



**Bred for profit:
The truth about global
wildlife farming**



About World Animal Protection

We are World Animal Protection. We're here to end animal cruelty and suffering. Forever. Putting animals first isn't just better for them, it's vital for and for our shared planet. It will take the combined power of people, companies and governments to tackle the broken systems that cause animal suffering. Together, we can transform the lives of farmed and wild animals around the world.

Cover photo: Macaques in stressed and poor conditions at a macaque farm with over 2,000 macaques in northern Vietnam. Credit: Jan Schmidt-Burbach / World Animal Protection

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Photo: Small cages at a macaque farm with over 2,000 macaques in northern Vietnam. Credit: Jan Schmidt-Burbach / World Animal Protection

Foreword

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We know that most emerging infectious diseases in humans (more than 60 per cent) are of zoonotic or animal origin, with the majority (around 70 per cent) originating in wildlife. A One Health approach means that in order to prevent outbreaks and pandemics, we must address drivers of potential spillover, including intensified wildlife farming.

The Wildlife Conservation Society first proposed the One Health concept at a symposium in the USA in 2004. Since then, it has become increasingly evident that our health, the health of animals (wild and domestic) and the environment are inextricably linked.

In 2021 the One Health High Level Expert Panel (OHHLEP), together with the Quadripartite published a new working definition of One Health that builds on these and similar concepts from related fields of Global Health, Eco Health and Planetary Health. It states, “One Health is an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals and ecosystems. It recognizes the health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and interdependent. The approach mobilizes multiple sectors, disciplines and communities at varying levels of society to work together to foster well-being and tackle threats to health and ecosystems, while addressing the collective need for clean

water, energy and air, safe and nutritious food, acting on climate change, and contributing to sustainable development.” In applying the One Health view, OHHLEP also highlights that it is based on several fundamental principles, explicitly mentioning the importance of socioecological equilibrium and the stewardship and responsibility of humans to adopt sustainable solutions that recognize the importance of animal welfare and the integrity of the whole ecosystem. In addition, does the One Health Joint Plan of Action, released by the quadripartite, address not only emerging and re-emerging diseases, neglected and tropical diseases, and antimicrobial resistance but also food security and environmental challenges? It strongly focuses on prevention and not just response to health crises.

If we truly want to be effective in preventing outbreaks and pandemics, we need to take a One Health approach and address the underlying drivers. This includes wildlife farming, which, as explained in this report, is an issue of global scale. The effects of diseases also have wider-reaching negative impacts on animal health and welfare, for example, affecting other disease-control efforts through the diversion of resources or through the collapse of markets and trade, with knock-on effects on animal production units and the conservation of wild animal populations and food security. The advantages of applying a holistic One Health approach are far more than just preventing future pandemics.

Executive summary

Wild animals are exploited for profit across the globe. Millions are traded as pets, used as entertainment or tourist attractions, and turned into ornaments, luxury food, fashion products or traditional medicine.

Research by World Animal Protection suggests that approximately 5.5 billion wild animals are used to satisfy demand for these products after being confined at commercial facilities known as wildlife farms. They are bred or reared at the farms and subsequently sold and used by a range of industries. Commercial wildlife trade is worth billions of US dollars per year ¹.

In these farms, wild animals can suffer from malnourishment, disease, stress-induced behaviours, injuries, infected wounds, and even cannibalism or premature death. Wildlife farms also pose a risk to human health: the high numbers of animals, poor hygiene and close contact between animals, their caretakers and visitors create increased chances for disease emergence and transmission. Infectious diseases such as COVID-19 can spread in this way, and when infections become epidemics or pandemics, the economic consequences can be devastating, particularly for the rural communities in which many wildlife farms are located.

Those who back wildlife farming claim that it fulfils the demand for wildlife products and reduces pressure on wild populations, but there is little evidence to determine this in most cases. Low prices for farmed wildlife products could instead fuel demand and enable illegal laundering of wild-caught animals through farms ². At the same time, numbers of some species that are farmed are plummeting in the wild and some captive populations are now larger than those still free.

Problems escalate when the income generated by wildlife farms become unreliable. For example, when the COVID-19 pandemic halted travel in 2020 and 2021, captive wildlife bred for tourism quickly became burdens to those responsible for their care ³. Similarly, when animals on fur farms became a reservoir for disease during the pandemic, the response was to cull huge numbers of these captive wild animals ⁴. The fate of these animals depends on their ability to generate income - an ill-fated dependency that renders wild animals expendable if income fails.

Our research found that online sources recorded over 900 million farmed wild animals between 2000 and 2020. For a further 374.5 million animals, individual species information was missing

in the sources but may increase the reported total number of animals. We also requested records from government authorities and found at least 858,743 wild animals from 28 species were farmed in the period 2021 – 2022, despite many authorities not providing data. At least 90 countries hosted wildlife farms between 2000 and 2022, some of which hold more than 50,000 animals. We found wildlife farming is often poorly regulated and record keeping is sparse. Based on the obstacles we faced in researching wildlife farming we suggest that the number of wild animals involved is far higher than that recorded. Our model calculates an estimate of 5.5 billion wild animals farmed worldwide.

Among the millions of wild animals suffering on farms for profit, urgent progress is needed to save the thousands of highly sentient, long-lived wild species exploited by commercial industries. The exploitation of wildlife for profit at lion farms in South Africa, bear farms in China and elephant camps in Thailand exemplify decades-long suffering for commercial use. Lions in South Africa are commercially bred for tourism, namely for canned hunting and for interactive petting experiences, as well as for their bones for use in traditional Asian medicine. Elephants in Thailand are bred for use at tourism camps where they are forced to perform for visitors, carry people for rides and provide interactive entertainment on demand. Bears in China, Vietnam and South Korea are farmed for their bile to be used as an ingredient in traditional medicine after wild populations were unable to fulfil the demand. These industries contribute to some of the worst examples of on-going exploitation of wildlife for profit. Furthermore, these industries are enabled by national regulations that encourage utilising these animals as commodities.

The suffering on wildlife farms is unimaginable and vast. No captive environment can fully replicate an animal's wild habitat, but the risk of animal suffering is far greater in commercial facilities, like farms, where profit is the main goal.

Farming wildlife is not only cruel, but it also creates great risks for the welfare of the animals and the health of human populations. We must ensure this is the last generation of wildlife exploited in farms for commercial gain, whether it be for the pet industry, luxury consumption, entertainment, decoration, or fashion. This should be the last generation of farmed wild animals exploited for profit.



Photo: Group of lion cubs, recently separated from their mother, kept in a temporary cage, next to the cub interaction area. Cubs looked distressed, with fear. Used in lion tourism/farm exploitation in South Africa. Credit: World Animal Protection / Roberto Vieto

Section 1 – Wildlife farming is the problem not the solution

Wild animals can only truly thrive in the wild. Breeding them in farms and commercial facilities to exploit them for profit has negative impacts on the animals, humans, and the rest of the planet. Instead of being a solution to the conservation of wildlife species, wildlife farming, fuelled by commercial industries like pet trade, fashion, tourism and traditional medicine, creates a myriad of additional problems and could potentially have negative effects on wild populations.

What is wildlife?

In this report 'wildlife' refers to wild animal species that are adapted to live and survive in the wild. They have developed behaviours and instincts to meet the challenges of their natural environments. 'Domesticated' animals are different in that they have adapted to life with humans over hundreds or, more commonly, thousands of years. Usually, domestication occurs when wild animals are kept captive for many generations and undergo significant and permanent changes to their behaviour, physical attributes and genetics⁵. These changes can result in new subspecies such as the domestic canary (*Serinus canaria*

domesticus), which was domesticated from the wild canary (*Serinus canaria*). Domesticated animals are more adapted to living with humans and may have developed specific traits through selective breeding, whereas wild animals have evolved unique behaviours and characteristics for their species' survival in their natural habitat. Generally, the complex needs of wild animals cannot or are extremely challenging to be met in captivity.

Taming a wild animal is not domestication⁶. Domestication is complex and occurs at the group level⁷. A captive wild animal kept under human control is not domesticated simply because the animal acts as if they were tame⁷. An example of such is the elephants kept in captivity for tourism, who are trained to act tame around people but who remain captive wild animals.

Species such as snakes and turtles that have been bred in captivity only in the last few centuries have no recognised domesticated subspecies. World Animal Protection considers these animals still to be wild and to have the same needs as their wild counterparts. Some captive-bred species may have begun to adapt but this does not make them suited to captivity, particularly compared to animals like cats and dogs that have adjusted to life with humans over thousands of years.

What is wildlife farming?

‘Wildlife farming’ is the breeding and raising of wild animals usually to sell the animals or their products for commercial gain ^{8,9}.

‘Ranching’ is not breeding in captivity but often takes place on wildlife farms. Ranched animals are taken from the wild as eggs or young and raised in captivity. Pythons in West Africa ¹⁰ and crocodiles globally ¹¹ are examples of ranched species. The continual stocking of ranches depends on taking animals from the wild. Species listed by the Convention on International Trade in Endangered Species (CITES) ranchers are required to take only ‘surplus’ wild animals – those unlikely to reach adulthood, which in theory should mean that the taking of wildlife for ranching has little impact on wild populations ¹². In reality, if ranching is poorly

managed it can have detrimental impacts on wild populations ¹³ and legal trade of ranched animals can create loopholes that allow animals captured from the wild to be fraudulently exported as ranched ¹⁴.

For the purpose of this report both the ranching and breeding of wild animals for commercial purposes are included in the definition of wildlife farming. These activities are not always mutually exclusive: some breeding operations may replenish their stocks from the wild or launder wild-caught adults via farms ⁹. Many of the welfare and public health problems associated with wildlife farms apply to both captive-bred and ranched operations.

Wildlife farming defined

Wildlife farming		Not wildlife farming
Farming wild species (not traditional domestic or livestock animals) for commercial gain.	✓	✗ Farming domesticated animals or traditional livestock (e.g. sheep, cows, pigs, chickens).
Breeding wild animals in captivity to kill and sell their body parts as products, for profit.	✓	✗ Keeping wild animals in captivity as part of rescue and rehabilitation efforts, where no profit is made.
Breeding wildlife in captivity to trade or use alive for entertainment or as pets, for profit.	✓	✗ Breeding wild animals in captivity for conservation purposes (e.g. for potential re-introduction to the wild or to maintain a gene pool for endangered species), where no profit is made.
Ranching wildlife (collecting young animals or eggs from the wild and rearing them on farms) to sell for profit – either alive or as products derived from body parts.	✓	✗ Producing wild animals for local and indigenous community subsistence use.

Wildlife farming took off in the late 20th century as the demand for wildlife and wildlife-derived products grew. Since then, the industry has boomed. Consumers and traders seek wild animals or their parts as pets, entertainment attractions, decorations, ornaments, fashion items (such as fur, leather, feathers), as an ingredient in perfumes (including deer or civet musk), luxury food, musical instruments, and traditional medicine. This rising demand may be due to the growing human population and increasing economic prosperity ¹⁵⁻¹⁹, as well as the commercialisation of

wild animals in the media. The growth of online marketplaces may also contribute, providing consumers with an increased awareness of and access to the wildlife trade ^{20,21}.

Wild animals and their parts are increasingly being supplied by captive sources ^{1,22}. The captive populations of species such as tigers ²³, Père David’s deer ²⁴, oryx ²⁵ and several songbird species ²⁵ are now larger than those in the wild.

Key industries supplied by wildlife farming

The pet trade

Wild animals kept as pets (sometimes called 'exotic pets') make up a substantial proportion of the global wildlife trade ²⁶. They include many species of birds, reptiles, amphibians and mammals, such as parrots, lizards, snakes, tortoises, frogs and sugar gilders ²⁷⁻²⁹. While a lot of these species traded as pets are wild caught, many others are farmed ¹⁰. For example, large-scale commercial breeding of songbirds and parrots occurs in South-east Asia ²⁵, and turtles are farmed in large numbers in the US, Europe, Vietnam, Thailand and China ^{30,31}. Wild caught animals destined for the pet industry are sometimes falsely declared as farmed to evade legal restrictions on wildlife trading; for example parrots and cockatoos claimed to have been bred in the Solomon islands where there are no farms ³². Large numbers of Ball pythons, one of the most popular species kept as pets, are ranched on farms in West Africa. Read more about the trade in ball pythons as exotic pets in our report ["Suffering in silence: Uncovering the cruelty of the global trade in Ball pythons"](#).

Traditional Asian medicine

Traditional Asian medicine (TAM) can include body parts from bears (gall bladder and bile), deer (antlers or musk), pangolins (scales), tigers (bones and paws), rhinoceros (horn), turtles and snakes (various parts), geckos and sea horses (whole bodies) and many other animals. Historically, wild animals were hunted for TAM but in recent decades many are now farmed. Over 20,000 bears ³³, 5,000 tigers ³⁴, 8,000 lions ³⁵, hundreds of thousands of seahorses ³⁶ and millions of turtles ³¹ are bred on farms for the traditional medicine industry. Yet only about 13% of Traditional Chinese Medicines (TCM) described in the official TCM Pharmacopeia of the People's Republic of China are derived from animals; most instead contain plants and herbs ³⁷. Our website [TCM Alternatives to Wild Animal Preparations](#) details the plant and mineral substitutes for wild animal body parts in traditional medicine preparations. To read more about big cats and bears farmed for traditional medicine, read our reports [Cruel Cures - The industry behind bear bile production and how to end it](#) and [Trading cruelty - how captive big cat farming fuels the traditional Asian medicine industry](#).

Tourism

Common examples of tourist activities and attractions involving wild animals are 'swim with dolphin' experiences; elephant rides and washing; watching dolphins, sea lions, big cats or elephants perform; and direct interaction with wildlife such as posing for selfies, petting or feeding. Wild animals bred for use in tourism are also exploited by other industries: for example, many lions bred for cub petting and 'walk with lion' experiences in South Africa are later used for "canned" trophy hunting or killed so that their bones can be used in traditional medicine ³⁸ and evidence indicates that tigers at tourism venues in Thailand have been killed to be used in traditional medicine and as luxury decorative items ³⁹. A 2015 study by Oxford University found that up to 550,000 individual wild animals used for tourism had their welfare status negatively impacted by tourist attractions⁴⁰, although not all of these wild animals were captive bred. Learn more about the damage caused by wild animals bred for tourism from our reports: [Elephants. Not commodities.](#), [Behind the Smile - the multi-billion dollar dolphin entertainment industry](#), [The show can't go on - Ending the suffering of wild animals at cruel visitor attractions](#) and [The Real Responsible Traveller](#).

Fashion

Many parts and derivatives of farmed wild animals are used as fashion items. These include feathers and down (usually from ostriches, ducks and geese), fur (primarily mink, raccoon dogs, chinchillas, sables and foxes) and leather from the skins of reptiles (mainly crocodiles and snakes). Fur farms are prolific: until the COVID-19 pandemic in 2020, Europe was the second largest producer of fur, farming 37.8 million mink, foxes, raccoon dogs and chinchillas ⁴¹. The largest producer was China, with over 50 million farmed mink, foxes and raccoon dogs ⁴¹. Fur farms in Canada and the US were comparatively small, yet still extensive, with 3.1 million farmed mink recorded in the US and 1.8 million farmed mink and foxes recorded in Canada ⁴¹. Large numbers of reptiles are also farmed across many countries for leather ^{42,43}. To learn more about crocodiles farmed for leather for the fashion industry, see our report ['Fashion Victims - Saltwater Crocodile Report'](#).



