



# Cruel cures

The industry behind bear bile production and how to end it



# Contents

Foreword.....	3
Executive summary.....	4
Background/Introduction.....	7
Understanding the context: bear bile in the traditional medicine industry.....	7
Examining the current status of bear bile farms across Asia.....	9
China.....	9
Lao People’s Democratic Republic (PDR).....	10
Myanmar.....	10
South Korea.....	11
Vietnam.....	11
Japan.....	11
Highlighting welfare concerns for bears on bile farms.....	12
Linking bear farming and wild bear conservation.....	13
Legislation governing trade in bear products.....	14
International bear trade regulations.....	14
Domestic bear trade regulations.....	15
New studies and methodologies.....	18
Results.....	20
Products and trade.....	20
International trade of bear bile products.....	20
Bear bile market in China.....	27
Bear bile market in Japan.....	29
Bear bile markets in South Korea, Myanmar and Vietnam.....	32
Bear bile alternatives and substitutes.....	34
Consumer attitudes.....	37
Consumer demographics.....	37
Consumer influences.....	38
Consumer attitudes towards herbal and synthetic substitutes versus real bile.....	39
Consumer understanding of the medicinal value of bear bile products.....	40
Consumer attitudes towards the cruelty associated with bile farms.....	41
Consumer attitudes towards making bear bile products illegal.....	43
Consumer attitudes towards continuing the trade.....	43
Consumer study limitations.....	45
Conclusions and recommendations.....	46
Recommendations to all national governments.....	47
Recommendations to CITES secretariat and parties.....	49
Recommendation to companies manufacturing or trading in bear bile products and traditional medicine practitioners.....	49
Appendix 1.....	50
Appendix 2.....	58
Appendix 3.....	60
References.....	64

**Cover:** An unnamed 14 year old female bear looks through its cage. Photo credit: World Animal Protection / Tim Gerard Barker

# Foreword

The demand for wild animals being used for medicine is rooted in traditional uses or beliefs. It is based on speculation that wildlife parts can cure illnesses, fuelling the global wildlife trade and has led to industrial-scale farming of wild animals, such as bears. Not only does this cause unimaginable suffering to millions of animals, it also puts every person on the planet at risk from zoonotic diseases that originate from animals.

With COVID-19 only being the latest in a series of global disease outbreaks believed to have originated from wildlife, the link between exploiting wild animals and global health risks can no longer be ignored.

Sixty percent (60%) of emerging infectious diseases are zoonotic, and of these zoonotic diseases, 70% are thought to originate from wild animals.<sup>a</sup> Close proximity of humans to wild animals elevates the risk of infection.<sup>b</sup>

Not every zoonotic disease needs to be an emerging disease or become a pandemic to cause severe suffering. Collectively, zoonotic diseases are responsible for over 2 billion cases of human illness and over 2 million human deaths each year.<sup>c</sup> This includes farming of livestock where people are regularly in close contact with animals. When these animals are kept in poor welfare conditions, it increases their chances of developing diseases leading to zoonoses, such as tuberculosis, leptospirosis or bovine spongiform encephalopathy.

Farming of wild animals, such as bears for their bile, combines two critical factors for the occurrence of zoonoses: close proximity management of animals, and keeping of wild animals in poor conditions. This combination amplifies the risk for public health.

In response to the COVID-19 outbreak, the government of China has recommended, among many plant-based traditional medicines (TM), a pharmaceutical bear bile product for the treatment of severe symptoms caused by COVID-19.<sup>d</sup> It is tragic and ironic that the Chinese government recommends the use of a wildlife product to treat symptoms of a pandemic born from using wild animals.

. We call on the Chinese government to limit their TM-based recommendations to the many viable plant-based remedies acknowledged as substitutes for wild animal products.

Now is the time for governments, organisations and nations to unite to ban the global wildlife trade, including wildlife used for medicine such as bear farming. This will end the horrific stress and suffering of animals, which creates a lethal hotbed of disease and help to prevent the risk of future pandemics – a very real crisis that we are all living through today.

In 2020, both China and Vietnam have put temporary bans in place on the trade of wildlife for food consumption. But, unless these bans are made permanent, properly enforced, and comprehensive by including all uses of wild animals, such as using parts for traditional medicine – the risk will never go away.

**Jan Schmidt-Burbach, PhD, DVM**

**Global Head of Wildlife Research and Animal Welfare**

<sup>a</sup> Jones KE, Patel NG, Levy MA, Storeygard A, Balk D, Gittleman JL, Daszak P; Global trends in emerging infectious diseases; *Nature*, 451(990-993), 2008

<sup>b</sup> Schmidt-Burbach J, Watkins V, D'Cruze N; The Disease Costs of Wildlife Market – A Perilous Price to Pay; *Commonwealth Veterinary Journal*, 2014

<sup>c</sup> Grace D, Mutua F, Ochungo P, Kruska R, Jones K, Brierley L, Lapar L, Said M, Herrero M, Phuc PM, Thao NB, Akuku I and Ogotu F; Mapping of poverty and likely zoonoses hotspots; Zoonoses Project 4; Report to the UK Department for International Development; 2012

<sup>d</sup> Chinese Center For Disease Control and Prevention; 新型冠状病毒肺炎诊疗方案（试行第七版）；2020  
[http://www.chinacdc.cn/jkzt/crb/zl/szkb\\_11803/jszl\\_11815/202003/t20200305\\_214142.html](http://www.chinacdc.cn/jkzt/crb/zl/szkb_11803/jszl_11815/202003/t20200305_214142.html)

# Executive summary

**Taken from the wild or bred in captivity, confined to small cages, deprived of their natural lives and behaviours, enduring poor health and diseases...**

Descriptions of the lives of bears farmed legally and illegally for bile from their gall bladders are not easy to read. However, such appalling suffering is the shocking reality for about 24,000 bears farmed for traditional Chinese medicine in China, Vietnam, Myanmar, Lao PDR and South Korea. Their bile is used to treat a host of illnesses and wellbeing issues ranging from liver cancer to hangovers.

In China alone the legal bear bile industry is worth more than US\$1 billion and operated by big brand pharmaceutical companies. The illegal trade in bear bile spans countries including the USA, Canada, Japan, and most countries bordering China and threatens wild bear populations as well.

However, the difference between legal and illegal products is often blurred. We believe that in some cases legal products may contain illegally obtained and traded bile and wild and farmed bear bile.

## Researching the industry

This World Animal Protection report is an extensive review of the industry conducted from 2015-2018. Through 11 studies we researched the trade in the countries where it occurs, demand for bear bile products and major bile manufacturing centres - China and Japan.

We also examined the international and domestic laws that protect and fail to protect bears involved in the trade. We questioned more than 6,000 bear bile consumers and members of the public about their attitudes to bear farming and bile use. This revealed that many would consider herbal alternatives if effective and competitively priced.

Our researchers identified 32 herbal alternatives to Ursodeoxycholic acid (UDCA), bear bile's medically active ingredient, already included in the medical reference literature of traditional Chinese medicine. Although not yet widely promoted to bear bile consumers these alternatives have the power to replace bear bile on the market and end the suffering of thousands of bears.

## Suffering in numbers

Most captive bears kept for their bile are held in China, where legal bear farms hold around 20,000 bears; another 2,000 may be farmed illegally. In 2019, in total, 436 bears were held on farms in Vietnam, where bile extraction is now illegal and in decline, but still happens illegally. Around 116 were kept on farms in Lao PDR and 120 in Myanmar. Farms in Myanmar and Lao PDR which border China feature strong Chinese investment.

In total 479 bears remain on South Korean farms to be slaughtered for their gall bladders which contain the bile. However, South Korean farmed bear numbers are declining sharply. The South Korean government is phasing out the farming after working with World Animal Protection and Green Korea United to sterilise all remaining captive bears on bear farms.

