informed that this network also sells TCM products to a shop in Paris. ELI learned that this TCM shop can provide An Gong Niu Huang Wan. This is an EU-banned medicine that contains many animal ingredients (such as rhino horn). According to the intelligence gathered by ELI, the shop also trades another illegal TCM product, called Pian Zai, which contains pangolin scales according to the information provided to ELI. During the intelligence-gathering operations, ELI learned that only very experienced doctors in Europe know how to use these illegal products. ELI discovered that a TCM practitioner in Germany asked the network to supply him with over 20kg of pangolin scales and ephedra per year. Ephedra is considered a very important drug substance in TCM. The network, however, refused because of the high risk.

Based on ELI's intelligence it seems that the network was also involved in human trafficking until 2012 and currently seems to be involved in money laundering and drug trafficking.

In the course of its investigation, ELI also came across a new Fujian TCM trader which operates independently from PoI1, who is believed to be selling tiger bone wine and other illegal wildlife ingredients. This trader seems to smuggle tiger bones from China to Belgium, upon which he is believed to transport the products to the Netherlands. ELI was informed that with the help of associates, he can import around 10 to 20 kg of tiger bones and other illegal goods at a time.

Network located in the Republic of San Marino

Though geographically located in the Italian peninsula, San Marino is not a part of Italy, nor a member of the European Union. It is a republic with its own laws and stipulated conventions with other countries, such as Italy and the EU as a whole.

ELI became aware of this network through its investigative activities relating to the network located in the Netherlands, which has previously provided TCM products to this network. This network appears to be a Chinese-Sammarinese network specialized in TCM that operates between San Marino and Italy. The two networks seem no longer involved in business relations.

The network appears to sell all kinds of TCM products: legal products, but also products containing illegal (wild) animal parts, such as pangolin scales and seahorses. It seems to source its TCM from a Taiwanese owned company in Belgium. It then imports the products to San Marino, including the ones which are prohibited. According to the intelligence collected by ELI, the network easily supplies to clients in Italy.

Based on ELI's investigation, it appears that the network is also involved in money laundering.





Photo: lion farming in South Africa © Blood lions

ELI'S CONVERGENCE PARADIGM

ELI examined each network through its convergence paradigm, in which ELI has defined, instituted, and analyzed a '4 Type Convergence Research Classification' based on first-hand empirical data from its field operations and analysis:

- **Type I Multiple Species Convergence** refers to the trafficking of multiple species at the same time (e.g. rhino horn, ivory, pangolin, jaguar and shark fin).
- **Type II Multiple Environmental Crime Convergence** involves the same traffickers or networks engaging in wildlife crime, plus the trafficking of other natural resources, such as illegal logging, illegal fishing, and illegal mining.
- **Type III Serious Crime Convergence** refers to the same traffickers or networks engaging in other serious crimes, such as money laundering, human smuggling, and drug trafficking.
- **Type IV Transnational Networks Convergence** describes the overlap of transnational organized criminal networks and their activities. Network convergence is multileveled, as these criminal networks have intentionally created a variety of regional, interregional, and transnational points of connection to strengthen their criminal activities.

Based on the intelligence gathered, the criminal network ELI identified in the Netherlands presents Type I and Type III convergence. Through its investigative activities, ELI believes that this network was involved in human-trafficking for over 10 years from 2001-2012, but stopped its activities after the incident where 58 Chinese immigrants lost their lives in a container in Dover and also because of the fact that guaranteed profit decreased substantially making it less attractive to take the risk. The other serious crime this network is involved in according to ELI's findings is drug trafficking. Until two years ago, it appears that this network was actively selling ecstasy and other illegal drugs. Currently, ELI beliefs that it is only taking care of drug packaging and posting. The network also seems to be heavily involved in money laundering. Based on ELI's intelligence the network has relations with Mexican cartels and the Chinese mafia.

6. CONCLUSIONS

Wildlife populations are already under severe pressure due to several threats. Adding to this pressure is the illegal and unsustainable trade in wildlife. This highly lucrative trade is often run by sophisticated and international criminal networks, who exploit the high rewards and low risks involved.

TCM plays a key role when it comes to illegal trade in threatened flora and fauna. It is clear that the continuous use of (wild) animal parts for TCM has already had severe impacts on the population of various species, such as illustrated in this report. TCM is rapidly expanding worldwide as a key pillar of the Chinese Belt and Road Initiative and it is expected that the use of TCM will (substantially) increase over time, also in Europe. Taking into account the current size of the trade in certain (critically) endangered species, it is likely that a further increase in such trade would most likely be detrimental for the survival of the species concerned. It is therefore essential that illegal trade driven by TCM, is prominently addressed in relevant high-level bilateral and multilateral meetings such as CITES and biodiversity consultations and at WHO meetings.