Photo: As part of World Animal Protection support to Vietnam FPD for microchipping and monitoring program, an Asiatic black bear was voluntarily surrendered by the owner. The bear was kept for 20 years as a pet in a close and narrow cage with limited sunlight as part of the bear bile farm industry. World Animal Protection, Education for Nature Vietnam (ENV) and Four Paws came together with local authorities for the rescue to ensure that the bear could live out the rest of their lives at Four Paws rescue Center in Ninh Binh province. Credit: World Animal Protection / Nguyen Van Tuyen

Impacts of wildlife farming

Impact on animal welfare

No captive environment can fully replicate a wild animal's natural habitat, and the likelihood of suffering is far greater in commercial facilities where profit is the goal. High densities and cramped spaces typical of farms are even harder for wild animals to adapt to live in. Many wild animals, including frogs, fish and insects are sentient meaning they can feel emotions, for example stress which may be induced by captivity ⁴⁴⁻⁴⁹.

Welfare concerns documented on wildlife farms include disease, malnourishment, stress-induced behaviours, injuries, infected wounds, cannibalism, physical abnormalities caused by inbreeding, and premature death ⁵⁰⁻⁵⁸. These problems have been seen in species ranging from turtles to bears to crocodiles, and in species not usually associated with sentience and suffering. For example, on python farms in West Africa, where deaths and disease may be due to the poor conditions in which the animals are kept: large numbers of snakes are housed in small spaces where food, water availability, and hygiene are poor ^{59,60}.

Intensive breeding on commercial wildlife farms also affects the animals' health. Repeated pregnancy in farmed lions increases their chances of infection and of developing ovarian cysts, while breeding wildlife in small, captive populations can cause inbreeding and subsequent deformities ⁶¹. Tiger and lion farms often separate mothers from their offspring when they are extremely young to speed up breeding which is highly stressful for both and can cause nutritional deficiencies, leaving young animals more likely to suffer ill health ³⁹. For example, lion cubs taken from their mothers and bottle fed on alternative milk formula can become deficient in essential amino acids; their health suffers as a result ⁶². One survey found lion cubs on farms in South Africa lacked trained and dedicated caretakers, suffered from having no chance to retreat from forced interaction with tourists, were subjected to poor breeding practices and placed in poor social groupings ^{63,64}. In captivity, cubs can be taken from their mothers as young as a few weeks old, in stark contrast to the wild where they can remain at their mothers side for two to three years ^{64,65}.

In many cases there are minimal welfare requirements for wildlife farms, which is particularly worrying in countries with a large number of vast wildlife farming facilities. For example in China, only nine farms have been awarded the official government certificate for satisfactory level of animal health and welfare standards⁵¹. There are also no specific national laws protecting the welfare of captive species⁵². Where standards do exist, they are often based on very basic indicators that do not reflect current understanding of animal welfare and may have limited value. Welfare standards are not always enforced. For example, inspections of 95 lion farms conducted by South Africa's National Council of Societies for the Prevention of Cruelty to Animals in 2016 and 2017 found poor conditions at nearly half, including poor hygiene and diet, and lack of enrichment, suitable shelter and veterinary care that nearly half were housing lions in substandard conditions. Poor captive conditions can cause immense suffering: crocodiles are farmed in their millions for their meat and skin, as well as for tourism, in 47 countries in the Americas, Africa and Asia^{40,66}. They are ectothermic and semi-aquatic animals so heat provision must be in a very specific range. In the first decade of crocodile farming, huge numbers of crocodiles died because the right temperatures were not provided and because of disease, poor hygiene and over-crowding^{67,68}. Some common handling techniques, such as a rope and pole looped over the animals' top jaws are used to exhaust them before their jaws are tied together for safe handling, can cause such high levels of stress that crocodiles do not eat for days afterwards⁶⁷. Due to the vast numbers of

crocodiles farmed globally, this is concerning for potential animal suffering on a huge scale.

The images below show conditions at wildlife farms across the world. At several South African farms underweight lions are housed unhygienically and in overcrowded spaces; their water is covered in algae, their enclosures are barren and without shelter. Some lions have little to no fur as a result of severe and untreated mange, others are born with severe deformities probably due to inbreeding.

Concerns increase when commercial industries become economically inviable. A census of Vietnamese wildlife farms in 2015 found that 1,907 farms housing 158,093 animals from 45 species were no longer operating because market prices had dropped. The fate of these animals is unknown⁶⁹. Similarly, the thousands of wild animals bred for tourism face an uncertain future when their food and maintenance have to be paid for despite falling or no income. Lions farmed for recreational hunting and tourism in South Africa are neglected during the down season when there are fewer visitors, receiving minimal care and very little food. Elephants faced similar challenges when global tourism collapsed during the COVID-19 pandemic^{3,70}. Elephants are long-lived and costly to keep, and so are particularly vulnerable when forced to depend on fluctuating markets such as tourism. Wars and environmental disasters, such as wildfires and floods that cause mass human evacuations, can have the same impact. Breeding animals into this unstable dependency is irresponsible at best and damning at worst.

Photo: A group of white adult lions kept at a safari-type -open enclosure, used in lion tourism/farm exploitation in South Africa.
Credit: World Animal Protection / Roberto Vieta



Impact on public health

Zoonotic diseases are infectious diseases that can spread between animals and people. Transmission can occur when wild animals are in close proximity to humans. Wildlife farms create opportunities for disease emergence and transmission because of the high concentrations of animals, poor hygiene and regular human contact for husbandry purposes.


Zoonotic disease outbreaks are thought to cause over two million human deaths every year and substantial human illness^{71,72}. They also hit financially: the COVID-19 pandemic, thought to be of wildlife origin, is estimated to have cost the global economy as much as US\$16 trillion⁷³. Of the zoonotic diseases in human populations between 1940 and 2004, 72% were of wildlife origin^{74,75}.

Infectious disease transmission has been found in several farmed wildlife species. For example, COVID-19 spread between mink and farm workers at farms in The Netherlands and in Denmark⁷⁶; tape worms spread from snakes to a farm owner in The Gambia⁷⁷; and a skin disease caused by pathogenic fungi spread from a lion to its caretaker⁷⁸. Tourists are also at risk: visitors to lion farms in South Africa have reported hand sanitisers and disinfectant food pads between enclosures to be absent⁶¹.

At Vietnamese wildlife farms at least 43,000 individual animals are of species posing a higher risk of zoonotic disease transmission⁶⁹. Many will be sold for human consumption, increasing the likelihood of disease spreading to people. Some pathogens are particularly difficult to detect and manage because infection does not depend on direct physical contact. Infected animals can shed pathogens in their faeces and breath, for example^{79,80}. Other pathogens can lie undetected in animals until the disease reaches hazardous levels, which makes detection and the prevention of spread between animals housed together very difficult.

Millions of farmed wild animals are exported around the world, such is the global nature of the wildlife trade. One species alone, the ball python, is ranches in Togo and since 1978 has been exported to 58 countries. This scale of trading significantly increases the risk of spreading infectious diseases. There are no global regulations governing pathogen screening for traded wildlife⁸¹, and biosecurity protocols to prevent diseases being spread through the trade can be deficient. For example, in 2007 a parasitic tapeworm reached the UK via a beaver imported from Germany, despite the beaver having spent six months in quarantine⁸².

The table below lists examples of zoonotic diseases associated with amphibians, reptiles, birds and mammals.⁸³⁻⁸⁹

Source taxa	Zoonotic diseases
Amphibians 	Campylobacteriosis; Endemic relapsing fever; Gastroenteritis; Mycobacteriosis/Tuberculosis; Salmonellosis; Streptococcosis; Yersiniosis; Vibriosis; Leptospirosis; Hepatitis-A; Western Encephalitis; West Nile virus; Coccidiomycosis; Cryptococcosis; Septicaemia
Reptiles 	Campylobacteriosis; Endemic relapsing fever; Gastroenteritis; Mycobacteriosis/Tuberculosis; Salmonellosis; Streptococcosis; Yersiniosis; Q-fever; Vibriosis; Leptospirosis; Western encephalitis; West Nile virus; Coccidiomycosis; Cryptococcosis; Septicaemia
Birds 	Campylobacteriosis; Gastroenteritis; Mycobacteriosis/Tuberculosis; Salmonellosis; Yersiniosis; Septicaemia/general infection; Pneumonia Dermatitis; Psittacosis; Q-fever; Vibriosis; Leptospirosis; Western encephalitis; Avian influenza; Newcastle disease; Cryptococcosis; Septicaemia; Histoplasmosis
Mammals 	Campylobacteriosis; Endemic relapsing fever; Gastroenteritis; Mycobacteriosis/Tuberculosis; Salmonellosis; Yersiniosis; Septicaemia/general infection; Bartonellosis; Pneumonia; Psittacosis; Q-fever; Brucellosis Leptospirosis; Hepatitis-A; West Nile virus; Herpesvirus simiae-B; Mpox; Molloscum contagiosum; Measles; Rabies; Haemorrhagic fever; Newcastle disease; Cowpox; Coccidiomycosis; Streptothricosis; Candidiasis; Rinaworm; Histoplasmosis

Some of these diseases can cause serious illness or even death in people: toxoplasma parasites from mammals can prompt severe and sometimes fatal pulmonary, cardiac and brain inflammatory reactions ⁹⁰; some toxoplasma species have caused abortion and foetal death ⁹⁰; mpox, transmissible by rodents and primates, can cause fever, myalgia, rashes and lesions ⁹¹; and Q-Fever, transmissible by birds, can cause many problems, including jaundice, chills and prolonged fever ⁹². Keeping wild animals as pets may also put pet owners at risk of zoonotic diseases with serious harmful side effects.

Much work has been done to help identify zoonoses during surveillance for infectious diseases ⁹³. But successful pathogen detection remains limited, locally and globally ⁸¹. Infection in wildlife can go undetected because of the challenges and costs of disease screening or due to the animals showing no symptoms. Some pathogens have longer incubation periods and so lie undetected in the animals until they reach hazardous levels, which can make it more difficult to prevent transmission ⁹⁴.

Zoonotic disease outbreaks cause over two million human deaths every year^{71, 72} and the COVID-19 pandemic is estimated to have cost the global economy as much as US\$16 trillion⁷³

Generally, our existing wildlife surveillance systems are not adequate to detect diseases or the presence of pathogens in animals ⁹⁵, heightening the risks to public health of wildlife farming. In reality, it is unlikely that such surveillance systems would ever be reliable enough to prevent all future disease outbreaks, thus the most effective route of addressing the public health risk is by phasing out wildlife farming and reducing the demand for wildlife products to prevent alternative supply sources.

Lack of transparency and record-keeping related to wildlife farms causes lack of knowledge of the real scale of the industry worldwide, which makes it impossible to accurately assess the zoonotic disease dangers it poses. But the wildlife trade, including wildlife farming is increasingly being recognized as one of the main drivers of pandemics. In the context of the COVID-19 pandemic, some European nations decided to ban mink farming

due to the risk of disease transmission. Furthermore, the World Health Organisation's draft text on pandemic prevention, preparedness and response states that:

Furthermore, the World Health Organisation's draft text on pandemic prevention, preparedness and response, also known as the [WHO Pandemic Agreement](#), recognises the links between animals and pandemics, stating the importance of safeguarding human health from zoonotic spillover and taking a One Health approach at the human-animal-environment interface. This will include using measures to minimise the risk of disease spillover from animals to people in the future. The link between wildlife trade and pandemics were also recognised in The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services workshop [report on biodiversity and pandemics](#), and the United Nations Environment Programme [report on preventing the next pandemic](#).

Impact on conservation

The wildlife trade is one of the most significant drivers of extinction risk across the world, and one of the five main causes of ecosystem damage ^{96,97}.

Proponents claim that fewer wild animals are taken from wild populations, so benefiting conservation. In reality, there is little evidence to determine this for most cases. Tigers and bears are farmed across Asia for their body parts yet their numbers have plunged in the wild ⁵². It took more than 20 years for the trade in farmed crocodile and alligator skins to overtake trade in wild skins ⁹⁸, and the continual restocking of farms from the wild has caused local extinctions of these animals ^{8,99}. When porcupines failed or were slow to breed, farmers took animals from the wild ¹⁰⁰. The same may have been true when the farming of musk deer in China could not meet consumer demand ⁵¹.

Conservation monitoring can be hampered if farmed and wild-caught animals cannot be distinguished. Farms may also act as laundering sites where animals illegally caught from the wild are claimed to be captive bred ². For example, in Indonesia, nationally protected wildlife can be traded under permit if captive bred, which enables the mis-declaration of animals that are wild caught and may hasten their decline in the wild ².

Some conservationists argue that wildlife farms could benefit conservation by sparking competition in the wild animal trade ^{8,101}. Again, there is little evidence from wildlife markets to back this claim, as the impact has been assessed only in a few species ^{102,103}.

Captive-bred wild animals can escape from farms and pose a threat to the survival of surrounding wildlife populations. Diseases can be transmitted from farmed to wild populations. For animals of the same species, breeding with farmed animals can cause changes to the gene pool¹⁹. This happened in Togo following the unregulated release of captive wild ball pythons from ranches and may be harming the species' conservation^{104,105}. Other problems arise if escapee species are not native because they can outcompete indigenous animals.

Genuine conservation of wild species should not harm wild animals nor endanger public health. Instead of farming, conservation initiatives can focus on ways to reduce demand, promote 'wildlife-friendly' alternatives, ban products or make wildlife products socially unacceptable. The recovery of sea

turtles is an example of wildlife farming versus genuine conservation. In the Cayman Islands the demand for sea turtle meat prompted the opening of a Cayman turtle farm in 1968 to reduce pressure on wild populations in the Caribbean. Management and welfare were poor at the farm, with disease, stress, injury and cannibalism rife⁵³. The farm cost taxpayers over 44 million Caymanian dollars in subsidies in just four years⁵³. On the contrary, other countries where turtle meat was historically consumed chose to reject farming as a conservation tool based on the economic and associated husbandry issues. A great example is Ferme Corail, a former sea turtle ranch on Réunion Island, that was transformed to a research and education hub that has used regulation and education to help restore nesting green turtle numbers, demonstrating conservation success without the problems associated with wildlife farms^{53,106}.