Wild bear populations are affected by the bile industry too - some consumers believe that wild bile is more potent. In the Asian countries where they are farmed, Asiatic black bears and sun bears are hunted and killed for their gall bladders, while others are hunted and taken live to the farms. Because these bears face a high risk of extinction, hunting poses a serious threat to the survival of both species. Wild bears are also hunted and killed in the USA, Canada, Japan and Russia for their gall bladders.

## Extracting cruelty

In China, bear bile is commonly extracted from continuously restrained live bears using the 'free-dripping fistula technique'. This involves inserting a stainless-steel catheter through a surgically created fistula to produce a canal leading directly into the gall bladder. Fluid is drained daily. It is so painful that observers report the agony endured by bears who quiver and moan throughout the draining process.

Farmed bears also suffer intensely from infected surgical wounds, hernias, tumours, bone deformities, parasites and other conditions including liver cancer. Yet we found consumers remain largely oblivious to their suffering and the risks to human health involved. Most wrongly believe that the big brand pharmaceutical companies involved in bear bile medication production would have high standards of welfare and safety.

**In China alone the legal bear bile industry is worth more than**



**billion USD**

# Our key findings

## Products and trade

Our researchers found a persisting demand for legal and illegal bear bile products worldwide. The highest demand for bear products is from Chinese and Vietnamese nationals, including Chinese people living overseas and Chinese tourists abroad.

Bear bile products were found on sale in Canada, the USA and Japan. Stock ranged from raw bear products, such as powdered bile, liquid bile or gall bladders to manufactured medicine containing bile. All manufactured products seemed to be produced in either China or Japan, while raw bile products were declared as originating from Russia, the USA, Canada, Austria or China. This suggests that China and Japan are primarily exporting manufactured bear bile pharmaceuticals, while raw bile products may be sourced from a variety of locations, including local bear populations.

## Complex consumer attitudes

Consumer attitudes towards bear bile are complex. For example, our research in China found that Chinese consumers from high-education and high-income elite groups had the highest degree of knowledge of this industry. They also had the strongest desire to ban it and to participate in bear protection. Ironically, this same demographic group also showed the highest ratio of bear bile product consumption.

We also found most Chinese consumers strongly believed in the effectiveness of bear bile products. They were influenced by television adverts, family or friends, pharmacy staff and medical practitioners. Most were unaware of the cruelty associated with bear farming practices. They believed conditions for bears were adequate and that large companies provided a much better environment for the animals and better products.

Interestingly, most consumers showed a remarkable readiness to switch to alternatives without bear bile when convinced the alternatives compared well with bile in effectiveness, convenience and price.

Projections regarding consumer behaviour of urban Chinese people suggest a general decrease in desire to consume bear bile. However, our research did not extend to rural populations. Ninety percent of those that have consumed it in the past say they will not do so in the future. This non-consumption trend is supported by a previous study which showed that 60-70% of Chinese and Vietnamese consumers could be influenced to give up bile consumption.

Given the quantitative study findings, it is likely that if people understand the cruelty endured by bears on bear farms, they will be more opposed to bear farming. However, availability and awareness of viable substitutes to bear bile is crucial to support such opposition.

## Bear farming, bile and the law

Internationally, the trade in bears and their body parts is regulated by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Appendix I CITES-listed species – such as the Asiatic black bear – are the most endangered species among CITES-listed animals. No international commercial trade of Appendix I species or their parts is allowed. However, domestic laws in China, Lao PDR, Myanmar and South Korea allow the keeping of Asiatic black bears in captivity and farming for their bile.

Unfortunately, it is comparatively easy to disguise products, or parts of bears falling under CITES Appendix I, as coming from bear species with less stringent protection. Because it is difficult to trace the source of bear parts, bear gall from protected species can be traded under the pretence of being legal where a legal market for them exists. In Japan, this research identified many bear parts with suspicious trade routes indicating such disguise.

## Ending the cruelty – promoting alternatives

There is evidence of declining demand for bear bile products in Vietnam and South Korea, thanks to government and NGO action. But the misery and suffering caused to bears by the traditional Chinese medicine trade is far from over.

China's legal bear bile market is supporting farms that keep more than 20,000 bears in poor conditions. The demand from the Chinese market is also driving bear farm industries in neighbouring countries such as Lao PDR and Myanmar, and bear poaching in other countries.

To protect bears from this unacceptable suffering, governments, whose countries support bear bile farming and the trade must take the following urgent actions.

**Comply** with CITES resolutions and decisions to reduce the demand in the illegal trade in products containing bear parts and derivatives.

**Ensure** their citizens fully understand the welfare and conservation issues caused by traditional Chinese medicine products containing bear bile.

**Discourage** or ideally ban the promotion and advertising of bear bile products.

**Promote** herbal or humane synthetic bear bile substitutes.

**Implement** policies to prevent breeding of captive bears and better protection of wild bears from poaching.

Companies manufacturing or trading in bear bile products, traditional medicine practitioners and consumers must also protect bears by implementing stricter policies. They must also promote or request sustainable and viable substitutes for bear bile when needed for medicine.

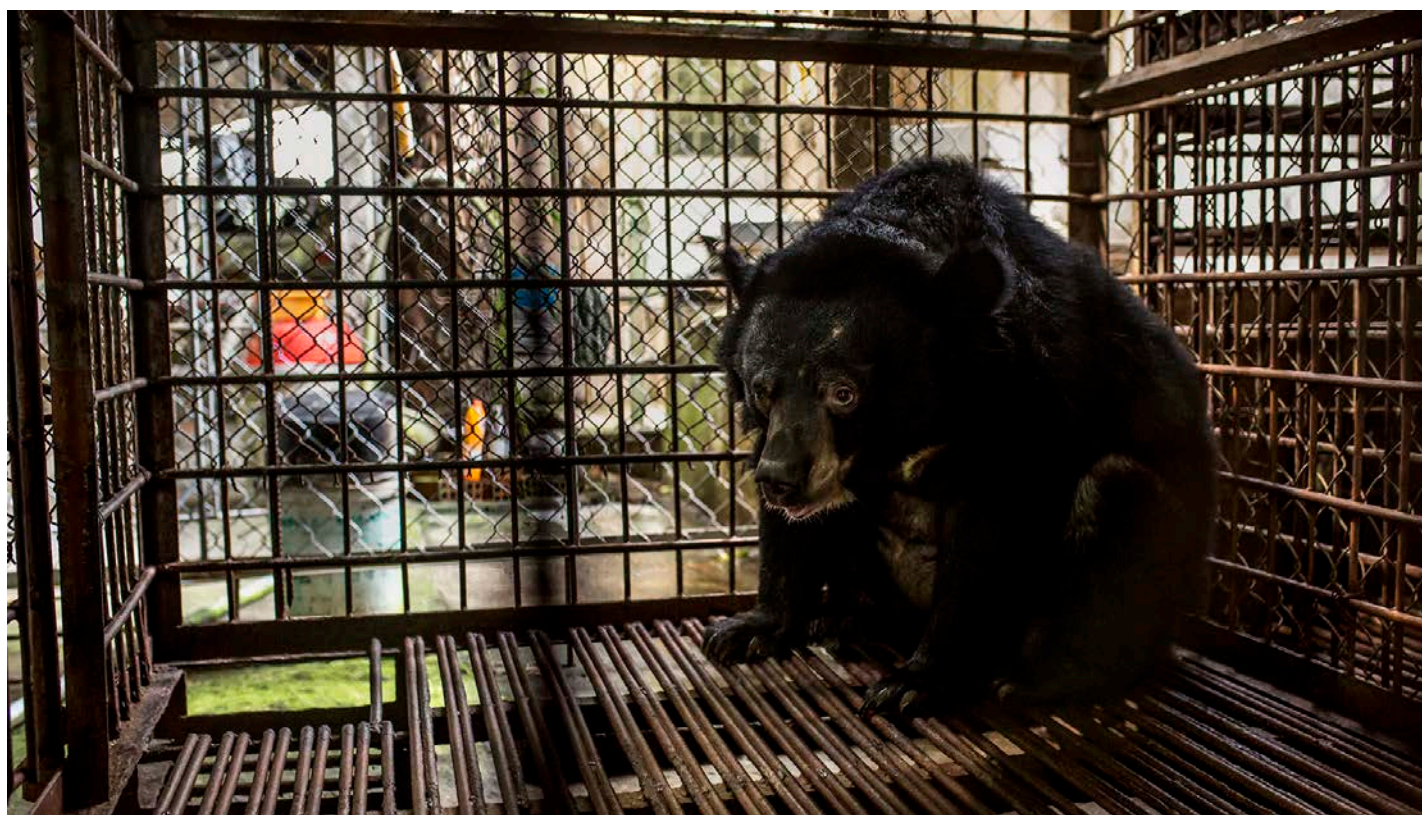
We spell out specific recommendations for them and for the governments of Canada, China, Japan, Lao PDR, Myanmar, South Korea, the USA and Vietnam at the end of this report.