Based on the intelligence gathered during ELI's investigation it appears that those involved in the illegal trade of (wild) animal parts for TCM are highly sophisticated and well-connected criminals who are also involved in other serious crimes, such as money laundering, human trafficking and drug smuggling. Wildlife trade is a multibillion dollar side business because of the low risk of getting caught. It seems that these criminals have prominent connections throughout the European Union (EU) and the ease with which these illegal transactions appear to take place is disturbing.

To disrupt these criminal network(s) it is of utmost importance that various law enforcement authorities of EU member states cooperate with each other to bring these criminals to justice.



Photo © Pedro Ferreira do Amaral Getty Images

7. RECOMMENDATIONS

It is recommended:

THE DUTCH GOVERNMENT:

● Enhances the detection and interdiction of illegal TCM products and other illegally traded wildlife by allocating sufficient financial and human resources to relevant law enforcement agencies, such as the NVWA and customs, ensuring they avail over the necessary tools and infrastructure for them to share information and collaborate on wildlife crime. This can include using alternative instruments such as artificial intelligence tools and scent dogs.

● Takes into account that there is a strong and complex convergence between the trade of illegal TCM products and other serious crimes. This implies that traditional law enforcement approaches focused on isolated illegal businesses are no longer appropriate for understanding and dealing with the increasing complexities of organized crime.

● Implements the following motions passed in the Dutch House of Representatives relating to:

- Motion 1: Motion by members Vestering and Akerboom, 20th December 2022, which calls on the government to actively raise the danger of trade and use of TM and food supplements made from endangered species, in the interests of both public health and biodiversity, to be actively raised and included in possible revisions of relevant CITES and WHO documents, such as, for example, the revision of WHO guidelines for traditional food markets.

- Motion 2: Motion by members Vestering and Akerboom, 20th December 2022, which calls on the government to launch an awareness campaign on the dangers of IWT for biodiversity loss and public health.

● As part of its participation in the Big Cat Task Force raises attention to the role of TCM in the illegal trade of big cats as illustrated in CITES research.

● As part of the awareness- raising campaign to be launched under Motion 2, also targets relevant groups including TCM retail shops and more specifically Asian/ Chinese communities in The Netherlands, in order to inform them of the consequences of the use of (threatened) wild animals and/or plants as ingredients in TCM products and informing them of the possible health risks of these types of products.

● Implements the four priorities and proposed actions established in the EU Action Plan against Wildlife Trafficking, designed to address this complex problem:

- Priority 1: Preventing wildlife trafficking and addressing its root causes;
- Priority 2: Strengthening the legal and policy framework against wildlife trafficking;
- Priority 3: Enforcing regulations and policies to fight wildlife trafficking effectively;
- Priority 4: Strengthening the global partnership of source, consumer and transit countries against wildlife trafficking.

Specifically follows up on these actions, set out in the EU Action Plan against Wildlife Trafficking:

- Making sure that combatting wildlife crime gets sufficient funding;
- Engaging with business sectors involved in the wildlife trade (e.g. traditional medicine, exotic/ wildlife sourced pets, the luxury industry, hunting tourism, timber, the fishing and fish-product-trade industries, transport, courier companies, and online trade);

- Integrating training on wildlife crime into the national curricula of relevant training academies/ schools;
- Establishing a dedicated wildlife-enforcement unit; *"Encourage and support: (i) the specialization of law-enforcement bodies, judicial bodies and other competent authorities at the national level; and (ii) the pooling of resources, for example through the establishment of dedicated wildlife-enforcement units within all relevant law-enforcement agencies." (EU Action Plan against Wildlife Trafficking, 2022*

● Takes a leading role during CITES consultations by advocating the current resolution on TM to be strengthened as also requested under Motion 1.

● Recognizes the important role e-commerce is playing in the illegal wildlife trade and provides resources and capacity to address this type of criminal activity. Considers implementing rules for online advertisers of wildlife products, by for example obligating them to provide evidence that their product is legally obtained (i.e. CITES certificates) prior the being allowed to place the advertisement online.

● Proactivily supports a global agreement to prevent and combat wildlife trafficking as currently discussed during the 32nd session of the United Nations Commission on Crime Prevention and Criminal Justice, in the form of an additional Protocol on illicit trafficking in wildlife to the United Nations Convention against Transnational Organized Crime (UNTOC).

THE WORLD HEALTH ORGANIZATION:

● To clearly state that its Member States should ban the use of threatened species for the preparation of TM and to call upon its Member States to develop a clear and effective strategy to prevent the use of threatened species for the preparation of TM.