Photo: The tanks that the turtles are kept in are barren, shallow, concrete and not adequate for keeping wild animals. Credit: World Animal Protection



Myth busting

Trope/myth/claim	Reality
Wildlife farming is beneficial for the conservation of wild populations.	<p>There is very little data from real-world case studies to conclude that wildlife farming is broadly beneficial for wild animal populations. On the contrary, in some cases wildlife farming could negatively affect wild populations.</p> <p>Some conservationists argue that wildlife farms could benefit conservation by providing competition on the market and so reducing the incentive to take wild animals for money ^{8,101}. There is very little published evidence to support this – there have only been analysis for a few species and there are only a handful of frameworks assessing the impact of breeding in captivity ^{102,103}.</p> <p>Farming is virtually impossible for some species and uneconomical for others ^{19,100,103}. Where farming is possible, it does not necessarily help the recovery of wild populations: tigers have been farmed in China for decades yet in the wild they are almost extinct ¹⁰⁷; bears have been farmed in Vietnam since the 1990s yet bear populations in Vietnam are small and falling, and considered ‘Vulnerable’ by the International Union for Conservation of Nature (IUCN).</p> <p>On the contrary, wildlife farming could negatively affect wild populations because wild-caught animals are sometimes used to supplement captive ‘stock’ when farmed products cannot meet consumer demand, and because farms can struggle to breed wildlife in captivity ¹⁰⁰. Wildlife farms can also open the door to criminal activity, such as the laundering of wild-caught animals through registered farms ². Farmed wildlife products may also help sustain and promote consumer demand for wildlife products, and some consumers prefer products that are wild caught rather than farmed ¹⁰⁸.</p> <p>At farms that return some farmed wildlife to the wild (as is the law in some countries, and is common practice for many ranching operations), there is a risk of genetic mixing of wild populations, potentially leading to the erasure of some species that are genetically distinct ¹⁰⁵.</p>
Wildlife farming is safe for people.	<p>Wildlife farming creates disease risk and physical dangers for people.</p> <p>Wild animal species are thought to be the source of at least 70% of all zoonotic emerging infectious diseases ⁷⁴. Conditions associated with wildlife farming – including high concentrations of animals, poor hygiene and close contact with caretakers – increase the risk of disease emergence and transmission to people. Biosecurity protocols can only partially mitigate the risk of zoonotic disease emergence and transmission but success in detecting pathogens in wildlife is limited, locally and globally ⁸¹. Infection in wildlife can go undetected because of the challenges and costs of disease screening, or because the animals are asymptomatic ¹⁰⁹.</p> <p>Farming wildlife can also be dangerous. There have been numerous reports of animal attacks on farm workers and visitors at wildlife farms ¹¹⁰⁻¹¹².</p>
Wildlife farming is safe for animals.	<p>Wildlife on farms can suffer disease, malnourishment, stress-induced behaviours, injuries, infected wounds, cannibalism, physical abnormalities caused by inbreeding, and premature death ⁵⁰⁻⁵⁸.</p> <p>Even at well-managed facilities, high volumes of animals and the focus on profit means that animal welfare is unlikely to be a priority. The sentience of wildlife species means further negative impacts on their wellbeing when in captivity ^{45,46,113}. Significant suffering is likely throughout the animals’ lives on farms, all the way to slaughter or to being traded live.</p>

Trope/myth/claim	Reality
<p>Wildlife farming is beneficial for the economy.</p>	<p>The income generated from wildlife farms likely does not offset the longer-term costs associated with the wildlife trade more generally.</p> <p>For example, the monetary costs resulting from wildlife-originated pandemics – which potentially run into trillions of dollars ⁷³ – outweigh any financial benefits. There has been no comprehensive cost-benefit analysis of the wildlife-farming industry as a whole.</p> <p>The costs associated with wildlife farms are not limited to zoonotic diseases. Escapes of species farmed beyond their native range can put entire ecosystems at risk – non-native species can alter these ecosystems and hasten biodiversity loss ^{114–116}. Estimates of total global costs generated by invasive species exceed US\$100 billion per year ^{117,118}.</p> <p>While the costs of wildlife-originated pandemics and invasive species are linked to wildlife exploitation more broadly, rather than farming specifically, high concentrations of wildlife on farms exacerbate the risks and pass them on to the wildlife trade.</p>
<p>Wildlife farming is beneficial for livelihoods.</p>	<p>Wildlife farming is not a safe, reliable, or sustainable livelihood.</p> <p>A recent census of wildlife farms in Vietnam showed that 1,907 wildlife farms had stopped rearing animals because significant price declines had forced them out of business. It is unclear what they will do with the hundreds of thousands of wild animals remaining on the farms, which poses important management concerns, and what will replace this income generation. Similarly, people relying on income generated from breeding and using wild animals for tourism faced challenges when tourism ground to a halt during the COVID-19 pandemic. The industry was no longer able to generate income, leaving the animals and the people reliant on them vulnerable.</p> <p>Although wildlife farming, collecting and trading creates jobs and can help to reduce rural poverty, for example before COVID-19, around 14 million workers were employed by wildlife farms in China alone ^{119–121}, evidence suggests that wildlife-trade income is often not shared equally across the trade chain, and that only a small proportion reaches the poorest local communities ^{122,123}. No study has specifically assessed wildlife-farming livelihoods in this regard but research into the captive breeding of wildlife as pets shows similar pay disparities – the price at sale of rare “morphs” of snakes, for example, can reach tens of thousands of dollars. The fee paid to local communities in West Africa can be as little as three dollars ¹²⁴.</p> <p>Data about related wildlife industries, such as wildlife collecting, shows that some communities perceive the wildlife trade as a sporadic, unreliable and risky source of income, and in some cases wages are so low they are only sufficient to keep families above the extreme poverty line ^{77,125}. Those people are also exposed to the health and safety risks described above.</p> <p>For some wildlife industries, such as game farming in South Africa, an often-heard argument in favour of wildlife farming is its employment potential. But research shows that these opportunities do not necessarily materialise and that further inequalities in rural development can arise instead ¹²⁶.</p> <p>It is plausible that many farm workers continue to farm wildlife because there is no other source of income and no government support, rather than because it is a beneficial livelihood. A better solution would be to help those dependent on wildlife exploitation, including farm workers and owners to find livelihoods that are less precarious and more reliable, equitable and sustainable.</p>

Trope/myth/claim

Reality

Wildlife farming does not cause harm if it's carried out legally.

The legality of a wildlife farm does not ensure it is safe, sustainable, ethical or equitable.

Diseases can emerge and be circulated regardless of legality. Legal industries do not necessarily prioritise animal wellbeing: in many cases there are no standardised animal welfare protocols, even for countries with a large number of vast wildlife-farming facilities, such as China where only nine breeding institutions have been awarded the official certificate indicating that their breeding and management conditions have achieved a satisfactory standard of animal health and welfare ⁵¹ and there are no national laws protecting the welfare of captive species ⁵².

Additionally, legal and illegal wildlife exploitation are not always easily distinguishable – a close and complex relationship exists between these markets ¹²⁷. Criminal networks sometimes seek influence over legally operating wildlife industries, such as wildlife farms, to act as cover for fraudulent activity ⁸.

Wildlife farming is well regulated.

There is very limited oversight of wildlife farming at international level and regulations vary considerably from one country to another.

While some species are within the remit of international regulation (e.g. for CITES Appendix I species permits are required if they are to be farmed in any CITES membership country) most wildlife farms are not subject to any international regulation. Further, all of the main international bodies relevant for wildlife (e.g. CITES and the IUCN Red List) are only concerned with the extinction risk and conservation status of wildlife species. This omits other key considerations associated with wildlife farming, such as disease risk and animal welfare.

National regulation of wildlife farming varies considerably. Many countries have no agency overseeing wildlife farms or have a mix of regulations that differ between species and locations. Many countries regulate commercial wildlife farming at a provincial or state level with no central oversight (e.g. the US, Canada, Australia and South Africa). In these situations there can be inconsistencies in provincial legislation, an absence of national permit databases and a lack of transparency and co-ordination between provinces that can leave legal loopholes that have detrimental impacts on farmed wildlife and present compliance challenges ¹²⁸. It also makes it difficult to obtain wildlife farming data from regulating authorities, reducing overall transparency.

Even for countries with vast wildlife-farming industries, such as Vietnam, national policies have been criticised for being unclear, contradictory and poorly enforced ¹²⁹.

Wildlife farming enables sustainable use of wildlife and can help meet the UN's Sustainable Development Goals (SDGs), particularly their focus on poverty alleviation, food security, public health and conservation.

Wildlife farming is not necessary or helpful to meet the UN's SDGs.

Wildlife farms carry serious public health risks, cause terrible animal suffering, often offer risky, fickle or unsustainable livelihoods to vulnerable communities, and may be detrimental to conservation.

Wildlife farming and the subsequent trade from farms can have negative effects on biodiversity and thus sustainable development. The exploitation of wildlife has been identified as one of the most significant drivers of biodiversity loss, emergence of zoonotic infectious diseases, animal suffering and financial instability ^{96,130}. Overall, the challenges involved outweigh the benefits.

Section 2 – Our research on the scale of the wildlife farming

Scale of the industry, 2000 to 2022

World Animal Protection has researched wildlife farming using online sources and submitting information requests to government authorities across the world. Below, we summarise the species we found reported on wildlife farms globally between 2000 – 2022 in more detail. We focused on farmed amphibians, reptiles, birds and mammals because they commonly feature in the global wildlife trade ¹³¹. Detailed explanation of the methods used to gather this information can be found in the Appendices.

We faced challenges finding information, but online sources reported between 936,321,047 and 963,711,547 farmed wild animals of 487 species between 2000 and 2020. There may be as many as 374.5 million more than this, based on reports we found of animals that were not identified per individual species

(e.g. they were only referred to by their group name “turtles”), which we have not included to avoid potentially double counting. Wildlife farms are known to exist in 90 countries. Taking into account the sparsity of information and likely existence of thousands more unrecorded wildlife farms, we conservatively estimate the total number of farmed wild animals to be 5.5 billion.

A third of the species recorded on farms are considered Near Threatened, Vulnerable, Endangered or Critically Endangered by the IUCN, and around two thirds are listed by CITES.

We have omitted grouped animals from the table below to avoid the risk of double counting.



Amphibians

At least 525,132,190 animals from 27 species.



Birds

At least 171,046,051 animals from 249 species.



Mammals

At least 99,034,455 animals from 79 species.



Reptiles

At least 141,108,351 animals from 133 species.

Reptiles, amphibians and small mammals were most frequently farmed including millions of crocodiles for their skins and meat in 47 countries in the Americas, Africa and Asia ⁶⁶; more than 300 million turtles in one year in one country alone ³¹; more than 96.5 million foxes, mink and raccoon dogs are farmed in 27 countries (China, Canada, the US and EU countries). But farming is not only limited to small animals – large mammals were also farmed in huge numbers. Almost 9,500 deer farms hold more than 452,000 sika deer, while bear farms hold 24,000 Asiatic bears on farms across China, Vietnam, Lao PDR, Myanmar, and South Korea ^{51,120}. Large, iconic species such as lions and tigers were found to

be farmed in their thousands in several countries. Large numbers of bird species are also farmed, many in countries that they are not found in the wild. Millions of ostriches are recorded on farms in over 20 countries worldwide.

There was little information on the size of wildlife farms, although one report from Vietnam documented 4,099 farms containing more than 996,000 animals from 175 species ⁶⁹. Of these farms, at least 24 held more than 5,000 animals. The largest farm contained almost 54,000 crocodiles ^{69,132}.

Of these species reported, over a third are considered Threatened or Near Threatened globally by the IUCN Red List of Threatened Species, and around two thirds are listed on the CITES Appendices, meaning that they are offered at least some degree of protection or have some form of regulation in relation to trade.

Photo: Macaques covering in a cage at a market in Jakarta, Indonesia. Credit: World Animal Protection / Aaron Gekoski



In addition to online sources, we submitted Freedom of Information requests to a number of government authorities requesting permit information or records pertaining to commercial wildlife farms in their country or region. Responses from authorities indicated that

858,743 wild animals from 28 species were farmed in the period 2021 - 2022. In many cases comprehensive data was not available from authorities; the data below likely represent the minimum number of wild animals farmed in this period.

Country	Wildlife farming definition provided	Species	Number of wildlife farms	Number of individuals
Australia	No definition provided	Emus	16	15,390
		Ostriches	Not provided	Not provided but relevant government website indicates 3000+
		Rabbits	Not provided	Not provided
		Saltwater crocodiles	17	131,878
		Freshwater crocodiles	6	152
		Water buffalo	Not provided	Not provided
Canada	No definition provided	Elk	At 374 farms	4,710
		Fallow deer		345
		Red deer		52
		White-tailed deer		1,760
		Mule deer		32
		Reindeer		28
		Bighorn sheep		2
		Bison		14,918
		Wild boar		6
		Fox		500
		Mink		58,503
		Lynx		33
		Wolves		54
		Bobcat		2
		Deer (unknown species)		318
Denmark	No definition available	Partridges	9	11,426
		Chinchilla	41	32,907
		Pigeons	2	26
		Pheasants	122	51,9919
		Ferret	2	311
		Grey Duck	18	60,920
		Deer	254	3,564
		Llama	110	795
		Ostrich	15	83
		Quail	7	17,072
The Netherlands	No definition provided during communication with the Ministry of Agriculture, Nature and Food Quality. The following definition can be found on the government website: "Wild animals are all animals that occur naturally in the wild, except production animals, dogs and cats."	Fallow deer	<10	Not provided
		Central European Red Deer	<10	Not provided
		Ostrich	Maximum of 10	Not provided
		Emu	Not provided	Not provided
		Greater Rhea	Not provided	Not provided
		Muscovy duck	1	Not provided
		Common quail	1	Not provided

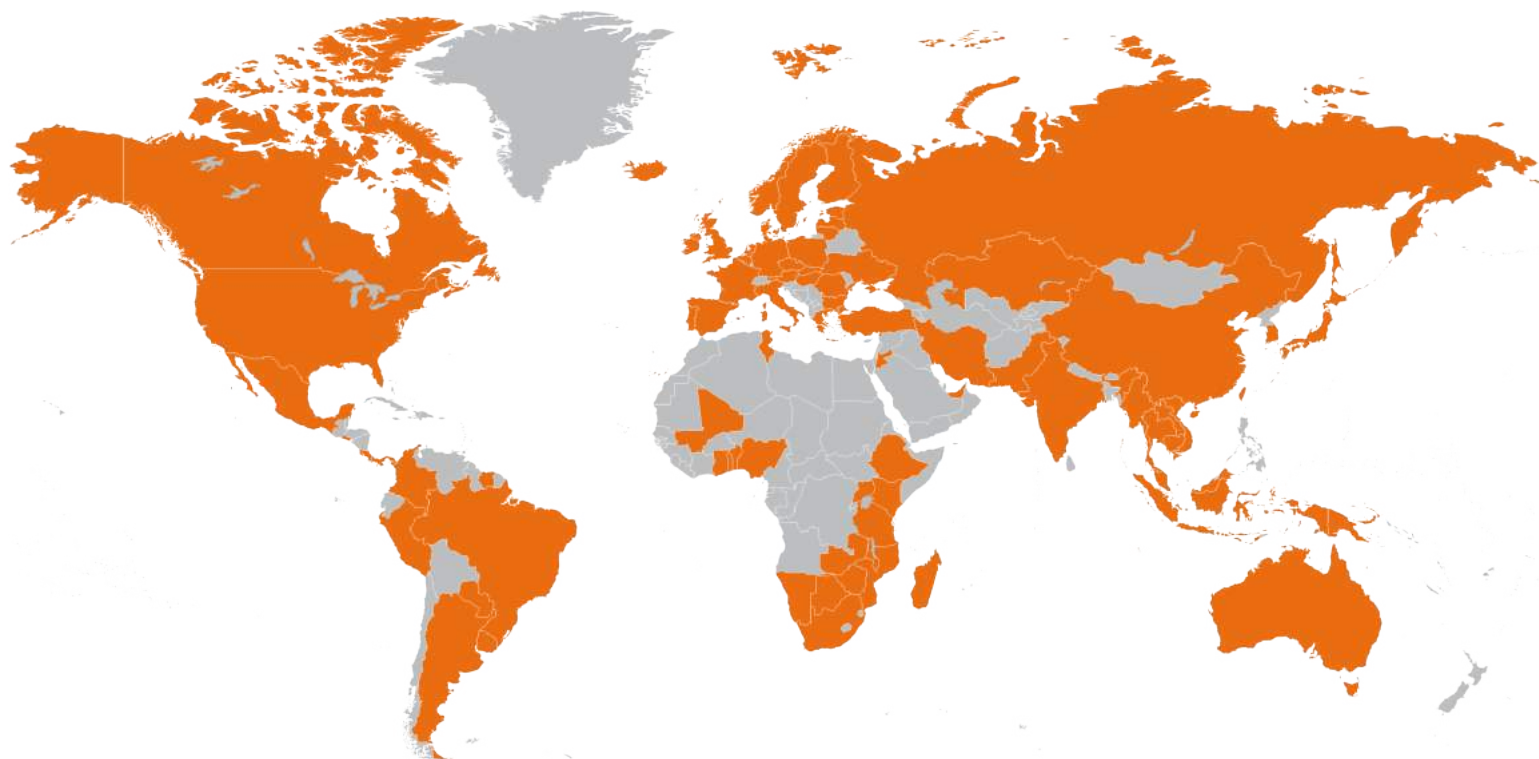
Several factors limited our access to data, underlining our fears that wildlife farming is taking place on a huge but largely unreported scale:

- Online data was inconsistent and patchy.
- Many studies focused on the export and import of wild animals, not on their farming.
- The farming data available was sometimes presented as units of mass instead of numbers of animals – ‘tonnes’ for amphibians, for example – which made it difficult to determine the number of individuals involved.
- Whether sites are commercial or for conservation purposes was sometimes unclear.
- Some data was out of date; other sources covered different periods so were difficult to compare.
- Some organisations did not make public the details of their research. For example, the published results of a 2015 census of wildlife farms in 12 of Vietnam’s 22 provinces commissioned by the UN’s Food and Agriculture Organization (FAO) did not include the numbers of each species found on farms.
- National authorities were not all forthcoming with information on commercial wildlife breeding in their countries. In some cases, the data was unavailable because it is not recorded by authorities.