Encouragingly our research shows that very few people maintain a neutral or pro-attitude to bear farming when made aware of the cruelty of the industry. Bear bile extraction directly challenges the moral principles of the public.

Making people worldwide aware of the appalling suffering involved and the effective alternatives available is key in driving down demand for bile products and ending bear farming for good.

**‘Making people worldwide aware of the appalling suffering involved and the effective alternatives available is key in driving down demand for bile products and ending bear farming for good.’**

**Below:** This Asiatic black bear has been kept captive in a very small cage for her entire life and used for bile until the extraction was made illegal in Vietnam in 2005. Photo credit: World Animal Protection / Tim Gerard Barker



# Introduction

## Understanding the context – bear bile and the traditional Chinese medicine industry

Around 24,000 bears are farmed for their bile and many are hunted worldwide to supply the trade. Although awareness of their pain and suffering is increasing, medicine containing bear products continues to be consumed by Chinese and Vietnamese nationals in Asia and communities worldwide.<sup>1,2</sup>

Bears have been used in traditional Chinese medicine practices for thousands of years. The use of bear body parts is described in the first official pharmacopoeia of traditional Chinese medicine in AD 659.<sup>3,4</sup> Japan and Korea adopted China's use of bear parts in traditional medicine practices centuries ago.<sup>5</sup>

'Bile', a digestive fluid produced in the liver and stored in the gallbladder, is the predominant component of most traditional medicine bear products.

Known as 'Xiong Dan Zhi' in Chinese, bear bile contains Ursodeoxycholic acid (UDCA). This substance is mostly prescribed to reduce cholesterol and treat liver and gallbladder diseases. It is also used to prevent and treat many other ailments ranging from hangover relief and inflammatory complaints, to curing cancer and preventing heart attacks.

Bear bile is consumed in a variety of ways – raw fluid or dried and ground up into powder or flakes. It is used in products including pills, ointments, capsules, plasters, balm and eye drops.

Plant and mineral-based alternatives are available and recognised by traditional Chinese medicine practitioners, but are not widely promoted.<sup>6</sup>

Since the 1950s, all UDCA for western medicine and its relation (TUDCA, Tauroursodeoxycholic Acid), have been produced by extracting common cholic acid, from livestock.<sup>7</sup> However, bear bile and bear gall bladders are still the primary sources of UDCA for traditional Chinese medicine.

Traditionally, wild bears were hunted and killed for their gall bladders. This process made bear products reasonably scarce and expensive, so they were predominantly reserved for very wealthy people or for very serious illnesses.<sup>4</sup>

Tibetan brown bears (*Ursus arctos pruinosus*) and Asiatic black bears (*Ursus thibetanus*) from north-eastern and northern China were typically hunted for their bile<sup>5</sup>. However, their declining wild numbers mean other bear species, such as American black bears (*Ursus americanus*), sun bears (*Helarctos malayanus*) and Himalayan brown bears (*Ursus arctos isabellinus*) are hunted for their bile too.

## Developing bear farms and cruel bile extraction methods

Declining bear populations in Asia led to the 1980s development of 'bear farms' which are responsible for widespread suffering. Bear farming involves keeping thousands of bears in captivity and regularly extracting bile from them throughout their lives.

The farms were set up to alleviate the pressure on wild bear populations. However, the availability and affordability of bear bile products has increased dramatically since the introduction of bear farming. Increased marketing to boost sales and prices became essential to make the farms profitable after the considerable investment involved<sup>8</sup>. This in turn legitimised and perpetuated bear product use.

This is of grave concern as the legal industry has also sustained or even increased the demand for wild bears.

Although bear farming's impact on wild bear populations is not yet quantified<sup>9</sup>, it is widely believed to be negative. This is because farming creates a demand for bile products but does not meet many consumers' stated preferences for wild bear products. Consequently, bears are taken from the wild to fulfil this demand. Illegal products from wild-caught bears can also be disguised and sold in China as legal products produced from captive bears.

Methods to extract bile from the galls of captive living bears were developed by North Korean scientists in China in the 1980s.<sup>10,11</sup> All techniques cause the animals severe distress. The 'free-dripping fistula technique' involves inserting a stainless-steel catheter through a surgically created canal (fistula) leading directly from the outside into the bear's gall bladder. Fluid is drained daily, either by gravity into a container, or by suction with a syringe.<sup>5,12,13</sup>

**'Around 24,000 bears are farmed for their bile and many are hunted worldwide to supply the trade.'**



**Above:** Bears kept for the bile industry are often kept in small, barren cages such as these. Photo credit: World Animal Protection.

The bear is restrained in a squeeze cage, unable to move, while the bile is drained. This procedure inflicts intense pain and stress and can lead to severe infections.

Despite the severe medical complications caused by the fistula technique, the Chinese government reconfirmed it in 2017 as the only acceptable way to harvest bile.<sup>14</sup>

Other countries use different procedures to extract bile. For example, in South Korea 10-year-old bears are slaughtered for their gall bladders and other parts. And in Vietnam, bears are sedated and their gall bladder punctured with a long needle to extract bile. This regular sedation, stressful restraint and the introduction of infections through the extraction needles cause the bears considerable stress and suffering.

### **Threat to wild populations**

The international trade in bears and their parts is the most imminent threat to Asian bear populations.<sup>9</sup> All native Asian bear species are listed in Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). This means they must not be traded commercially internationally.

Due to their decreasing numbers, it is also illegal to hunt and kill wild bears in China, Lao PDR and Vietnam. However, trading captive bears and their bile is legal in China. This creates a problematic loophole by enabling the misdeclaration of bear parts from wild bears as captive bear parts.

**‘The bear is restrained in a squeeze cage, unable to move, while the bile is drained. This procedure inflicts intense pain and stress and can lead to severe infections.’**

In Japan, regulations allow controlled hunting of the wild population. Bears can also be taken throughout the year as nuisance control, to reduce crop damage and human casualties.<sup>15</sup>

World Animal Protection, other international NGOs and animal welfare groups have worked to end the bear farming industry for decades and mobilise public and governmental support against it. Consequently, two of the largest bear farming countries, South Korea and Vietnam, are in a phase-out period for bile farms.<sup>16-18</sup>

Unfortunately, bear farms in China remain large and support a billion-dollar traditional medicine-manufacturing industry. Wealthy Chinese nationals also appear to be expanding their commercial operations into nearby countries like Lao PDR and Myanmar. The industry is increasingly concentrating around the Chinese border.

China continues to promote traditional Chinese medicine internationally to expand its share of the estimated US\$50 billion global market. And in May 2019 the World Health Organization adopted its 11<sup>th</sup> global medical compendium, which included traditional medicine as a viable treatment option. This could make the plight of farmed bears even worse.