CITES:

● Considers the inclusion of particular rare or threatened or endemic species with a restricted range which are heavily impacted by international trade, in one of the CITES Appendices I or II.

● Provides more assistance to law enforcement authorities with species or wildlife product identification and information tools.

● Strengthens the position on the current resolution on TM.

INTERNATIONAL ORGANIZATIONS, INCLUDING EUROPOL, INTERPOL, UNODC AND WORLD CUSTOMS ORGANIZATION (WCO):

● Promote to share information and collaborate with neighboring countries to improve coordination between governments, law enforcement agencies and international bodies working on combating IWT and other serious crimes such as drug trafficking, human trafficking, and money laundering among others. This also requires bringing together multidisciplinary expertise.

● Support and facilitate regional cooperation and information analysis to combat cross-border crime.



Photo: © Bears In Mind

ABOUT

IUCN NL

IUCN NL is the Dutch national committee of the International Union for Conservation of Nature, the world's largest and most diverse environmental network. IUCN harnesses the experience, resources, and reaches of its 1,300 member organisations, uniquely composed of governments, civil society organisations and business, and the input of some 10,000 experts.
Within the international IUCN umbrella organisation, IUCN NL helps the world find pragmatic solutions to our most pressing environment and development challenges such as biodiversity loss, climate change and poverty. Nature is fundamental to addressing these problems. Natural capital is the foundation of our economy and our wellbeing. It provides us with food, clean water, fresh air, energy, medicine and a roof over our head. That is why the protection of biodiversity and ecosystems is at the heart of IUCN's mission.
IUCN currently has 38 Netherlands-based member organisations. In striving towards a sustainable future we work closely with these members and our network of companies, governments, southern NGOs and scientists, sharing knowledge and expertise, executing concrete projects and influencing the political agenda.

More information: https://www.iucn.nl/

BEARS IN MIND

Bears in Mind is a Dutch-based NGO focusing on the global conservation of bears. For over 30 years, Bears in Mind has supported and worked together with local organizations and partners on projects aimed at protecting bears and their habitat in the wild, and a better life for bears in captivity.
Bears in Mind is a member organization of IUCN NL, EAZA, the IBA and EARS.
Bears in Mind initiated the Bear Forest in Ouwehand Zoo in The Netherlands, a sanctuary for abused and traumatized bears.

More information: https://www.bearsinmind.org/en/home-english/

SPOTS

Stichting SPOTS is an organization that works in the Netherlands for the protection of wild cats worldwide, with as focus animals the cheetah, lion and leopard. All three are threatened with extinction. Habitat reduction and the resulting conflict with humans (human wildlife conflict, HWC) are the main threats leading to rapidly declining numbers of these animals. SPOTS financially supports projects that are committed to the protection of wild cats.
An emerging threat for the big cats is illegal trade and traditional Chinese medicines, TCM, is an important driver for this trade. Traditionally, the tiger is an animal that is highly sought after for use in a specific part of TCM, which was one of the factors leading to dwindling numbers. Other cat species are now being targeted; leopards, lions, snow leopards and jaguars are regularly found as replacement ingredients in TCM products. This leads to an increasing pressure on these already vulnerable species. Therefore, setting up awareness campaigns and lobbying in the Netherlands on topics such as TCM are other important tasks for the SPOTS foundation.

More information: https://stichtingspots.nl/

EARTH LEAGUE INTERNATIONAL (ELI)

As pioneers in the utilization of professional intelligence to combat environmental crime, Earth League International (ELI) is a U.S.-based non-profit organization that has been working for over a decade on all continents. Operating often behind the scenes, ELI collaborates with top professionals from various fields, including intelligence, investigation, analysis, geospatial intelligence, technology, conservation, and media. This collaboration has led to the creation of a unique organization that possesses the willingness and capability to combat Environmental/Wildlife Crime at the highest level.
ELI's team and network of collaborators comprise seasoned professionals with decades of experience in the intelligence, investigation and law enforcement sectors, many of whom have served in esteemed governmental agencies, such as the Federal Bureau of Investigations (FBI) and others. At its core, ELI leverages professional intelligence expertise to disrupt the proliferation of Environmental/Wildlife crime globally. ELI specializes in identifying and investigating some of the most important environmental criminals and wildlife traffickers worldwide, while also researching their networks, connections to Transnational Organized Crime, and convergence with other serious crimes, including money laundering, human trafficking, corruption, and drugs.
ELI routinely produces both public reports and Confidential Intelligence Briefs (CIBs), which are then shared with trusted agencies and organizations capable of preventing environmental crime or disrupting criminal networks. ELI is also the creator and manager of WildLeaks, the world's first environmental crime whistleblowing initiative.

More information: www.earthleagueinternational.org