Photo: Overcrowded, unhygienic and inadequate conditions at a crocodile farm with over 50,000 crocodiles in Thailand.
Credit: World Animal Protection / Jan Schmidt-Burbach



Geographic spread of wildlife farms



The map above shows wildlife farms reported in 90 countries worldwide between 2000 and 2020. More countries farmed wildlife during this period but information on them was not available.

Farms were identified in the following countries and regions:

Argentina, Australia, Austria, Bangladesh, Benin, Belgium, Bosnia and Herzegovina, Botswana, Bulgaria, Brazil, Cambodia, Canada, Cayman Islands, China, Colombia, Costa Rica, Czech Republic, Denmark, El Salvador, Estonia, Ethiopia, Finland, France, Germany, Ghana, Greece, Hungary, Iceland, India, Indonesia, Iran, Ireland, Israel, Italy, Japan, Jordan, Kazakhstan, Kenya, Lao PDR, Latvia, Lithuania, Madagascar, Malawi, Malaysia, Mali, Mauritius, Mexico, Mozambique, Myanmar, Namibia, Nepal, Nicaragua, Nigeria, Norway, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Réunion, Philippines, Poland, Romania, Portugal, Russia, Serbia, Singapore, Slovakia, South Africa, South Korea, Spain, Suriname, Sweden, Taiwan, Tanzania, Thailand, The Netherlands, Togo, Tunisia, Turkey, United Arab Emirates, Uganda, UK, Ukraine, Uruguay, US, Uzbekistan, Vietnam, Zambia and Zimbabwe.

Many of the studies we found were prompted by a researcher's interest in particular species or industries, and so the overall depiction of wildlife farming globally was indiscriminate and inconsistent.

We found three countries with transparent, publicly accessible data available: Brazil listed species farmed commercially¹³³, Denmark published information about its wildlife farms on an open access site and China had published comprehensive details of the species and volume of wildlife farmed across the country in 2017¹²⁰. The FAO's census of wildlife farms in Vietnam was useful for top-line data but details of species and numbers were only made available to stakeholders^{69,132} and therefore could not be accessed for this report.

Transparency from relevant authorities

We had to overcome many challenges in attempting to gather information about commercial wildlife breeding from regulating bodies. Responses were delayed or non-existent from some authorities, and many countries regulate commercial wildlife farming at the provincial or state level with no central oversight (including the US, Canada, Australia and South Africa). This meant submitting requests for the same data to several authorities. Of those to respond, some said data was not available. For example, in India, the Ministry of Environment, Forest and Climate Change: Wildlife Division and the Wildlife Crime Control Bureau both said they could not provide the information or recommend the relevant department.

We submitted requests in the following 11 countries: Australia (submission per each state authority), Botswana, Brazil, Canada (submission per each provincial authority), India, Kenya, Namibia, Tanzania, Thailand, Uganda, and Zimbabwe. Data was also obtained from Denmark and the Netherlands, although this information is available open access to citizens online or from relevant government officials and therefore did not require an FOI request. Aside from India, two of the 11 countries to which we submitted FOI requests did provide data (Australia, Canada). The remaining eight did not answer (Botswana, Brazil, Kenya, Namibia, Tanzania, Thailand, Uganda and Zimbabwe). All but one Australian state authority responded (the exception being Western Australia). Likewise in Canada, all provincial authorities enquired responded except New Brunswick. No data was available for Quebec.

Other researchers have hit similar obstacles: a study of capybara production in Brazil found that the federal agency supposedly responsible for oversight of wildlife production (the Brazilian Institute of Environment and Renewable Natural Resources) had no control or oversight of capybara breeders and could not provide simple statistics such as the number of farms or abattoirs, the number of captive individuals or the number commercially killed each year ¹³⁴. Similarly, a study of lion farming based on data requested via South Africa's Promotion to Access of Information Act had more than half of its data requests refused, rejected or ignored ¹²⁸.

CITES outlines international regulations established to protect traded wildlife. Although CITES regulations offer some protection to some traded species, they do not apply to regulating trade of farmed species more broadly. CITES does keep a register of facilities licensed to commercially breed wild species - licences are granted if those sites comply with CITES provisions and relevant national laws, and if their operations do not harm the species in the wild ¹³⁵. However, the register, which is available online, does not include the number of animals farmed and only applies to species listed in Appendix I of the Convention - those given the highest level of protection ¹³⁵. Similarly, the CITES trade database ¹³⁶ publishes records of traded species with 'source codes' indicating wildlife of farmed origin, but most species traded for commercial use are not listed by CITES and so not recorded ^{137,138}.

A consistent lack of information available online and from national authorities regulating commercial wildlife farming sparks concerns about industry transparency in many countries. The problem is even greater if the authorities do not have the information recorded at all.

Modelling a global estimate for farmed wild animals

The obstacles we faced in researching wildlife farming suggests that the number of wild animals involved is far higher than that recorded. The data available showed a fairly strong correlation between the number of species farmed and a country's population. We thus calculated a coefficient for the number of wild animals per species per millions of people in a country. In a second step we applied this coefficient to the nations for which we had no or insignificant data. This very rudimentary calculation produced an estimate of 5.5 billion wild animals farmed worldwide.

This figure is not a robust tally of global wildlife farmed but is likely the best conservative estimate possible given the industry's lack of

transparency. It highlights the massive scale of wildlife farming worldwide and the seriousness of the animal welfare, conservation and public health dangers linked to it. Around 5.5 billion wild animals suffer on farms where they are treated as commodities to satisfy frivolous human demand.

This must be the last generation of wild animals exploited for profit. We must work with communities to develop humane and financially robust alternatives, reduce demand through better regulation, and make the world aware of the horrors and risks so entrenched in wild animal farming practices.

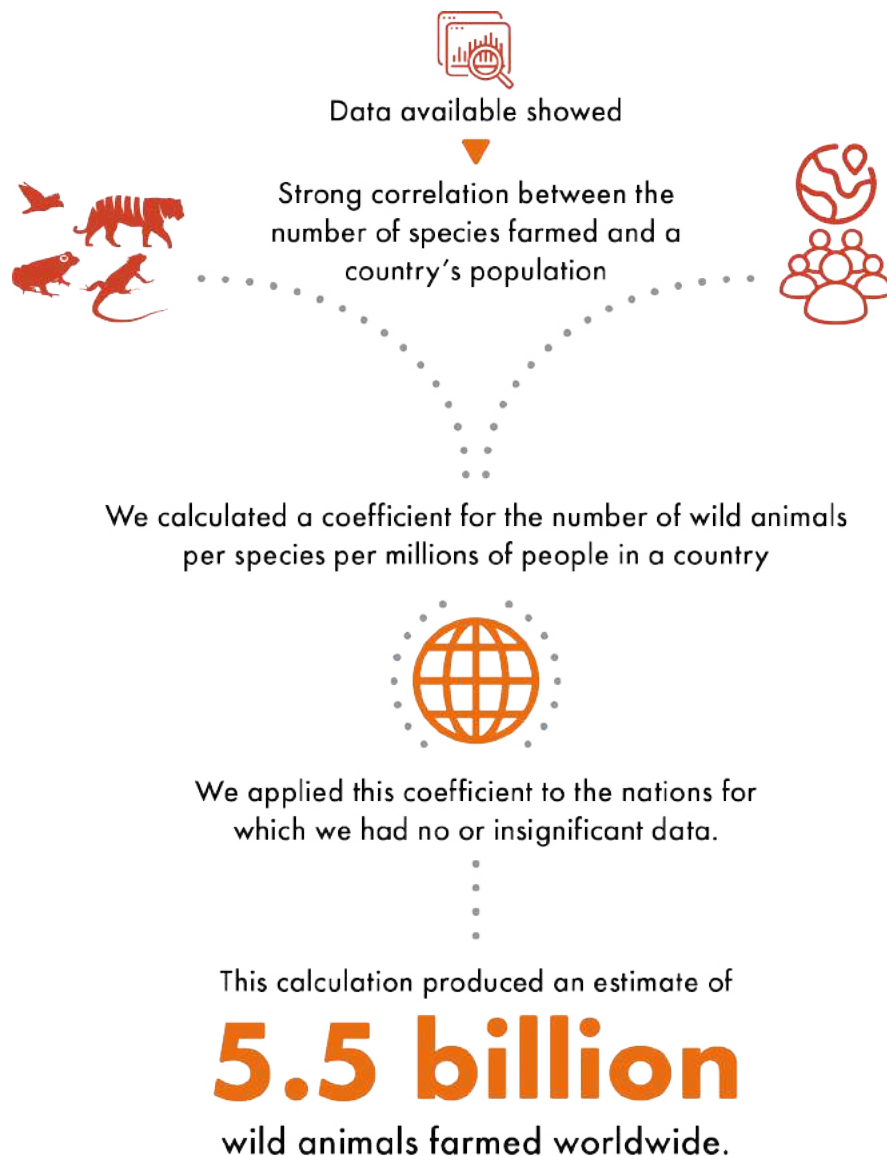




Photo: Investigative images obtained of otters in a captive breeding farm in Malang, Indonesia. The farm is suspected to be laundering wild caught otters to supply the exotic pet market as well as a chain of interactive otter cafes in Japan. Credit: World Animal Protection

Section 3 – How to end wildlife farming

Around 5.5 billion wild animals are estimated to be farmed for profit. This creates serious and widespread dangers for wildlife and global public health.

Many wildlife farms are legal. By sanctioning their operations governments are inadvertently supporting the damage the farms inflict. Changing laws governing the exploitation of wild animals is the first step towards ending wildlife farming for good.

It is the responsibility of governments to tackle the wildlife farming industry, which has the potential to not only incur horrendous animal suffering, but to also damage economies, endanger public health and affect the reputations of countries hosting and protecting them. New policies, alongside efforts to curb demand, are crucial to ending, not just improving, wildlife farming: regulations that legalise and even promote farming help make it acceptable to exploit wild animals⁹; they create the impression that wildlife farming is a business opportunity offering short-term

monetary gain. Some countries have changed laws to hinder wildlife farming. Others, however, now promote it.

Here we explore how some countries encourage wild animal exploitation for profit and outline examples of regulation change in countries tackling commercial wildlife exploitation. We show how legislation can be part of a wider approach to eliminating wildlife farming, using South Korea, where bear farming will soon be outlawed, as a model.

New policies, alongside efforts to curb demand, are crucial to ending, not just improving, wildlife farming

Current policies and regulations, and their relevance

Below are some examples of national legislation that encourages farming wildlife for profit, that create significant risks to animals and people as outlined above:

- **South Africa:** in 2019, an amendment to the Animal Improvement Act reclassified 33 wild animal species as production livestock ¹³⁹. Among them were several endangered and iconic species such as lion, cheetah, giraffe, rhino and zebra, which were labelled ‘farm animals’. There was no public consultation. Controversial and alarming practices such as artificial insemination are now allowed, putting these wild animals at risk of genetic manipulation and crossbreeding, and the inevitable impact on their health.
- **Nepal:** in March 2022 an amendment to the National Parks and Wildlife Conservation Act legalised commercial wildlife farming for the first time since 1973, when legislation banned the buying and selling of wild animals and their parts. In 2019, however, the Ministry of Forests and Environment published a list of wild animals that could be farmed along with regulations detailing the licensing of commercial wildlife farms. The latest amendment promotes the use of wildlife commercially whereas previously Nepal’s focus was wildlife protection. The 2022 move was claimed to help the economy in rural areas but media reports show that the cost of establishing a wildlife farm is too high for most Nepalis. Staff from the wildlife department have reportedly said that they do not know how communities will benefit ¹⁴⁰.
- **China:** China’s Wildlife Protection Law (WPL) stresses the use of wildlife and encourages commercial captive breeding ⁵¹. This has been so since 1989, when legislation promoted the concept of wild animals as resources to meet market demand ¹⁴¹. The situation worsened in 2004 when the State Forestry Bureau issued its ‘Guiding Opinion on Promoting the Sustainable Development of Wild Animals

and Plants’, which heavily endorsed the captive breeding of 54 wild animals for consumption ¹⁴¹. Consequently, wildlife in China is seen as a business opportunity and the industry has significantly expanded: in 2016, wildlife breeding was estimated to be worth more than 520 billion yuan and to employ over 14 million people ¹⁴¹.

- **Vietnam:** national action plans supported by provincial directives have since 2000 led to a huge increase in the number of captive breeding operations ¹⁹. By law all wildlife farms should be registered with provincial authorities and should maintain accurate stock records and proof of the legal origin of their stock ¹⁰⁰. But there are thought to be many farms not accounted for or awaiting licences, in addition to more than 9,000 already-licensed farms ¹⁴². Captive breeding and other production operations are permitted for at least 39 species that now are globally threatened ¹⁴².

More positively, there is increasingly more legislation encouraging wildlife protection and moving away from the idea that wild animals are a resource to be cruelly exploited for profit. For example:

- **Ecuador:** Ecuador has enshrined the rights of nature in its constitution. Nature was recognised as a legal entity in 2008 alongside the right of Ecuadorian people to live in a healthy environment. In 2022, Ecuador stated that “wild species and their individuals have the right not to be hunted, fished, captured, collected, extracted, kept, retained, trafficked, traded or exchanged” ¹⁴³. The enforcement of this was exemplified by a landmark court ruling concerning a woolly monkey called Estrellita, whose individual rights were confirmed in a case heard by the Ecuadorian Constitutional Court ¹⁴⁴. Legal provisions for the rights of nature have also been established in Brazil, Bolivia, Colombia, Ecuador, India, Mexico, New Zealand and the US, with varying degrees of enforcement ¹⁴⁵.