**‘The international trade in bears and their parts is the most imminent threat to Asian bear populations.’**





- A. China
- B. Lao PDR
- C. Myanmar
- D. South Korea
- E. Vietnam

## Examining the current status of bear bile farms across Asia

China, South Korea, Vietnam, Lao PDR and Myanmar all host bear farms in varying sizes and numbers. China dominates the market with the most bears and the most farms.

The following sections detail the industries in each of these countries.

### China

The domestic bear bile trade involving bile farmed from captive bears is legal in China and more than 20,000 bears suffer on around 68 licensed bear farms. A further 2,000 bears may be held on unlicensed farms holding fewer than 50 bears each.<sup>19</sup> Pharmaceutical companies invest heavily in the farms to meet the demand for traditional Chinese medicine products from Chinese nationals and government hospitals.

Chinese laws and regulations on wild animal protection advocate the breeding and commercial use of captive wild animals on a large scale. The favourable regulations and profit margins for wild-animal-based products stimulate market demands and increase the size of the market.

Bear bile is used in large quantities of government-licensed pharmaceutical drugs. Kaibao Pharmaceutical Co Ltd, a major bile-drug manufacturing company in China, buys an estimated 18 tonnes of powdered bile each year.<sup>19</sup> Bear bile is also often added to non-medical products, including toothpaste, cosmetics or alcohol.

Despite strong NGO-led efforts within China to close down some of the worst farms and initiate a phase-out, bear farming still happens on a huge scale.<sup>5</sup> A 2012 International Union for Conservation of Nature (IUCN) motion urged South Korea and Vietnam to continue phasing out their bear farm operations. However, it only urged China to close down illegal farms and not expand the industry further.<sup>20</sup>

In response, the former Chinese state forestry administration opted to halt expansion of the industry until bear farming's impact on wild bear populations was investigated. But this seems to have encouraged wealthy bear farm entrepreneurs to invest in nearby countries instead, particularly Lao PDR and Myanmar.<sup>16</sup>

Chinese investor influence in Lao PDR and Myanmar has increased the number of farmed bears in these countries since 2000. The largest farms in both countries are reportedly owned by the same Chinese family.<sup>9,21</sup> The second largest facility in Lao PDR is controlled by a Hong Kong-based group whose owner allegedly has links to anti-government forces in Myanmar.<sup>16</sup> This also suggests a heavy political influence by the Chinese market.

However, within China there are early indications of a significant shift towards bear protection. For example, Guizhentang, a major bear bile company that also owns bear farms, has tried repeatedly to become listed on the stock market to gain access to funding of their business operation. Their bid failed due to local public outcry on basis of animal welfare concerns.<sup>22</sup> And Kaibao Pharmaceutical Co Ltd, the largest bear bile company in China, is collaborating with the Shanghai University of Traditional Chinese Medicine to develop a substitute for bear bile - similar to products available in western markets.<sup>19</sup>

A Chinese policy think-tank report also recommends a phase-out of the bear farming industry.<sup>19</sup>

## Lao PDR

Bear farms were first recorded in Lao PDR in 2000.<sup>2</sup> Since then, the number of facilities across the country has remained quite low; the industry is still small compared to countries like Vietnam, South Korea or China. However, the number of bears on farms in Lao PDR tripled between 2005 and 2012, with no evidence that any bears were being kept legally.<sup>9</sup>

Between 2012 and 2017 the bear bile industry in Lao PDR has not notably increased, but shifted north towards the Chinese border.<sup>16</sup> Many northern farms are owned by Chinese investors. In 2017 around 116 bears were housed in four farms and in three tiger farms that also kept bears.<sup>16</sup> All bears were believed to come from the wild as no notable breeding exists in Lao PDR.

Lao PDR is a country of low economic wealth. Its commercial bear industry is predominantly driven and funded by Chinese and Vietnamese nationals. Many bear bile trading hotspots in Lao PDR cater to Chinese international tourists.

Since the prohibition of bile extraction and bile sale in Vietnam, and restrictions on farm expansions in China, Lao PDR has become an important bear bile hub for international investors.<sup>9,16</sup>

Due to insufficient law enforcement and a poor economy, the country is a centre for illegal wildlife trade in Southeast Asia.<sup>2,23,24</sup> Its geographic placement between China, Myanmar, Thailand and Vietnam, ensures accessible and lucrative trade routes.<sup>9</sup>

Bear farms in Lao PDR's north are expanding, while those in the south are in decline.<sup>2</sup> The northern farms are concentrated within four Special or Specific Economic Zones and receive benefits from a wide range of business incentives. These include reductions on import taxes, and lower taxes on foreign corporate profits compared with domestic enterprises.<sup>2</sup>

These zones feature high Chinese investment. They are run by Chinese nationals, prices are given in Chinese yuan, some locations use Beijing time, and mobile phones are on Chinese networks. Many of the expanding bear bile farms are also located in the zones where the Lao PDR government appears reluctant to enforce laws.<sup>2</sup>

The number of commercial bear facilities in Lao PDR has remained fairly stable in the last five years, but captive bear numbers will rise if the two northern Chinese-owned facilities continue expansion.

In recent conversations with NGOs, the Lao PDR government has expressed a willingness to end bear farming. It says it plans to audit all commercial bear facilities and close one northern bile extraction facility, if a suitable place can be found to rehome the bears.<sup>2</sup> A bear sanctuary, run by NGO Free the Bears and based in Lao PDR, provides high-welfare care to confiscated bears. However, the expressed governmental willingness has not yet led to tangible actions.

## Myanmar

Around 200-300 bears are traded annually in Myanmar, most are wild sourced. There are some bear farms producing bear bile and bear parts most likely aimed at the Chinese market; Chinese traders are involved in farming and the trade.

Chinese investors have started investing in Myanmar bear farms and extracting the bile for producing bile medicine. This is in response to the temporary halt on bear farming expansion in China.

A World Animal Protection supported survey, conducted by Biodiversity and Nature Conservancy Association in 2016, found six bear farms in Myanmar keeping a total of 120 bears. The farms are based in the Pangkham and Mongla regions close to the Chinese border.

Qualitative data from traditional Chinese medicine shop vendors, indicates most bears on the farms are wild caught in the Shan region and some are from Vietnam. Four of the six farms sell bears and their parts including entire gallbladders; and two keep bears for bile extraction.

## South Korea

It is illegal to extract bile from bears in South Korea while they are alive. However, it is legal to slaughter the animals for their whole gall bladder when they are 10 years old. By June 2019, there were 479 bears remaining on farms in South Korea compared with 1,400 kept from 1981 until the mid-2000s.<sup>17</sup> This decline is largely due to initiatives from the South Korean government, working with animal welfare NGO Green Korea United and World Animal Protection, to phase out the trade.

Green Korea United and World Animal Protection facilitated an agreement between the South Korean government and the bear bile industry in 2014. The agreement aimed to improve the protection of the bears and give farmers an incentive to sterilise their bears.<sup>16,17</sup>

All farmed bears were sterilised by 2017 to ensure no future generations of bears are held captive on farms. The Korean government also committed to no breeding for the bear bile industry from other sources (eg from zoo bears).

Despite this, there are recent cases of illegal breeding of farmed and zoo bears. World Animal Protection and Green Korea United are working with the government to improve the monitoring system and increase penalties for illegal breeding. This is to ensure that no new bears enter the industry from other sources.

## Vietnam

The number of bears kept on Vietnamese farms is declining: reducing from around 4,500 to 1,250 individuals in 2016 and to 436 in 2019.<sup>18,25</sup> In 2005, the ministry of agriculture and rural development outlawed bile farming in Vietnam. All bears kept on farms must be microchipped and registered to the government; bile extraction is banned.<sup>26,27</sup> However, because it is still legal for farmers to keep the bears already on the farms, there is a loophole which means illegal bile production continues.

Since this law was introduced, Vietnamese NGO Education for Nature Vietnam (ENV), with World Animal Protection and other partners, have focussed on strengthening law enforcement. They have also encouraged public participation in stopping the illegal trade and reducing the demand for bear bile consumption in Vietnam. This has led to a 61% reduction in bear bile consumption between 2009 and 2014.<sup>27</sup>

World Animal Protection and ENV provided equipment and training for the microchipping of bears in Vietnamese farms in 2006. They also introduced new cutting-edge, microchipping technology in 2015. From 2015 this new technology made it easier for the government to monitor the number of bears on farms. This led to unregistered and/or unchipped bears being confiscated and taken to three sanctuaries operated by the NGOs Animals Asia Foundation, Free the Bears, and Four Paws International (see below).

The closure of several Vietnamese-owned farms in south Lao PDR indicates that Vietnamese foreign investment in bile farms is also decreasing.<sup>16</sup> But the process to end bear bile farming in Vietnam is still challenged by legal loopholes and a lack of clearly defined end goals from the government.

In 2017 the government agreed to end bear bile farming and rescue all captive bears across the country. They also agreed to close the legal loophole allowing people to keep bears despite the illegality of the bile trade. However, no significant changes in legislation have been made.<sup>26</sup> World Animal Protection and ENV are working with the Vietnamese government to ensure that breeding occurs only for actual conservation purposes.

## Japan

Japan does not officially operate any commercial bear farm facilities, but Japanese 'bear parks' hold more than 400 bears for entertainment purposes.<sup>28</sup> These bear parks were established decades ago and have frequently caused animal welfare concerns by keeping bears in barren enclosures and providing poor welfare conditions.<sup>28,29</sup> It is suspected that some bear parks trade in bear bile products from their captive bears<sup>30</sup> and that zoos and private bear collections may support illegal bear farming in Japan.

Japanese pharmaceutical companies claim to import the bulk of raw bile from Russia and China to manufacture bear bile products that may be sold internationally. Bears are also hunted for sport in Japan and their gall bladders sold.

**'The process to end bear bile farming in Vietnam is still challenged by legal loopholes and a lack of clearly defined end goals from the government.'**

## Unacceptable suffering – welfare concerns for bears on bile farms

Bears farmed in Asia endure many physical and psychological problems. A World Animal Protection survey conducted in 2000 found cruel and grossly unacceptable conditions. All assessed farms provided unsuitable housing and caused behavioural abnormalities including the bears hitting their heads against cage bars or rocking back and forth continuously. The bears suffered intensely from surgical wounds, bone deformities, parasites and other conditions. Farms also took or bought bears from the wild to supplement their farmed populations.<sup>11</sup>

A further major study covered 50 bear farms and the care of approximately 250 rescued bears. It highlighted severe chronic physical and psychological suffering. These particularly related to the ways the bears were kept and medical complications caused by gall bladder fistulation legally required on Chinese bile farms in China.<sup>12</sup>

The study found that the bears were suffering from osteoporosis and fibrous bone malnutrition caused by inadequate nutrition. This meant they had severely swollen jaws, making it difficult for them to breathe, eat and drink.<sup>11</sup> The bears were also suffering from extreme pain caused by their daily bile extractions. The open wounds in the extraction area caused infection, chronic illnesses and death. Causes of death included liver cancer, hernias in the gall bladder wall, gall stones, inflamed gall bladders, polyp formation and obstruction of the urine bladder duct.<sup>5</sup>

### Distress and pain

A 2018 study into the challenges and conservation implications of bear bile farming in Vietnam<sup>26</sup> also highlighted intense suffering. It found that Vietnamese captive bears endure diseases, abnormal behaviours and starvation through poor husbandry, insufficient expertise by caretakers and cruelty through negligence.

There is also increasing evidence regarding the stress suffered by farmed bears. At least two major studies reported signs of significant stress indicated by a range of abnormal behaviours in the bears.<sup>11,12</sup> These include self-mutilation – eg the biting of their limbs and stereotyping, or pathological repetitive behaviour. This can involve constantly rubbing their coats against cage bars until their skin develops wounds, making their skin raw.

The studies also found that the bears were exhibiting signs of depression – they showed no reaction to sounds or activity. Behavioural abnormalities are often considered first indicators for serious stress which causes suffering and leads to further development of illnesses in captive animals.<sup>11,31</sup>

This is further evidenced by another study measuring cortisol – the stress hormones – in bears in China which found greater levels of glucocorticoids in farmed bears.<sup>32</sup> These cortisol levels decreased after bears were removed from farms.

Hours of video evidence, first-hand accounts, expert opinion and scientific literature from countries where bear farming is practiced were reviewed for a 2000 study. It concluded that the living and environmental conditions fail to meet internationally recognised standards to keep captive bears mentally and physically healthy.<sup>11</sup> This was supported by renowned stress biologist Professor Frederick Toates. He stated that animals kept under conditions like those on Asian bear farms will be in a state of very high stress and suffering.<sup>11</sup>

Conditions for farmed bears have improved slightly in China and Vietnam over the past 20 years regarding the way bile is extracted. There have been some minor husbandry improvements such as increased cage sizes in Vietnam and abandoning the use of steel-harnesses for bile extraction in China. However, there is no humane method of bile extraction and the conditions for bears remain extremely poor.

Studies by Animal Asia Foundation have continued to highlight severe welfare concerns for bears in the industry.<sup>12,33</sup> All evidence shows there is clearly no humane way to farm bears for their bile and the practice should be eliminated.

**‘There is no humane method of bile extraction and the conditions for bears remain extremely poor.’**

## Linking bear farming and wild bear conservation

Wild populations of Asiatic black bears have been shrinking by 30% over the past three decades and are projected to decline more than 30% over the next 30 years due to habitat loss and hunting.<sup>34</sup> Bear farming is widely suspected by many conservationists to have a negative impact on wild bear populations, but this has not yet been directly quantified.<sup>34,35</sup> However, bear farms are likely to increase threats to wild populations in the following ways.

First, widespread availability of affordable bear products derived from bear farms drives consumer demand.<sup>4,9,34,35</sup> So when captive bear farms struggle to maintain supply, local wild bears are hunted to maintain stock, or to collect wild gall bladders destined for the trade.

Second, bear farms in many countries rely on bears caught in the wild. This directly and negatively affects local bear populations.<sup>16,26</sup>

Finally, depleting populations in Asia have created a market for bear parts from other continents. Bears in Canada, the USA and Russia are hunted and traded internationally, to meet the demand in Asia or Asian diaspora abroad.<sup>36</sup> Bears in the USA and Canada are poached for their galls and sold to dealers who sell them onto the international market.<sup>36-38</sup>

In Vietnam, very little breeding occurs on bear bile farms. Before the industry's recent decrease, wild-sourced bears were heavily relied upon to stock the facilities.<sup>9,26,30</sup> A study that conducted interviews with Vietnamese bear farmers revealed that 94% of the farmers said breeding bears in captivity was difficult and usually unsuccessful. Sixty two percent admitted the bears on their farms were wild caught.<sup>26</sup> Methods like snaring, which do not require much hunting skill, were commonly used. The introduction of bear farming in Vietnam coincided with a large decrease in local wild bear populations.<sup>26</sup>

In Lao PDR, captive bear populations tripled between 2008 and 2012. There was no evidence of any breeding facilities or paperwork showing lawful acquisition,<sup>39</sup> so the increase most likely represents bears illegally sourced from the wild.

Live bears, especially cubs, are captured and sold to bear bile extracting facilities and taken across borders to China, Myanmar and Vietnam.<sup>9,30</sup> No facility surveyed in Lao PDR appeared capable of breeding bears, according to a 2018 study, and this suggests that wild-caught bears are used to replenish stock on captive farms.<sup>16</sup>

Consumer preference for wild bear bile over farmed bear bile sustains the demand for bile from wild-caught bears, despite the availability of a legal, farmed bile product. It is also often impossible to visually identify the species and origins of bear parts.