- Canada:** The Jane Goodall Bill, proposed in 2020 then strengthened and reintroduced in 2022, is a progressive proposal that, if retained in its original form, will ban the breeding and acquisition of wildlife for commercial use and so end the commercial trade in more than 800 wild animal species in Canada. The bill is grounded in Indigenous values of respect for nature. It has become clear however that this bill will likely not be passed in time before the next election. To still meet its mandate, the Federal government, in November 2023, introduced its own bill (Bill S-15) which would end the keeping of great apes and elephants for entertainment purposes. This piece of proposed legislation has a higher chance of passing but is unfortunately quite limited in scope.
- Fur farming in many countries:** moves are afoot in many (mostly European) countries to phase out fur farming for specified species. Today, 22 countries have banned or partially banned (or are in the process of banning) the industry, or have enacted laws that bring about its demise ¹⁴⁶. These are: Austria, Bosnia and Herzegovina, Belgium, Croatia, The Czech Republic, Estonia, Germany, Hungary, Italy, Japan, Luxemburg, North Macedonia, The Netherlands, New Zealand, Norway, Serbia, Slovakia, Slovenia, Spain, Switzerland, Sweden and the UK. Some bans are limited to specified species – Denmark banned fox farming in 2009 but still allows mink farming – and some are part of a longer-term phase out so not yet in effect: Estonia’s ban will prohibit fur farming from 2026 while The Netherlands’ phase-out period was due to end in 2024 but due to the COVID-19 outbreak in 2020 was brought forward¹⁴⁶. These bans are limited to fur farming and in some cases to some species only but they reflect a shift away from exploitative wildlife farming ¹⁴⁶.

The COVID-19 pandemic evidenced the extensive risks of the wildlife trade and sparked global regulatory changes to wildlife farming. The Netherlands culled many effected farmed mink in the country following the spread of the disease at European mink farms. Denmark followed suit, killing 17 million captive mink and temporarily banning fur farming ¹⁴⁷. Vietnam established a taskforce to review policies to ban the commercial trade and consumption of wild birds and mammals ¹⁴⁸, while China revised its list of wildlife under Special State Protection and banned terrestrial wildlife consumption to protect public health ¹²¹.

Unfortunately, many of these bans have since been reversed: mink farming resumed in Denmark in January 2023, with a predicted 10,000 mink to be imported to get the industry going again ¹⁴⁹; most policy changes in Vietnam were neither clarified nor enforced so the industry is unchanged ¹²⁹; in China, hundreds of

amphibians and reptile species were reclassified as ‘aquatic’ and so excluded from the list of wildlife banned for consumption ¹²¹. No restrictions were imposed on wildlife bred for traditional medicine ¹²¹. Some bans are also not comprehensive, for example the Netherlands banned the production of fur on farms but still allows the sale of farmed fur products.

Breeding and farming bans will not be effective unless the taking of animals from the wild or from other captive breeding facilities is also barred. And bans will not be effective if companies remain able to divert resources to new farms elsewhere. International investment in wildlife-related trade is common: Chinese investment in Lao PDR and Myanmar since 2000 has increased the number of farmed bears in these countries; the largest farms in both are reportedly owned by the same Chinese family ³³. Such investments could quickly spiral due to opportunities created by China’s Belt and Road initiative, through which China could influence development in 65 countries. These include some African states, where Special Economic Zones have already been established and in which business and trade laws differ from the rest of the country and so may allow more opportunity for wildlife exploitation ^{150,151}. China has already invested more than 10 billion USD in the Musina-Makhado Special Economic Zone in South Africa – one of seven such zones in South Africa alone ^{151,152}.

A combination of the expansion of the Belt and Road initiative, the extent of investments in African countries so far, a strong demand for wildlife products within China and a growing traditional medicine industry, may all lead to further exploitation of Africa’s wildlife and the widespread suffering that comes with it. On top of this is the potential for wildlife trafficking ¹⁵¹. We must work globally to block opportunities for expanding the exploitation that places all of us at risk.

The last generation of wild animals suffering for profit

We must end the extensive and widespread suffering inherent in wildlife farming, and eliminate the associated conservation and public health risks, by making this generation of wild animals the last bred in captivity for profit. Wild animal farming for non-essential commercial trade must no longer be acceptable, whether for consumption, entertainment, or fashion.

While changes to laws globally are an invaluable start, far more is needed to create a responsible, permanent and worldwide shift away from wildlife farming.

What is needed to end wildlife farming worldwide?

To phase-out the wildlife-farming industries in their countries governments must act on all of the following:

Policy instruments

Policies are crucial to eliminating wildlife farming and ensuring that responsibility is shared between governments and wildlife farming companies. A country's reputation, its economy and the health of its people are at stake.

Public attitudes

Increasing public awareness of the suffering and other dangers tied to wildlife farming is essential to bringing about change. People power is key to influencing government policy and perceptions of wildlife products are central to dictating demand. Creating awareness among consumers and the general public about the consequences of wildlife farms for wildlife, public health and the environment may lessen the demand for wildlife derived products. In turn, this can reduce pressure on creating supplies via farming and may reduce illegal markets emerging. The public may even add pressure on governments to make changes.

Resources

Resource allocation and fundraising will be important in helping the wildlife-farming industry convert to something more beneficial. The care of farmed animals – which in some cases will number many thousands and may include long-lived animals – and support for industry workers when farms close will be costly. But covering these costs – including food, veterinary care and the provision of high-welfare facilities – will be essential to ensuring a just, equitable and sustainable transition. Monitoring and staff training will be among other sizeable costs while the transition is taking place. But these costs will be investments: purging the world of wildlife farming could significantly reduce the chance of pandemics emerging as a result of wildlife exploitation – and the subsequent global economic crises – and avoid associated and devastating job losses, such as those at Danish mink farms in 2021.

Reducing demand and promoting alternatives

Behaviour-change campaigns can help reduce demand for wildlife products and therefore the perceived need for wildlife farms. Where consumer demand persists, wildlife-friendly products can help diversify the market, supplying consumers with products from within the same cultural framework without the need for the consequences associated with farming.

Fair phase out for stakeholders and consideration of livelihoods

Clear communication with farmers and other stakeholders about industry closure plans are essential at the outset. A clearly

defined and transparent goal will ensure fairness and allow all in the industry to plan. Comprehensive stakeholder engagement will enable the industry to positively influence the transition and help avoid potential resistance from stakeholders left out.

Many people in rural areas depend on wildlife farming for their livelihoods, such is the reach of the industry. Their futures are an essential consideration. These workers should be supported with training schemes and compensated financially to help them move into other, sustainable jobs as alternative livelihoods.

While transitioning the wildlife farming industry may be a challenging, incur costs, and long process; when successfully implemented, addressing all the factors outlined above, it will lead to a successful phase out of established farming industries and instead shifting to more humane, financially sustainable, and equitable practices. As explained above, the inherent risks of wildlife farming could be more costly if we consider the economic, cultural, and social effects of a pandemic.

Case example: How bear farming was ended in South Korea

To end wildlife farming anywhere the conditions described above must be met. This was achieved in South Korea and as a result the exploitative practise of farming of bears for their bile will be outlawed from January 2026.

Bear farming began in South Korea with the import of 496 bears to enable rural farmers to boost their incomes. By the mid-2000s 1,400 bears were being farmed in the country; the industry was flourishing. But the bears were maltreated, being isolated in small, damp cages and poorly fed – often for many years. Their farming prompted the emergence of an illegal trade in bear bile and other bear products in South Korea and neighbouring countries.

The South Korean government, through negotiation with the Bear Farmers Association and NGOs have recently announced that bear farming will end nationwide from 1 January 2026. Each of the requirements outlined above were addressed in the run up to reaching the agreement. They are detailed below. The bears currently on farms will be the last generation in South Korea to suffer for profit.

Working with stakeholders

The Committee for Farmed Bear Management, formed in 2010 (and renamed the Bear Sterilisation Task Force Committee in 2014), played a crucial role. It comprised the Bear Farmers Association, the Ministry of Environment, and other key stakeholders such as vets, NGOs and academics. Its remit became to collaborate and find solutions to end bear bile farming.

Public attitudes

Local NGO Green Korea United, supported by World Animal Protection, ran campaigns to raise awareness. It staged concerts and demonstrations and posted adverts in public places such as bus shelters to highlight the farmed bears' suffering. Surveys in 2005 and 2011 suggested that public perceptions of bear bile farming were changing, with 87.1% and 89.5% of respondents respectively stating that they were against the practice. These results were used by Green Korea United to prove to the government that public support was growing for an end to bear farming.

Reducing demand and promoting alternatives

In 2009, Green Korea United published a report titled 'Alternative Medicines to Bear Bile'. It was written by the Korea Association of Herbology and endorsed by the Association of Korean Medicine. It gave consumers an alternative to bear bile products with the same cultural significance, to reduce demand for bile products and promote the use of these alternatives.

Resources

The government provided funds for the sterilisation of farmed bears over three years, totalling 5,440,000,000 KRW (about \$4,800,000 USD). Sterilisation took place between 2014 and 2016. The Ministry of Environment established a DNA database of the farmed bears to monitor the industry during the transition and to reduce opportunistic illegal activity. Further funds were provided in 2020 for the construction of a shelter for confiscated illegally farmed animals, including 49 bears. A second sanctuary has been promised by the government for about 70 other bears.

Policy instruments

A number of policies were introduced over a 17-year duration. Beginning in 2005, The Wildlife Protection Act is enacted that allows for more consistent monitoring of bear farms by the government. The legal age limit on slaughtering bears for their gallbladder is reduced from 24 years to 10 years. The Ministry of Environment also developed Guidelines for Farmed Bear Management. These guidelines allow for regular inspection of bear farms by regional Ministry of Environment offices.

In 2014, the government introduced the sterilisation programme to ensure no new bears enter the bear bile farming industry.

In 2021, the South Korean National Assembly amended the Wildlife Protection and Management Act, introducing tougher penalties for wildlife offences, including illegal bear farming.

In 2022, The South Korean Ministry of Environment signed a joint agreement with the Bear Farmers Association and key animal welfare organisations (namely Green Korea United, Moon Bear Project, Korean Animal Welfare Association and Korea Animal Rights Advocates) to end bear bile farming and bear bile extraction by 1 January 2026. The Special Act to Prohibit Bear Bile Farming was tabled at the National Assembly, which if passed would legally end bear bile farming in the country.

A fair phase out for stakeholders

The government, the Bear Farmers Association and key local animal protection organisations signed a joint agreement that set out a commitment to prohibit bear bile farming and bile extraction from 1 January 2026. The plan is communicated to those involved in the bear farming industry and farmers are given time to plan for the closure of their bear farms, for which they are being financially compensated. Negotiations were long and not initially successful. A Special Act for Farmed Bear Management, which included a breeding ban, sterilisation, compensation for farmers through the purchase of farmed bears by the government, and a management and handling plan for bears was not passed due to the high costs involved. Some of its proposals were used, however, and adapted for the new agreement.

The combination of lobbying and legislative work, support from members of parliament, increased public awareness and a growing national sentiment against the industry, reflected in falling demand for bear bile, were essential in reaching the agreement accepted by all major stakeholders.

Government lobbying by Green Korea United and World Animal Protection was key to achieving the consensus. It helped persuade ministers to introduce the Wildlife Protection and Management Act and to fund shelters to home illegally bred bears. It also led to the South Korean Ministry of Environment signing a joint agreement with the Bear Farmers Association and key animal welfare organisations to end bear bile farming and extraction by January 2026. Since 2000, Green Korea United have worked to monitor lawbreaking such as the sale and advertising of illegal bear products and working with the government to punish such violations. The phase out would not have been possible, however, without significant commitment and investment from the government, which ultimately provided the resources and will to commit to end bear farming in South Korea for good.

Key Learnings from South Korea: How setbacks delayed the bear-farming ban

The ultimate goal to end bear farming in South Korea is well underway, with a memorandum of understanding signed by the government to commit to an end to bear bile farming by 2026. However, the final phasing-out agreement took nearly 30 years to achieve. There were many setbacks during that time.

Among delays were the setbacks caused by the slew of small, incremental changes employed to tackle the issue for the first few decades. The industry was first criticised in 1985, when public pressure led to a ban on the import of bears for farms. Bears could still be kept on farms, however, and, worse, the government legalised gallbladder extraction from slaughtered bears so that bear owners could still profit from the animals. Thus, the industry continued to thrive despite widespread opposition. As early as 2005, surveys with the public showed that 87.1% of Koreans were against bear farming for the purpose of bile extraction.

Secondly, after a 2004 investigation brought to light the illegal trade in bear bile and products in South Korea and neighbouring countries, and the poor welfare of bears on farms, the government enacted the Wildlife Management Protection Act to improve bear farm monitoring. The new law also reduced the age up to which bears could be slaughtered for their gallbladders – from 24 years old to 10. While well intended, these changes did nothing to address the underlying welfare issues within the industry and bears remained in low welfare conditions on farms. They may well have delayed the outright ban and increased the costs and resources needed for it.

Thirdly, farmers were given the option to use their bears as public exhibits for entertainment and still profit from them – 92 bears were registered as such: they remained exploited, their welfare poor. This prolonged the animals' suffering for many years.

Photo: Two bears farmed for their bile in a facility in South Korea. Credit: World Animal Protection / GKU





Photo: In January 2021 a new scientific study revealed that endangered African grey parrots are being sold for traditional belief based use in West Africa, raising severe animal welfare, public health, and conservation concerns. Hundreds of bird species are caught up in this trade, however African grey parrot parts are particularly valued for their ability to improve memory, ward against witchcraft, and help with divorce. The international pet trade has already caused wild grey parrot populations to crash throughout West Africa, meaning that additional demand for their body parts could help push them over the edge. It is hoped that promoting herbal aspects of this same tradition can help to redirect consumers away from harmful wildlife consumption. Credit: World Animal Protection

Section 4 – What else needs to change?

Applying these learnings to key industries where urgent progress is needed

In this section we describe the exploitation of wildlife for profit at commercial captive lion breeding facilities in South Africa, bear farms in China and elephant camps in Thailand. We show how implementing the approach to ending wildlife farming outlined in

Section 3 could be successfully applied to end the suffering of thousands of highly sentient, long-lived wild species exploited by these industries.



Photo: All the images provided by sources, including the ones of the lion we named Khosana, had to be withheld to protect source identity. This is an image of a different lion from a publicly accessible commercial captive lion facility in South Africa, shared for illustrative purposes. This image reflects how the conditions in these lion facilities fail to meet the lions' needs, but the conditions for Khosana were even worse. Credit: World Animal Protection / Roberto Vieto

Case study 1:

Commercial Lion farming South Africa



- **Species:**
African Lion (*Panthera leo*)
- **IUCN status:**
Vulnerable
- **CITES listing:**
Appendix II

Purpose farmed: Farmed lions are used for multiple purposes: they are exploited as entertainment attractions for tourists, either as part of canned trophy hunting or as interactive encounters such as cub petting and walk-with-lions experiences, and their body parts, particularly their bones, are used in traditional Asian medicine after being exported to Asia.

Scale of industry: 7,979 lions are farmed at 366 facilities across South Africa ¹⁵³.

Economic significance: Lion farming is estimated to contribute R500 million Rand (equivalent to \$42 million USD) annually to the South African economy ¹⁵⁴. The industry employs around 1,162 people in four provinces and approximately 400 people own lion farms ¹⁵⁴.



Main public health concerns

A total of 63 pathogens have been recorded in lions, including some that can be passed from lions to other animals and to humans ⁶¹. Lions have also been reported as hosts for diseases listed by the World Health Organization (WHO) as 'neglected tropical diseases'.