**Right: Sedated bear on bear farm in southern Vietnam. Photo credit: World Animal Protection / Danny Bach.**

This means, bear species' parts protected under CITES Appendix I regulations can be disguised as CITES Appendix II listed species that fall under less stringent trade regulations. It is also difficult to trace the source of bear parts. Consequently, galls can be traded under the pretence of being legal where a legal market for them exists.

Widespread public perception that wild bear bile is better than farmed bile means the demand for wild-sourced bile will continue in countries where captive bear products are legally available.

### Consumer attitudes towards wild versus farmed bile

Previous studies suggest that the 'strength' of a wild animal is particularly valued by consumers. This leads to the perceived medical benefits of wild-caught animals over farmed animal counterparts that are considered 'weaker'.<sup>1,40,41</sup> This belief is further exaggerated by traditional Chinese medicine practitioners who believe that wild animal products are more 'potent'.<sup>1,42</sup> They also emphasise that wild bile is rarer and so holds greater prestige.<sup>1,43</sup>

A 2011 study of Chinese consumers found they were willing to pay considerably more for wild bear bile than farmed. Their behaviour suggested that introducing farmed products may actually increase demand for wild bear bile products.<sup>4</sup>

A 2016 study found that Lao PDR respondents to a bear product survey expressed preference for wild over farmed bear products believing they were more potent.<sup>1</sup> However, in that study Chinese respondents in Lao showed no preference either way.<sup>1,44,45</sup>

A 2019 survey of Vietnamese bear consumers showed most participants' main concern was product authenticity. This meant whether it genuinely contained bear bile, regardless of whether the bear was farmed or wild.<sup>46</sup> Even this indifference is of concern as it suggests a readiness to purchase bile from any origin and could stimulate wild captures.



## Legislation governing trade in bear products

### International bear trade regulations

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is an international agreement between governments. It regulates the international trade of listed species of wildlife and covers bear products. All species recognised by CITES as needing protection are listed in one of three appendixes. Appendix I and Appendix II are of primary international regulatory importance.

Appendix I species are the most endangered species among CITES listed animals. Their international trade is strictly governed. No commercial trade of Appendix I species or their parts is allowed. However, Appendix I species captive bred at a facility registered with the CITES secretariat in Switzerland would be considered Appendix II species. This allows for commercial trade if it is non-detrimental to wild populations.

Appendix II species require an export permit before they can be commercially traded. An export permit must be issued in accordance with Article IV of the Convention. This requires that the 'Scientific Authority' of the CITES secretariat assures that the trade is non-detrimental to the survival of the species in the wild.

The CITES management authority must be satisfied that the specimen was legally acquired and will be prepared and shipped to minimise risk of injury, death, or damage to animal health. If it is an Appendix II captive-bred specimen, it may be exported with a 'captive breeding certificate'. In this case, the management authority just must be assured that the specimen meets the definition of 'bred in captivity', in line with Resolution Conf. 10.16.

The treaty is implemented by all signatory countries to CITES (known as 'Parties') and concerns all eight bear species. These are the giant panda, sun bear, sloth bear, spectacled bear, Asiatic black bear, brown bear, American black bear, and polar bear.

The bear species are classified by CITES as either listed in 'Appendix I' or 'Appendix II', listed in the table below. There is no captive bear breeding facility worldwide registered as a CITES approved facility, so all captive-bred Appendix I specimens are prohibited from international commercial trade.

### CITES Appendix I



Asiatic black bear



Brown bears in China, Bhutan, Mongolia and Mexico



Sloth bear



Sun bear



Giant panda



Spectacled bear

### CITES Appendix II



Brown bears outside of China, Bhutan, Mongolia and Mexico



American black bear



Polar bear

In summary, any international commercial trade of Asiatic black bear, sun bear, sloth bear, spectacled bear, giant panda, and brown bear species from China, Bhutan, Mongolia, and Mexico, is illegal.

Non-commercial trade is legal providing import and export permits are issued per CITES Article III. International trade of polar bears, American black bears and brown bears from countries excluding China, Bhutan, Mongolia and Mexico is legal but strictly controlled. The trade requires the appropriate permits for Appendix II species as described above.

Countries party to CITES have an obligation to control illegal trade in CITES-listed specimens. If illegal trade is occurring, they should act to prevent that trade, otherwise this is a violation of the treaty. North Korea, Haiti, East Timor and Turkmenistan are not party to CITES and therefore have no such obligation.

Resolution Conf. 9.5 and Article X of the CITES treaty addresses trade with states not party to the Convention. Article X states that trade with these non-party states should require comparable documentation. This should be issued by the competent authorities in that state, and substantially conform with the requirements of the present Convention for permits and certificates. More detail about the requirements of comparable documentation, and recommendations for specimens in transit, is provided in Resolution Conf. 9.5.

While CITES governs the international legislation regarding bears and bear products, the national legislation for each country with a domestic supply of bear parts, can differ greatly. Domestic trade in bear bile is legal under strict regulation within mainland China, Japan, Lao PDR and South Korea. Domestic regulations within Canada and North America vary between states and provinces.

## Domestic bear trade regulations

### *China*

Domestic trade in bear bile is legal in China if bear parts originate from captive bears not wild populations. Wild bears are protected under the Wild Animal Protection Law (WAPL), enacted in 1989.

China amended the WAPL in 2016. But unfortunately, it is still legal to breed endangered species in captivity for commercial use. It is also legal for body parts to be used in traditional medicine, health-care products and food. The amendment also authorises provincial or municipal governments to issue permits for captive breeding.

Trading permits may be issued for products made from captive-bred specimens of protected species, if that species is included on separate 'utilisation' lists. The first versions of these lists were published in 2017. While bears are not currently listed, new species can be added at any time.<sup>47</sup>

China's food and drug administration is responsible for drafting relevant laws and regulations relating to the trade in pharmaceuticals. They are also responsible for formulating policies that oversee the safety and production of traditional Chinese medicine drugs.

### *Vietnam*

Extraction of bear bile and trade in bear parts is illegal in Vietnam, but legal loopholes enable a thriving illegal market.

Both native species of bear (the Asiatic black bear and the sun bear) are strictly protected under the country's Decree 160/2013/ND-CP. It is illegal to hunt wild bears or to own or trade bears that originate from the wild.

All bear bile farm bears were illegally sourced from the wild and therefore it is not legal for the farms to own them. Consequently, all farmed bears are required to be microchipped and registered to the government. However, farmers are permitted to keep registered bears on farms providing they are not extracting and selling or possessing bile.<sup>26</sup>

While extraction of bile from bears is illegal, no penalty exists for doing so and so the law has no real impact. Possession of bile, however, is punishable. This situation poses difficulties for law enforcement to monitor and prevent bile extraction, as bear farmers deny using the bears on their farms for these purposes. A 2018 World Animal Protection study found that up to 70% of bear farmers are regularly extracting and selling bear bile.

Regulations introduced in 2005 were intended to prevent any more wild-sourced bears from entering captive facilities. However, the illegal trade continued with many animals trafficked from neighbouring countries until 2012.<sup>9,12,33,48-50</sup> Recently, this influx of bears to bear farms has all but stopped through decreasing consumer demand for bear bile and steadily improving enforcement. Bear farms continue to decline in numbers and have dropped by 82% since the 2005 regulations came into place.<sup>25</sup> Vietnam is on the brink of ending bear farming.

**'Extraction of bear bile and trade in bear parts is illegal in Vietnam, but legal loopholes enable a thriving illegal market.'**

## South Korea

Products from bear farms in Korea can be legally traded domestically under licence.

The 'Management guidelines on bear farming', under the Wildlife Protection and Hunting Act state a bear can only be killed for their bile and body parts after they are 10 years old.

Article 8 of the Protection of Wildlife Fauna and Flora Act says it is illegal to extract bear bile from a live bear. Penalties for violation of this law include a maximum one-year imprisonment or a KRW5,000,000 (US\$4,470) fine.