Some of the pathogens identified in lions can infect people through contact with the lion's fur, through respiratory secretions and through contaminated faeces ⁶¹. Visitors to lion farms in South Africa have reported that basic hygiene protocols are often absent for those hoping to interact with the animals ⁶¹. There is no information about the industry's biosecurity protocols and regulatory standards. The vast scale of these facilities increases the number of people in close contact with lions and the opportunities for zoonotic disease transmission.

The process of preparing carcasses for export presents a heightened risk of disease transmission, particularly at seemingly unregulated slaughterhouses potentially unbound by official hygiene standards, such as lion abattoirs in South Africa.

Given the conditions in which the lion farming industry operates, the considerable trade in lions and their susceptibility to many pathogens, it is possible that farmed lions could play a role in the emergence, amplification and transmission of diseases of public health concern.



Main animal welfare concerns

The welfare of lions at commercial lion farms is often reported as poor, with large numbers of lions in poor conditions and in cramped spaces ⁶².

In 2017, South Africa's National Council of Societies for the Prevention of Cruelty to Animals inspected 95 lion farms and found that nearly half were housing lions in substandard conditions. The inspections reported concerns such as poor hygiene protocols, insufficient diet, unsatisfactory enclosures, lack of enrichment, insufficient provision of shelters and lack of veterinary treatment for injured or unhealthy lions ¹⁵⁵.

The high numbers of lions at farms can make it difficult to meet hygiene, space and diet requirements. This is compounded by the intensive breeding that occurs as a result of pressure to produce a large number of cubs, which has serious consequences for the health and welfare of the animals involved. Breeding lions within small captive populations can also lead to inbreeding. Practices such as separating cubs from their mothers for speed breeding cause great stress, and the provision of alternative milk formulas can lead to nutritional deficiencies that weaken the animals' immune systems, leaving them more susceptible to pathogens ⁶².



Main conservation concerns

Lions are classified as Vulnerable by the IUCN. There are an estimated 25,000 left in the wild. South Africa classifies lions as being of Least Concern ¹⁵⁶.

The main threats lions face are habitat loss, prey depletion, and human-wildlife conflict (people killing lions to defend themselves or their livestock). The trade in bones and other body parts (such as skulls, teeth and claws) for traditional medicine in Africa and with Asian countries is an emerging threat ¹⁵⁶.

Farmed lions are not used in conservation breeding or wild release programmes because they become too used to people and can be genetically unsuitable, particularly those born from inbreeding or crossbreeding ¹⁵⁷. There may also be potential links between the legal trade in farmed lion parts and the targeted poaching of wild lion populations ¹⁵⁸. The legal trade in lions could be making it difficult for authorities to intercept the illegal trade.

The impact of the lion farming industry on wild lion populations in South Africa is not yet fully understood.

Industry timeline

1990s	Lions are bred in captivity in South Africa initially to supply canned hunting operations for tourists.
1997	Footage of a lion killed as part of a canned hunt in South Africa is aired in the UK by the BBC. A subsequent petition against the practice gathers 55,000 signatures in several days.
2005	International wildlife-based NGO TRAFFIC publishes evidence confirming the use of African lion bones in tiger bone wine in China.
2008	Lion bones are exported from South Africa with issuing permits from CITES that allow international trade, for the first time.
2013	South Africa's Department of Environmental Affairs reports that direct revenue from foreign tourist hunters is roughly USD93 million, of which 11% is earned from lion hunts ¹⁵⁹ .
2016	The 17th CITES Conference of the Parties takes place. The trade in lion body parts is debated and the proposal to make lions an Appendix I rather than Appendix II species is rejected. Lions remain on Appendix II and the commercial trade in lion body parts from lion farms in South Africa is permitted, if an export quota is set annually and communicated to CITES.
2017	The South African Department of Forestry, Fisheries and the Environment (DFFE) sets the annual quota for lion bone exports at 800 skeletons. All skeletons must be from farms. The quota is proposed by the South African Department of Environmental Affairs, which is advised by the CITES Scientific Authority at the South African Biodiversity Institute.
2017–2019	Several international NGOs release reports detailing animal welfare and other concerns about the lion farming industry ^{39,160–162} .
2018	The DFFE sets the annual quota for lion bone exports at 1,500 skeletons. After an international backlash the figure is reduced to 800.
2019	A South African High Court judge rules that the 2017 and 2018 CITES export quotas were constitutionally invalid and unlawful. A moratorium is placed on exporting lion skeletons.
2019	The DFFE states that there are almost 8,000 lions in captivity at 366 registered facilities. High Court rules that the 2017 and 2018 CITES lion bone export quotas were "unlawful and constitutionally invalid". Environmental Affairs imposes a moratorium on the export of lion skeletons. Between 2008 and 2018, CITES records show that 8,687 lion skeletons were exported from South Africa. This equates to at least 70 metric tonnes of bone ¹⁶³ . Although no CITES permits are granted to export lion bones, no regulations are set regarding the stockpiling of bones. This raises concerns about illegal trading in the future.
2019	The DFFE establishes a High-Level Panel to review the policies, legislation and practices governing the management, breeding, hunting and handling of four wildlife species including lions.
2021	The panel's recommendations receive Cabinet approval. The DFFE says it will adopt most of them. They include halting and reversing the domestication of lions, an immediate ban on the sale of captive lion derivatives, on the hunting of captive-bred lions and on tourism interactions that exploit lions. This will effectively end the commercial captive lion farming industry in South Africa.
2022	A ministerial task team is appointed to develop and implement a voluntary exit strategy for lion farms. This was the first time the word "voluntary" had been used in public government communications on this issue. It raised serious questions about whether the government was wavering in its stated intention to end the industry.

Looking to the future – the end of lion farming

The government of South Africa needs to establish a mandatory time-bound end to commercial captive lion breeding in South Africa. By doing so, the government could end the legal trade of lions and their body parts, making detecting and controlling illegal and unethical trade activities easier. Only then can South Africa's reputation be restored, and the welfare of the country's captive lions protected. We propose priority actions that will end lion farming in South Africa for good.

What would the end of the lion farming industry look like?

A. What lion farming looks like now	B. What ending lion farming would look like	C. How to achieve the change from A to B
Lions are continually bred on farms, creating an increasingly large captive population.	Breeding of new cubs is banned so that no new lions are farmed.	Trained veterinary staff to choose the best way to stop breeding by assessing the risks, welfare implications, costs and practicalities of options. These options may include separation of males from females, castration and sterilisation.
Microchips, supposedly unique to each lion in the farming industry, are reported to be non-compliant, which could indicate fraudulent activity ¹⁶⁴ .	All lions on farms are mandated to have unique, updated microchip numbers, which are kept on a centralised database.	Microchips updated to enable monitoring of all animals. This helps authorities identify whether new lions are entering the industry through illegal breeding on farms or through the poaching of wild lions.
Lions suffer poor welfare on farms.	Lions are provided with the highest-welfare conditions at responsible venues for the remainder of their lives. Slaughtering lions for their body parts and using lions in tourism are banned.	Appropriate veterinary protocols are established. Regulations for animal husbandry, health, enrichment and euthanasia are made publicly available, to ensure accountability.
Lion farming is governed by a patchwork of contradictory laws across national, provincial and departmental levels.	The policies governing lion farming are clear and centralised, to prevent loopholes allowing illegal activity.	New, cohesive legislation is enacted, backed by resources and capacity sufficient to enable authorities to enforce new legislation.
Lion farming poses a potential biosecurity risk via disease transfer to wildlife and people, including staff, visitors and the wider public.	There is no direct contact between people and lions, unless where absolutely necessary for animal management (e.g. veterinary care).	New biosecurity and health and safety measures are made publicly for accountability. Rescue facilities housing farmed lions for the remainder of their lives have measures in place to detect, contain and eradicate diseases in the lions.
Approximately 1,162 people rely on lion farming for income.	People previously employed in the lion farming industry remain employed for the duration of the lions' lives, during which time they are provided with resources and training to shift to an alternative sustainable livelihood at the end of the phase-out period.	Sustainable business transition plans, sustainable alternative livelihood options, and sustainable international donor fundraising ensure that these changes are paid for.

The road to ending lion farming

A voluntary phase out of the commercial lion farming industry, as suggested by the mandate of DFFE's Ministerial task team, may be useful as a first step but will not be enough to close the industry. Instead, there must be:

1. A defined exit pathway and timeline for the compulsory phase out of lion farming activity.
2. Clear communication with farmers and other industry stakeholders about this pathway and timeline, from the outset.

This will help avoid the risks of a voluntary phase out.

Our concerns regarding a voluntary phase out of lion farming:

- If lion farmers are given the choice they may prioritise the short-term economic benefits of lion farming over the broader animal welfare, public health, reputational, economic and cultural impacts of the industry outlined in the high-level panel report.
- It may cause difficulties with industry governance and oversight during the phase out, which would increase the opportunity for illegal activity.
- Without a compulsory end to lion farming there is a risk that the industry could re-emerge in the future.
- Small changes and incremental improvements by some farmers choosing to stop lion farming will not fulfil the goals set by the DFFE, which were to halt and reverse the domestication of lions, to immediately halt the sale of captive lion derivatives, and to ban the hunting of captive-bred lions and tourism interactions with lions.
- Options for transition may increase tensions with farmers and other industry stakeholders, prolonging the transition process and requiring more resources to help facilitate the eventual closure of the industry.
- The government would be ignoring the recommendations of its own independent High-Level Panel of experts, by putting short-term economic benefits ahead of addressing the fundamental problems within the industry. Bowing to pressure from a rich and powerful lobby of exploitation.

Relying on farmers to voluntarily stop lion farming shifts responsibility away from the government. It makes the decision a commercial one for farmers and sends mixed messages to stakeholders and the public about the seriousness of the issues at play. It is the government's responsibility to phase out lion farming permanently. Ministers must facilitate the industry's transition.

The immediate priority is to reduce the economic appeal of lion farming to encourage farm owners to close their farms.

To achieve this, the government must:

- Ban any further breeding of lions (and other large cats) on farms.
- Ban the issue of new or renewed lion breeding and lion keeping permits.
- Ban the issue of CITES export permits for hunting trophies, body parts or live lions to stop farmers profiting from stockpiles of lion bones or exporting lions to new farms in other countries.
- Make it clear to farmers how stockpiles should be disposed of to prevent illegal trading during the closure period.
- Ban 'hands-on' tourism activities.
- Provide funding for animal care and management, including the establishment of properly managed and funded sanctuaries. The costs of animal relocation, housing and feeding, plus staff and veterinary care are likely to be considerable.
- Establish funding and/or training to enable people economically dependent on lion farms to switch to other sustainable jobs, particularly those in rural areas.

The government should then establish:

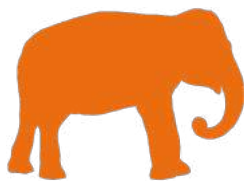
- A fully transparent and independent inspection system for all commercial lion breeding facilities in South Africa, including an evaluation of welfare standards, disease risk and the condition of the animals, to focus care where it is most needed.
- Compulsory updating of microchipping for all farmed lions, to enable monitoring throughout the phase out and to reduce the opportunity for new illegal activity during the transition period.
- Ongoing monitoring and a review of farms by an independent and transparent body to check transition compliance.
- A management plan that enables healthy lions to be placed in properly managed and funded sanctuaries (facilities in which a permanent captive home is provided, and which only rescues animals – it does not buy, sell, loan, exchange or breed animals and only allows human interaction for veterinary care).
- A comprehensive health and maintenance programme, including but not limited to parasite control, disease scanning, general health checks and a well-planned vaccination protocol. Security will be essential to stop animal escapes and poaching.
- A clear plan for the humane management of weak, old and genetically compromised animals, with criteria determined by experts.
- A strategy to publicly communicate why it is so urgent and essential to end lion farming.
- Legislation at national, provincial and departmental levels confirming the end of lion farming. Resources and capacity must enable authorities to enforce these new laws. Penalties for infringements must be effective deterrents and must be issued in full.



Photo: Working Elephants in Thailand. Credit: World Animal Protection / Victor Watkins

Case study 2:

Elephant breeding in Thailand



- **Species:**
Asian Elephants
(*Elephas maximus*)
- **IUCN status:**
Endangered and
decreasing
- **CITES listing:**
Appendix I

Purpose farmed: Elephants are bred in captivity in Thailand for use in tourism. Tourists pay to visit commercialised elephant camps set up as entertainment attractions, where they can pet, feed, photograph, ride and wash elephants, or watch them perform in circus-like shows. In Thailand, elephants are legally traded as livestock.

Scale of industry: In 2020 there were 2,798 elephants in the industry in 246 camps. Most of these elephants were captive bred. Between 2010 and 2020 the number of elephant venues increased by a staggering 134% ⁷⁰.

Economic significance: The captive elephant industry in Thailand is estimated to generate between 581.3 to 770.6 million US dollars annually ⁷⁰.



Main public health concerns

Captive elephants may carry tuberculosis, one of the ten most deadly diseases. It is highly contagious. Tuberculosis can spread between humans and animals ¹⁶⁵. There are many reports of tuberculosis passing from people to elephants; infected elephants can infect other elephants and people. The risk is heightened at elephant camps with direct contact between elephants and with people.

Captive elephants are highly susceptible to tuberculosis ¹⁶⁶ and Asian elephants are more susceptible than other elephant species ¹⁶⁷. Symptoms of infection are often not apparent in elephants until the disease becomes active ¹⁶⁸. It is then harder to manage its spread.

Leptospira, the bacteria responsible for the zoonotic disease leptospirosis, has also been found at elephant camps. The disease can spread to people through direct or indirect contact with contaminated elephants. Contact between people and wildlife at elephant camps can lead to infection ¹⁶⁹.

Close contact with elephants used for entertainment exposes visitors and elephant handlers to unnecessary risks of disease transmission and is a major public health concern.



Main animal welfare concerns

Wild animals can't thrive in any captive environment, and providing a captive environment for long-lived, highly sentient species such as elephants is particularly difficult. Elephants have complex social structures that are hard to mimic artificially, and vary widely in their responses to the conditions around them ¹⁷⁰.

Injuries caused by restraint equipment and saddles, foot and nail problems caused by long periods spent carrying tourists on hard or rough ground, and little access to proper health and veterinary care have been reported at tourism venues ¹⁷¹. The training of elephants to perform involves aversion and punishment to force the animals to obey instructions ⁷⁰.

Poor welfare can have long-lasting physical and psychological effects. Assessments of captive elephants have found that they exhibit stereotypical behaviours (repetitive movements and behaviours that serve no apparent purpose, such as swaying and head bobbing). These are associated with elephants that are chained up. A large number of captive Thai elephants are thought to suffer from complex post-traumatic stress disorder ¹⁷².

Despite their long history of captivity, Asian elephants in human care are not domesticated. Even those born into captivity retain the specific physical and behavioural needs of a wild species. Elephants cannot thrive in captivity, even at high-welfare venues, and their use as tourism props heightens their suffering. Travel bans during the COVID-19 pandemic meant elephant venues suddenly lost their incomes, almost undoubtedly reducing the healthcare for the elephants and the provision of sufficient high-quality food.



Main conservation concerns

Habitat loss and forest fragmentation have until recently been the main causes of Asian elephant declines in the wild, but poaching and illegal trading are now much more significant.