A 2014 landmark agreement between the South Korean government and the Bear Farmers Association of South Korea resulted in a voluntary industry exit plan for bear farmers. The agreement facilitated by Green Korea United and World Animal Protection included a sterilisation programme to stop bear farmers breeding their captive bears for the industry. Sterilisation was completed nationwide by early 2017.<sup>17</sup>

## Lao PDR

In Lao PDR the Wildlife and Aquatic Law, 2007 relates to bears. This law prohibits hunting, catching and possession of bears and forbids the removal and/or possession of carcasses, parts and organs<sup>9</sup>. Species listed under this law as Category 1 (Prohibition) are classified as 'rare, near extinct, high value, and are of special importance in the development of social-economic, environmental, educational and scientific research'.<sup>2</sup>

A provision of the Wildlife and Aquatic law allows trade in stock specimens, parts and derivatives if the animals are captively bred at establishments with CITES permits. Bear farms can operate legally if they have these licences and if the bears are not of wild origin.

Since no bear farm is listed in the CITES register for captive breeding facilities, this suggests that existing farms are in breach of national regulations. Article 62 requires that commercial bear farms, or bears kept for household purposes are registered with the prime minister's office. They must be monitored by the department of forest resource management within the ministry of natural resources and environment.<sup>16</sup>

A new order issued by Lao PDR's prime minister outlined stricter regulations concerning the hunting and trade in protected species. Order No 5 issued on 8 May 2018, also prohibits the farming of protected species. It instructs that those found trading prohibited wildlife be investigated and prosecuted.<sup>2</sup>

## Japan

Domestic trade of bear products is legal within Japan, but restrictions apply. A 2008 study<sup>51</sup> describes trade regulations regarding brown bears and Asiatic black bears in Japan. To ensure consistency with CITES listings, both species' Japanese populations are designated as International Endangered Species (IES) to regulate domestic trade. Any domestic trade in bear fur and skin requires registration of products derived from an IES. However, such registration is not required for other parts such as gall bladder, paws, or meat, because of difficulty with species identification.

On average 2,000 wild bears are legally killed in Japan each year, either hunted for sport or killed as 'nuisances'.<sup>51,52</sup> However, body parts from these bears are not commonly used in the traditional medicine industry. This is because of their high price compared to imported bile and lack of stable supply. It is also illegal to produce, store, or sell bear gall to persons or organisations unauthorised by the ministry of health, labour and welfare. Consequently, it is difficult for hunters to sell bear gall legally to Japanese pharmaceutical manufacturers.<sup>51</sup>

In Japan, production and sales of pharmaceuticals and associated operations are regulated by the Pharmaceuticals and Medical Devices Act (PMD Act, the 2014 revision of the Pharmaceutical Affairs Act). The PMD Act defines bear bile products, including alcohol containing bear bile, as medicine. Bear bile products are also subject to 'The Act on Welfare and Management of Animals (Animal Act)' established in Japan 1973.

Article 41 dictates that:

- 1 In the case where an animal is provided for a scientific use, a method that minimises the pain and distress to the animal as much as possible shall be used.
- 2 Where possible, the number of animals provided for such use is reduced as much as possible or alternative methods are used.

This means in accordance with Article 41, bear bile medicine in Japan should not be made from bile from captive bear farms associated with cruel conditions. Bears should also not be hunted for the sole purpose of obtaining bile.



## USA

Bear protection legislation in the USA varies from state to state. A 2002 World Animal Protection report outlined that 34 states prohibited trade in bear parts, with three states allowing some exceptions.<sup>53</sup>

In total 14 states allowed trade in gall or parts in principle. Two states did not have regulations regarding the trade in bear parts. A bill introduced in Congress in 1996 aimed to protect bears under federal law. The 'Bear Protection Act', would have ended the USA's participation in bear product commerce by prohibiting the import, export and interstate trade in bear gall bladders. But the proposed legislation did not pass and there is not currently any pending federal legislation.

State legislation continues to be the primary means of addressing interstate trade but protections varies from state to state regarding the trade of bear parts, specifically gall bladders. This patchwork of state laws regarding trade in bear parts complicates enforcement of illegally imported products and support the presence of bear bile products for sale in the US.

Additionally, the Lacey Act prohibits the import, export, transportation, sale, receipt, acquisition, or purchase of wildlife or products from wildlife taken in violation of United States or foreign law. The Act provides significant penalties for violations in which the value of the wildlife exceeds US\$350. There are both criminal and civil penalties depending upon the nature and type of the violation.

A civil penalty can be as much as US\$10,000 if there is evidence that the violator should have been aware of the law. Fines are currently set at a maximum of \$100,000 for individuals and US\$200,000 for organisations. The Lacey Act prohibits import, export, and other activities related to illegally obtained wildlife.

## Canada

Within the Canadian provinces, different legislative acts allow differing levels of trade and/or possession in bear parts, specifically gall bladders. A 2002 World Animal Protection report noted that eight provinces (British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec and New Brunswick) and one territory (Yukon) prohibited the sale or possession of bear gallbladders while other provinces did not have such regulations.<sup>53</sup>

The report highlighted that penalties for the illegal trade in bear products ranged from CA\$4,000 to CA\$100,000 and up to two years' imprisonment. The 'Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act', is part of the federal law regulating both international and interprovincial export, transport and trade in wildlife products. However, within a province, provincial laws govern regulations on bear hunting and the possession or sale of bear products such as gall bladders.



**Left:** Asiatic black bears used in the bear bile industry, pictured on a farm in South Korea. Photo credit: Green Korea United.

# New studies and methodologies

To build on the earlier research and studies mentioned above, World Animal Protection conducted or commissioned 11 studies with local partners between 2015 and 2018. The objective was to provide an updated understanding of the trade, availability and consumption of bear bile.

These studies included: product surveys in various markets around the world, interview-based consumer attitude surveys, and in-depth economic reviews. The table below provides an overview of each study. Further information, such as the methodology employed in each study, is described in more detail in Appendix 3.

Study ID	Title	Year	Focus countries	Study type	Sample size
A	Vietnamese bear farmers' motivations and perceptions	2018	Vietnam	Focus on attitudes from within the industry. Face-to-face interviews with farmers	37 bear farmers interviewed throughout Vietnam (28 active bear farmers, 9 former bear farmers)
B	Reduce or Redirect? Which social marketing interventions could influence demand for traditional medicines?  Published in Biological Conservation, co-authored by researchers from Wildlife Conservation Research Unit, University of Oxford and World Animal Protection.	2018	Vietnam, China	Focus on consumer attitudes. Interviews conducted online	2,000 respondents (1,000 Vietnamese nationals and 1,000 Chinese nationals)
C	Investigating the availability of bear bile products on the global market	2018	UK Canada United States Japan	Investigation into bear bile product availability in traditional Chinese medicine shops and pharmacies	134 shops across 6 cities in 4 countries
D	Investigating the availability of bear bile products in South Korea	2018	South Korea	Investigation into bear bile product availability in traditional Chinese medicine markets in South Korea  In collaboration with Green Korea United	105 shops across 5 traditional Chinese markets in South Korea
E	Scale and economic value of the Chinese bear bile pharmaceutical industry	2018	China	Economic analysis of legally available bear bile products, product manufacturers and bear farms in China	N/A
F	Qualitative study on Chinese bear bile consumer attitudes and characteristics	2017	China	Focus on in-depth qualitative survey of consumer attitudes and general public perceptions. Focus group sessions conducted face to face	74 participants attended the focus group (Consumer group n=54, general public n=16)
G	Attitude of Chinese nationals towards bear bile extraction	2016	China	Quantitative survey on consumer attitudes and general public perceptions. Survey conducted online	1,892 participants across 10 cities (n=187-193 per city)