Highly lucrative tourism means the price of a single elephant can be US\$50,000 ^{173,174}. This incentivises poaching and illegal trading, sometimes across borders ¹⁷⁴. Thailand previously was a main destination for elephants illegally caught in Myanmar ¹⁷⁴. More recently, the industry has used breeding to restock the captive population.

Few records were kept in the past of Thailand's captive elephant population and so the number of wild-caught elephants used in tourism was unknown ¹⁷¹. Registration and record keeping is now much improved, but fears persist that some animals are still being laundered because of the high prices they can sell for. Elephants bred in captivity are often unsuitable for introduction to the wild. A release of the thousands of captive elephants in Thailand would require vast resources, suitable habitat and would need close liaison with local communities to mitigate human-elephant conflict. Because of this, the captive population is of no significant value to wild elephant conservation in Thailand. Rather, the industry itself is posing a threat to wild populations by sustaining demand for captive elephants, by increasing their trade value and by indirectly encouraging the laundering of wild elephants into captivity.

The Thai Elephant Conservation Center, a government agency, launched an initiative in the early 1990s to promote the use of elephants in tourism to create sustainable employment for elephants and mahouts ¹⁷⁵. But the COVID-19 pandemic highlighted the vulnerability of captive elephants reliant on tourism and highlighted the contradiction of needing to sustain income to care for captive elephants that are only there to generate income in the first place.

Industry timeline

1975	CITES lists the Asian elephant in Appendix I. The import and export of any Asian elephant parts becomes illegal internationally.
1989	The Thai government bans logging, and industry that uses thousands of elephants for forest work.
1989	Many of the elephants used in logging no longer generate income, causing owners to seek new ways of making money from them, prompting the emergence of Thailand's elephant tourism industry. Trekking, circus shows, and street begging become the primary employment of elephants.
1991	The Thai Elephant Conservation Center is established to aid the conservation of Thai elephants. Part of its mission is to develop the use of elephants in eco-tourism. Emerging elephant tourism prototypes (such as elephant riding and homestays) are merged with government-promoted tourism initiatives. The Center also launches the Artificial Insemination Project to speed up captive elephant reproduction, and a few years later establishes the Mahout and Thai Elephant Training School to advise private owners on captive elephant management ¹⁷⁶ . These initiatives encourage the breeding of captive elephants for tourism.
1992	The Wild Fauna Reserve and Protection Act is introduced to reduce poaching and aid elephant conservation efforts. The Act does not address captive-bred elephants.
2002	The Thai Elephant Conservation Center becomes the National Elephant Institute. Its purpose is to engage with elephant-rearing communities to help them maintain careers in tourism. It also aims to standardise elephant care, personnel and camp operators to promote quality tourism ¹⁷⁶ .
2002	The Protection and Conservation of Elephants as the National Symbolic Animal Act is drafted. The Act would ban any practices in which elephants are subjected to cruelty, torment, overexploitation, disgrace and death, and would penalise the associated mahout. The Act was not passed beyond draft stage ¹⁷⁶ .
2002	International NGOs begin to publicly criticise the treatment of elephant calves, which leads to a public backlash against training practices.
2010	International NGO World Animal Protection (formerly World Society for the Protection of Animals) begins a decade-long assessment of captive elephant welfare in Thailand, documenting a multitude of distressing conditions and poor animal welfare at many venues. Between 2010 and 2020 the number of elephants living in the very worst conditions rise by a staggering 135% ⁷⁰ .
2014	The Cruelty Prevention and Welfare of Animals Act is introduced. It lacks a dedicated committee specifically tasked with addressing captive elephant cases and ensuring their welfare.
2015	World Animal Protection forms the Coalition for Ethical Wildlife Tourism with a group of committed travel companies. One of the objectives is to highlight the strong demand and support for venues to become elephant friendly – to allow observation only with no breeding or trading.
2015–2020	The nature of many elephant venues changes from offering predominantly riding experiences and performances to activities such as washing and bathing that are perceived to be higher welfare, due to pressure predominantly from western tourists.
2019	The Asian Captive Elephant Standards initiative is developed to certify the welfare of elephants at tourism venues and provide a tool for identifying those that are ethical. But certification does not protect captive elephants due to its failure to acknowledge key animal welfare concerns. The standards call out the worst practices but essentially promote and sustain captive elephant tourism.
2020	The industry continues to grow. Between 2010 and 2020 the number of elephants held captive for Thai tourism increases by 70%. But COVID-19 brings tourism to a standstill and there is no income for the elephants or mahouts dependent on it. Many rely on support from the government or NGOs.
2021	The Thai Agricultural Standards that outline Good Practices for Elephant Facilities are implemented to ensure a certain level of welfare for captive elephants. The standards became mandatory in 2022. These standards still impede the expression of their natural behaviours.
2022	World Animal Protection Thailand spearheaded an effort to amend the Beast of Burden Act B.E. 2482 (1939) by replacing it with an Elephant Bill to provide a greater and more comprehensive protection to the elephants in tourism industry. The draft has not yet been read by parliament.

Looking to the future – the end of captive elephant breeding

The COVID-19 pandemic provided an incredible opportunity for the tourism industry to ‘build back better’ and be a stronger, more resilient and more responsible sector. While elephant tourism in Thailand was born of necessity when logging was banned, it is now responsible for perpetually adding more elephants to captivity for profit.

Ending the breeding of elephants for tourism and shifting tourism demand to more humane and sustainable alternatives, while ensuring better conditions for the remaining captive animals, would benefit thousands of animals and people. Elephants are long lived, and the industry could plan a responsible, well-managed phase out, with the focus on halting the further supply of these wild animals for commercial exploitation and alleviating the suffering of those already in captivity.

Photo: Undercover footage captured in 2018, 2019 and 2020 detailing the practices involved in training multiple baby elephants for use in the tourist industry. In this stage, baby elephants learn to submit to people and that not doing so will lead to punishment. A bullhook, stick, and nails are used to inflict pain during two sessions during the day. Credit: World Animal Protection



What would the end of the elephant tourism industry look like?



The road to closing Thailand's elephant tourism industry

Government-initiated objectives will be needed to end permanently the breeding of elephants for profit in Thailand and make this the last generation of commercially exploited captive elephants.

These objectives should include:

- **A ban on the captive breeding of elephants to initiate the industry's closure.** The COVID-19 pandemic proved that putting complex, intelligent and endangered animals such as elephants at the mercy of a commercial industry vulnerable to economic instability is unacceptable and inhumane. This also affects people working with the animals. Using elephants in tourism replaced their use by loggers but the continued breeding of elephants for tourism is no longer necessary. It perpetuates existing and ongoing cruelty and neglect.
 - **Policing of the wild capture of elephants for tourism.** The government must prevent more wild-caught elephants being laundered into tourism, which could result from a captive elephant breeding ban.
 - **Support for elephant venues as they adopt wildlife-friendly practices.** Elephants now in captivity and their mahouts must be provided for, for the rest of the elephants' lives. Wildlife-friendly venues should be high-welfare, observation-only facilities to ensure that captive elephants have the highest quality of life possible. A good example of an elephant-friendly venue is [Chang Chill](#), a facility that transitioned from offering elephant rides to observation only attractions and now invites tourists to learn about the history of these elephants, observe them in their natural habitat, and meet the mahouts who are devoted to their well-being.
 - **Support for mahouts during the industry phase out.** Mahouts must be an integral part of any changes to elephant breeding. They will need improved employment packages including better living conditions at the venues, education and a future in other professions. Such packages should encourage career development beyond the lifespan of the elephant they care for.
 - **Awareness initiatives to change public perception of elephants.** To reduce the acceptability of breeding elephants for commercial gain, while respecting the elephant's role in Thai culture, campaigns should be launched to increase public awareness of the reality of elephant tourism.
 - **The development of laws and policies that bring about the closure of the commercial elephant-breeding industry and set out elephant care during the phase out.** There have been significant changes to captive elephant management in the past 15 years, including reduced reliance on chaining and the use of riding saddles, an increase in observation-only activities, and less reliance on hooks to train and control elephants¹⁷⁷. However, elephant management and care still varies considerably. Policies setting out elephant care requirements would help standardise conditions at elephant venues during the phase out.
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The elephant tourism industry in Thailand might not resemble the classic example of wildlife farming at first glance, however, our insights into the practices in that particular industry and acknowledging the complexities of managing elephants make it clear that the Thai population of captive tourism elephants is being farmed commercially. The population is sustained primarily through captive breeding, is traded actively within the country, and its prime function is commercial revenue generation. While several facilities exist in Thailand that own dozens of elephants to breed them actively, one particular difference to other farming examples is that the majority of elephant owners own only one to several elephants, rather than large stocks. This is primarily due to the high value of the individual animals, its longevity and the resources it takes to look after it. The breeding occurs most commonly through elephant owners renting an advertised breeding bull to inseminate cows (female elephant). Approximately 1-2 years after giving birth, the calf will usually be sold on, after which cows may be bred again. Elephant trading occurs through networks of elephant owners or an annual elephant trade market.



Photo: There are more than 20,000 captive bears in about 40 bear bile farms in China. Although many measures have been introduced by the government to regulate the bear bile industry, bile extraction from live bears is still allowed and there is no timetable announced to phase out the cruel practice. Credit: Mr Wang Feng

Case study 3:

Bear farming in China



- **Species:**
Asiatic Black Bear
(*Ursus thibetanus*)
- **IUCN status:**
Vulnerable and decreasing
- **CITES listing:**
Appendix I

Purpose farmed: bears are farmed for their bile, a digestive fluid found in the gallbladder. Bear bile has been used in traditional Chinese medicine (TCM) for thousands of years. Bile contains ursodeoxycholic acid (UDCA), a medically active ingredient. Prescriptions containing bear bile are used to treat a variety of illnesses including liver disease, haemorrhoids, kidney problems and some cancers ⁵⁶. Bears were traditionally hunted for their gallbladders, but since the 1980s bears have been farmed in China to provide a constant supply of bile, which is extracted from the bears throughout their lives.

Scale of industry: approximately 20,000 bears are kept on dozens of licensed bear farms ^{33,120}.

Economic significance: the majority of the bear-farming industry in China is operated by big-brand pharmaceutical companies. It is worth more than 1 billion US dollars ³³ and is estimated to employ between 5,000 and 6,000 people ¹⁷⁸.



Main public health concerns

There is little research on the potential for disease spread between bears on farms and their human caretakers. One study highlighted two pathogens found in captive black bears in China that can be transmitted to humans via contaminated equipment. These pathogens were said to be a potential threat to human health ¹⁷⁹.

No other specific public health concerns linked to the industry have been identified but the poor health of farmed bears means they are more susceptible to disease. Bears on bile farms suffer long-term ill health and have suboptimal white blood cells counts, indicating lower immunity ¹⁸⁰. This could increase their vulnerability to pathogens. Many of these pathogens or the diseases they cause may not have been identified as harmful to humans – it is difficult to prevent the spread of unknown infections.

Close contact between humans and wild animals is always a health risk, which is heightened through the consumption of wildlife. Bear bile is ingested as raw fluid or dried and ground into powder or flakes. Dried bile powder is now the only product legally produced by bear farms in China; the sale of unprocessed bile products is outlawed ¹⁸¹. Products include pills, ointments, capsules, plasters, balm and eye drops.



Main animal welfare concerns

Conditions reported on bear farms suggest extensive suffering. Reports describe bears with sores, skin conditions, parasites, hair loss, bone deformities, injuries, swollen limbs, dental and breathing problems, diarrhoea and scarring ⁵⁵. This is alongside behavioural abnormalities that indicate stress, such as repetitive movements that serve no obvious purpose, excessive inactivity and self-mutilation ⁵⁵.

These reports are 20 years old, and conditions on farms may have improved, but the methods of bile extraction and close contact between humans and bears remain major welfare concerns.

The surgery to enable bile extraction – the ‘free-dripping fistula technique’ – is painful. This has been allowed on Chinese farms since 1997 and involves inserting a catheter through a surgically created canal into the bear’s gallbladder so that fluid can be drained out each day. Medical complications often follow ^{57,182}.

The bears are declawed to stop them harming the farm workers and self-mutilating ⁵⁶, and their teeth are often forcefully removed to lower their defences ⁵⁶. Before the ‘free-dripping fistula technique’ was invented, metal corsets were put on them to stop them touching the tube embedded inside their body by surgery ⁵⁶. Stress, as indicated by hair hormone samples, is higher in bears on bile farms ¹⁸³.



Main conservation concerns

Growing prosperity in China and the development of the TCM industry is thought to have increased the demand for bear bile ¹⁸⁴.

Bears continue to be taken from the wild for the industry ¹⁸⁵: the availability of farmed bear bile has not reduced demand for bile from wild bears and may have created competition that is driving more demand for wild bear bile ¹⁸⁵.

Asiatic black bears are the only species legally farmed in China but are not the only species hunted for their gallbladders. American black bears (*Ursus americanus*), sun bears (*Helarctos malayanus*) and Himalayan brown bears (*Ursus arctos isabellinus*) are also targeted due to falling numbers of Asiatic black bears and Tibetan brown bears (*Ursus arctos pruinosus*), the species historically hunted for bile.

There is also an illegal trade in China and neighbouring countries for whole gallbladders or parts of them, and for raw bile products from wild or illegally farmed bears ^{181,186}.

Industry timeline

1984	In response to declining wild bear populations China adopts a technique developed by Korean scientists enabling the routine extraction of bear bile from the gallbladders of living bears, creating a continuous supply. Hundreds of bears are captured from the wild and kept on farms.
1989	The Wildlife Protection Law (WPL) is enacted which lists bears as a national Class II species, making it illegal to hunt and trade wild bear bile, but encourages to farm bears for their bile.
1994	The then government shows public support for bear farming, writing in the <i>Beijing Review</i> that “Commercial raising saves bears” ⁵⁶ . This, and the ban on wild bear bile through the WPL, sparks more growth in the bear-farming industry. By the mid-1990s there are as many as 600 farms keeping more than 10,000 bears for bile extraction ⁵⁶ . Bear bile farming is booming.
2000	The Animals Asia Foundation, the China Wildlife Conservation Association in Beijing and the Sichuan Forestry Department of China agree to close down the worst farms in Sichuan province, and rescue 500 bears to be rehomed in sanctuaries. The goal is to expand this programme across China and continually reduce the number of bears on farms. The Sichuan rescues are successful, but the programme ends before it is rolled out more widely.
2001	The Ministry of Health announces that health products made of bear bile powder will no longer be approved, to protect wild bears and to guarantee the safety of those products. The rule does not apply to tonic based products approved before the announcement. Consequently, bear bile wine and tonic products can still be sold at markets.
2003	In a new report by World Animal Protection (formerly World Society for the Protection of Animals) highlights the suffering of bears on bile farms. Tens of thousands of protest letters are sent to Chinese diplomatic missions overseas ⁵⁶ . The international outcry leads Chinese authorities to confront the issues surrounding bear farming. To dissipate international condemnation, Chinese authorities announce that no new bear farms will be licensed ⁵⁶ .
2004	A government directive states that legal products from registered bear farms must carry a certification sticker to ease identification.
2005	The government tightens regulations on the use of bear bile in TCM products. Food and drug administrations (FDAs) and municipalities are ordered to limit the use of bear bile powder. Manufacturers of bear bile products must now submit applications to local FDAs for approval.
2012	An IUCN motion urges China to shut down illegal bear farms and to stop the further expansion of the industry. In response, the Chinese state forestry administration halts expansion until bear-farming’s impact on wild bear populations is investigated.
2012	Major bear bile company Guizhentang fails in its bid to enter the stock market, following a public backlash against bear bile farming.
2015	Funded by the Science and Technology Ministry, Kaibao Pharmaceutical, the largest bear bile company in China, collaborates with the Shanghai University of Traditional Chinese Medicine to develop a synthetic alternative to bear bile.
2016	The Chinese government updates the Wildlife Protection Law which abandons the previous policy to encourage wildlife breeding, but it is still legal to farm endangered species such as bears for commercial use and for their body parts to be used in traditional medicine, healthcare products and food. It includes some management guidance for breeding wildlife under Special State Protection.
2016	Researchers from China’s Development Research Center of the State Council of PRC (DRC) propose policy recommendations that will phase out bear farming.
2016	Guizhentang again bids to be a publicly listed company but its application is refused by the national security authority due to public opposition to its use of bear bile as an ingredient.
2017	A report by the Chinese Academy of Engineering states that there are 24,000 bears on farms in China. World Animal Protection research shows that 114 companies manufacture bear bile. Two products from at least two companies have a market value of over one billion US dollars.
2018	A second artificial bear bile powder, a UDCA based synthetic bear bile developed by the China Academy of Medical Sciences and Azpharm Group Limited is approved by the national drug administration.
2019	The WHO adopts its 11th global medical compendium and includes TCM as a viable treatment option for the first time. It does not exclude wildlife-derived TCM, which effectively endorses the use of bear bile products.
2019	The Chinese Global Institute of Philanthropy creates a roadmap for phasing out bear farming in China, following the 2016 DRC recommendations to end the bear farming industry.
2022	Hainan Provincial Drug Administration officially approves a synthetically derived bile acid drug, meaning a synthetic alternative to bear bile can be traded as a TCM drug in China.
2022	A policy review by the China Academy of Chinese Medicine Sciences indicates that the development and use of substitutes for medicinal materials from endangered wildlife is the future of the TCM industry.

Looking to the future – the end of bear bile farming. What would the end of the bear-farming industry look like?

A. What bear farming looks like now	B. What ending bear farming would ideally look like	C. How to achieve the change from A to B
Bear farming in China is extensive. Prior to the COVID-19 pandemic, between 20,000 and 24,000 bears were reportedly kept on 68 licensed bear farms ^{33,120} .	The current generation of bears are the last kept on farms. No more bears are bred or captured from the wild to expand the captive population.	Policies favouring bear bile alternatives and prohibiting the trade and consumption of wild bile products to include farmed bile, rendering bear farming pointless and economically unviable.
Bears suffer extensively on farms.	Farmed bears are able to enjoy a high quality of life in high-welfare facilities for the remainder of their lives. No bile is extracted from them.	Policies prohibiting the extraction of bile from living bears are introduced and enforced.
An estimated 5,000 to 6,000 workers are employed by bear farms nationwide ¹⁷⁸ .	People previously employed by bear farms have sustainable alternative livelihoods.	The phase out should include consideration of livelihoods to avoid thousands of people losing their incomes without the support and time to find alternatives.
Chinese consumers are largely unaware of bear-farming practices. They believe conditions for bears are adequate and that big companies provide a much better environment for the animals and produce better products ³³ .	Consumers are aware of the suffering experienced on bear bile farms, including those run by large, reputable pharmaceutical companies	Consumers are made aware of the consequences of bile farming for the bear's wellbeing. One World Animal Protection study showed that when Chinese people were told about the suffering bears were forced to endure for bile extraction, only 33.2% said they would continue using bear bile products.
Practitioners prescribe bear bile based TCM remedies for medical ailments.	Practitioners and consumers choose to seek wildlife-friendly alternatives to bear bile products.	To encourage consumers to use wildlife-friendly alternatives the government disseminates information about herbal or animal-friendly synthetic bear bile substitutes, through physicians, other healthcare practitioners and relevant media channels, to raise awareness of suitable and more sustainable alternatives. It encourages practitioners and doctors to prescribe or administer wildlife-friendly drugs to patients. The TCM Alternatives to Wild Animal Preparations website (www.TAWAP.org) enables practitioners and consumers to find plant- and mineral-based substitutes to wildlife-derived TCM ingredients. Substitutes were identified by a TCM scholar. The website is endorsed by ten TCM associations from across the world.
In 2017 bear bile products were sold by 139 pharmacy companies operating 21,574 stores across China. Products included bear bile wine, Shennong analgesic plaster, bear bile nasal spray and bear bile powder. However, progress has been made: more than 1,900 Chinese pharmacies have pledged not to sell bear bile products.	It is illegal for retailers to sell products containing bear bile.	Policies will be needed to ban the sale of bear bile products in retail stores and online marketplaces. To meet consumer demand, previous bear bile products can be replaced with herbal and plant-based alternatives, or synthetic bile products developed to treat the same ailments. To achieve this, policies should also require pharmaceutical companies to replace bear-derived bile as an ingredient in their products.
There is evidence of an illegal international trade originating in China: of the 194 bear bile shipments to the US seized between 2006 and 2015, 31% were from China ³³ . There is also an illegal trade within China and neighbouring countries in gallbladders and in raw bile products from wild or illegally farmed bears ¹⁸⁷ .	There is effective action to tackle the illegal trade in bear parts and derivatives, which deters criminal trading in these products.	Resources and training are provided to increase enforcement capacity for regulating the illegal trade in bear products, particularly as the industry is phased out.

The road to ending bear farming in China

The immediate priorities for ending bear farming are to:

1. **Reduce demand for bear bile products and promote the use of non-bear bile alternatives.** Synthetic bear bile and herb-based substitutes are available and provide consumers with alternatives not dependent on bile taken from bears. All patented drugs containing bear bile should be replaced with drugs containing wildlife-friendly ingredients.
2. **Immediately end bear breeding on farms and declare a timeline for the phase out of current bear farms.** This will ensure that the current generation of bears is the last to suffer in captivity; it will initiate the transition away from bear farming. The revision of existing laws can achieve this, notably the Wildlife Animal Protection Law and the Chinese Medicine Law.
3. **Plan the full phase out of bear farming within one bear generation** and provide the essential care and management for the bears currently farmed for the rest of their lives. Ban bear breeding to prevent farms expanding, and reduce consumer demand for bear bile products. A roadmap to phase out the bear-farming industry was developed by the Chinese Global Institute of Philanthropy supported by World Animal Protection in 2019.
4. **Shut down unregistered farms.** Allocate more resources to the identification of illegal farms, penalise those that are unregistered and confiscate the bears in their care. Provide a high-welfare sanctuary for those bears, enabling them to live the remainder of their lives free of exploitation.

After these immediate priorities are addressed, the following should be considered:

- A ban on the commercial use of bear parts and derivatives incorporated into revisions of the Wildlife Animal Protection Law and Chinese Medicine Law. This will help reduce opportunities for, and the social acceptability of, consuming bear parts, which may help deter new illegal trading.
 - Ensure that information about the efficacy of herbal or animal-friendly synthetic bear bile substitutes reaches rural communities, older generations and lower socio-economic groups, who may not be aware of the suffering of bears on farms for the production of bear bile products.
 - Ensure full compliance with CITES laws to reduce demand for illegal products containing bear parts and derivatives.
 - Encourage further research into sustainable and humane alternatives to animal products in traditional medicine. This would make the TCM industry more attractive to potential markets outside China and increase demand in the country. It could be achieved by using existing government-backed research on bear bile alternatives to prove to producers that replacing bear bile with other ingredients makes good commercial sense. Attracting investors could hasten this transition and stimulate new markets for wildlife friendly TCM.
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Conclusions and recommendations

Records show at least 900 million wild animals have been bred to suffer a life in captivity and die to supply the demand of commercial industries, as part of the global wildlife farming. This is just the tip of the iceberg for the true scale of this exploitative industry, which in reality may extend to as many as 5.5 billion wild animals globally. They are suffering in silence, exposed to disease, stress and a lifetime in captivity. But record keeping is poor, data is hidden from public view and governments are keen to dodge responsibility.

Wild animals are being treated as a resource ripe for exploitation and consumption. They are viewed as mere products, not sentient, living creatures who experience fear and pain. Their sentience is ignored, their suffering of no consequence. We need to End Wildlife Farming

Wildlife farms are a threat to the well-being of people and animals everywhere. They cause vast and extensive animal suffering, and continually increase the risk of zoonotic diseases reaching human populations and causing widespread illness, potentially to pandemic proportions: COVID-19 is a prime example.

The consequences of these risks for human and animal health and well-being are immeasurable. As well as the direct impacts, the cost of zoonotic diseases, particularly those that reach epidemic and pandemic scale, can have cascading effects that reach epic proportions. At the same time, local communities, whose livelihoods can depend utterly on wildlife farms, see little of the vast profits the wildlife trade amasses. It is they who bear the

greatest economic burden when things go wrong, and they who wait longest for economic recovery^{188,189}.

We must ensure this is the last generation of wildlife farmed as mere products and stop the billions of wild animals that continue to be cruelly exploited for profit. Wild animals are born to be wild and should be protected from cruel commercial exploitation and given the opportunity to thrive in abundant natural habitat that is humanely protected. This needs to happen whether wild animals are threatened with extinction or not, because every individual wild animal has the right to a wild life.

Whether it be for the pet industry, luxury consumption, entertainment, decoration, or fashion – wildlife farming must end now. Wild animals belong in the wild and governments, the private sector, and individuals must prioritise efforts to ensure that they are protected in their natural habitats. This needs to happen for all wild animals, whether they are threatened with extinction or not, because every wild animal has the right to a wild life.

We are all interconnected, animals, ecosystems, and people – and when wildlife is suffering, when their habitats are destroyed, we all pay the price.

We must ensure this is the last generation of wildlife to suffer in captivity, and be farmed and exploited for commercial gain. It's time to end wildlife farming, for good.

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Appendices

Methodology - Outline of our research methods

We conducted a semi-systematic review of the scientific literature using the academic journal database Web of Science (Philadelphia, USA). Searches were conducted from the period 2000 – 2020, using the search term ‘commercial wildlife farming’. This search returned 180 articles. Each paper was reviewed to extract relevant information pertaining to wildlife farms [see further details below]. For the purpose of this study, ‘wildlife farming’ is defined as the breeding or ranching of wild animal species for commercial intent or the production of wildlife for sale, based on identifying ‘wildlife’ as wild species beyond the traditional domestic or livestock animal. Species disputed as to their domestic or wild status were included if they are listed on the IUCN Red List, due to the Red List’s stated exclusion of ‘domesticated taxa’. We compiled data retrieved from the searches relating to all non-domesticated amphibians, reptiles, birds, and mammals, and excluded plants, invertebrates, fish, and livestock. A ‘snowball approach’ was used to identify additional relevant sources (i.e., articles that were not returned by the systematic search) by reviewing the reference sections of included articles to identify additional studies previously unidentified via the search term listed above.

In addition to the semi-systematic review, we searched for additional relevant online sources in among grey literature. We included pertinent grey media from sources such as government documents, open access databases [for example the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Register of operations that breed Appendix-I animal species for commercial purposes, (CITES Register of Captive Breeding Operations, 2022)], reports from technical specialist groups (such as those operating under the IUCN), NGO reports, reputable media outlets and commercial breeding facility websites. The source materials used as references for the data are included in Supplementary Material 1 and the full list of peer-reviewed articles identified in the semi-systematic literature review are included in Supplementary Material 2.

From the compiled literature we recorded information to create a database of wildlife farmed for commercial purposes, including the species being farmed, the global distribution of farming facilities, and the volume of individual animals farmed. Specifically, we extracted the names of species, numbers of individuals and countries with facilities from the source material. We subsequently searched the IUCN Red List of Threatened Species and the CITES Appendices to determine the corresponding classifications of each species identified in the

source material. Figures to illustrate the summary of this information were created in QGIS version 3.22 and R Statistical Programme (R Core Team, 2022) version 4.2.1 using the package ggplot2 (Wickham, 2016).

Where species have been taxonomically reclassified since the source article was published, we refer to the new taxonomic classification in the database to enable us to record the current corresponding classifications on the IUCN Red List and CITES Appendices. The original species name reported in the source material is recorded in Supplementary Material 1 (see the cell comments). Additionally, we found some variation between source materials for the common names attributed to species with identical scientific names. In these instances we used the common name listed for the species on the IUCN Red List. Where this was not applicable, we used the common name from the most recently published source. Where sources post-dated our selected time period, but the data included in the article was from during the time period, it was included in the database. It is possible that some of the countries listed in our database may no longer have commercial facilities in operation: we excluded countries where sources specified that industries had closed, but we did not check for the current status of each country beyond our compiled literature, and thus some changes may not have been recorded since the source material was published. Terminology relating to countries was taken directly from the source material, and thus may not reflect geographic or political changes to country names at present. In our database, the recorded number of individuals farmed for each species is presented as a minimum and a maximum statistic where applicable (Supplementary Material 1). For example where two sources report different numbers of individuals of the same species farmed in the same country. Where different sources reported figures for a given species for different countries, we combined these figures for the cumulative number of individuals per species globally. When only one statistic was available in the literature, we recorded that as a minimum statistic. Some sources only identified wildlife to family level, genus level or referred to them by their group common name. These are detailed in a separate tab (Supplementary Material 1, Tab 2) to avoid double counting with members of the same family or genus identified to species level. In instances where wildlife was identified to a family or genus level, but no other species of that family or genus was identified to species level, this was included in the main dataset as an “unidentified species” (Supplementary Material 1, Tab 1).

Freedom of Information requests

We submitted Freedom of Information requests to a number of government authorities requesting permit information or records pertaining to commercial wildlife farms in their country or region. We requested that each authority provide relevant available data for: (1) the number of commercial operations with active permits to farm wild animals, (2) the purpose for each commercial farming operation, (3) a list of species held on each commercial wildlife farm, and (4) the number of individual animals of each species held on each commercial wildlife farm. We also requested that each authority provided their definition of what constitutes a commercial wildlife farm, as this is likely to vary between countries and regions. We submitted requests in the following 12 countries: Australia (submission per each state authority), Botswana, Brazil, Canada (submission per each provincial authority), India, Kenya, Namibia, The Netherlands, Tanzania, Thailand, Uganda, and Zimbabwe. Data was also obtained from Denmark, although this information is available open access to citizens online and therefore did not require an FOI request. The USA was excluded due to a lack of relevant agency that has oversight of commercial wildlife farming and a patchwork of applicable regulations that differ between species and locations. The countries where FOIs were submitted were selected based on feasibility, specifically, they are countries where the author's organisation have operating offices and local staff who assisted with the information requests.

The purpose of requesting data directly from government authorities was twofold: firstly, to obtain current data that reflects the present situation for commercial farms following changes to the industry during the COVID-19 pandemic. Secondly, to explore whether obtaining information directly from regulating authorities could provide comprehensive, transparent records of the industry following that we found compiling this information from online sources to be inconsistent and unreliable. We acknowledge that the limited number of countries we submitted these requests to, and the non-random selection of these countries, means that our results are not reflective of the industry as a whole at a global level. Despite this limitation, we feel that the sample can act as a pilot study to demonstrate the challenges faced when trying to obtain wildlife farming data from regulating authorities around the world, which is discussed in further detail later in this article.

Where species are listed in more than one CITES appendix, they were included once in the figure in the highest level of protection appendix. For example, species who have populations listed as I/II, are only included in Appendix I on the figure.

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