Study ID	Title	Year	Focus countries	Study type	Sample size
H	Analysis of change of bear bile use in Vietnam	2015	Vietnam	Focus on consumer attitudes and public perceptions. Interviews conducted via telephone, in collaboration with Education for Nature Vietnam	1,000 respondents from 3 cities across Vietnam (Hanoi, Da Nang and Ho Chi Minh City)
I	The bear trade and bear farms in border regions in eastern Myanmar	2016	Myanmar	An investigation into the presence of bear products in markets and traditional Chinese medicine shops in Myanmar, including gathering information from shop owners about bear trade locally	A desktop literature search and surveys of traditional Chinese medicine shops and markets across 5 different regions in Myanmar
J	A review of bear farming and bear trade in Lao PDR  (Conducted by Livingstone, Gomez and Bouhuys) <sup>16</sup>	2018	Lao PDR	Focus on documenting the current number of commercial bear facilities in Lao PDR	A survey of 7 commercial facilities, 4 bear farms, and 3 tiger farms that were reportedly also keeping bears
K	Review of bear bile trade in Japan  (Commissioned to Japan Wildlife Conservation Society)	2018	Japan	Desktop study reviewing illegal and legal sourcing of bears for the trade in bear bile in Japan	A desktop search of Japanese legislation and trade history concerning bear products



**Left:** A caged Asiatic black bear on a Vietnamese bear farm. Photo credit: World Animal Protection.

# Results

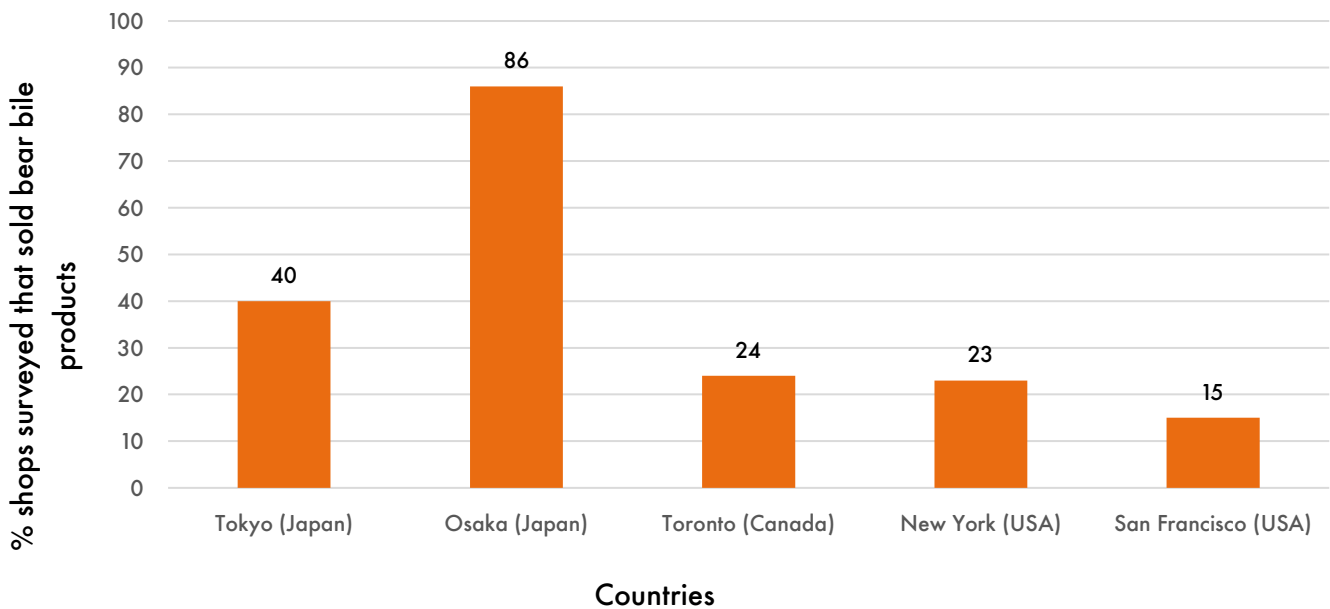
## Products and trade

Global trade in bear bile products is complex and with multiple trade routes. Details of the bear bile products available, and the companies involved in the national and international trade of these products, provide a comprehensive understanding of the industry.

### International trade in bear bile products

Research of traditional Chinese medicine sold in shops in UK, Canada, US and Japan (Study C) found bear bile on sale in all countries except the UK. Many products were produced in Japan or China. The findings confirm a 2006 World Animal Protection study and highlight a persisting market for illegal bear bile products across the world.<sup>38</sup>

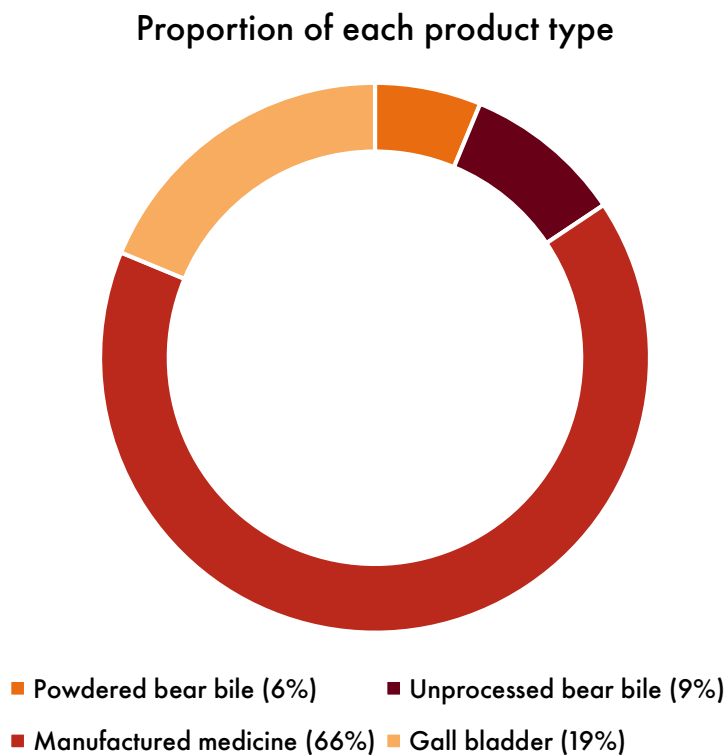
**Figure 1:** The percentage of surveyed traditional Chinese medicine shops with available bear bile products to purchase or order in each city.



The types of bear bile products can generally be divided into four categories. These are: liquid bear bile, powdered bear bile, whole gall bladder, or manufactured medicine containing bear bile as an ingredient. Bile can also be sold as flakes or made into wine.

The figure below shows the proportion of each product type on sale during study C, where data were collected at 29 shops in Japan, Canada and the USA. The findings indicate the most commonly available bear bile products. The highest proportion of products available are in the 'manufactured medicine' category.

**Figure 2:** Proportion of bear bile product types found in shops in the USA, Canada, Japan.



A total of 15 different manufactured products were found either listing bear bile on the packaging or claimed by the vendor to do so.

Seven of these products were manufactured in Japan, with most labelled in Chinese writing. Of those, four were available in shops in the USA and Canada. Sometimes, the identical product was found in different shops with small differences in labelling.

For example, 'Happy Dragon Heart Tonic Pills' were found twice, once explicitly listing 'bear bile' as an ingredient, and once only listing 'animal bile'. This suggests that bear bile content may sometimes be insufficiently declared as animal bile. Another product listed 'pig gall' as ingredient. However, both shop vendors selling the product confirmed that it contains bear bile, but that it would be illegal to label it this way. The other eight manufactured products seemed to be manufactured in China and were available in shops in the USA.

**Table 1: Manufactured medicine products found for sale during study C.**

Product	Location sold	Country of origin / manufacture
Shikuguma (虔脩熊参丸)	Osaka, Japan	Japan
Hisashi Kumikiramaru (保寿熊胆丸)	Osaka, Japan	Japan
Yu-nin-gan Dyspepsia pills	Osaka, Japan	Not specified
Unspecified name 4 bottles per box (0.25grams bear bile per bottle)	New York, USA	Not specified
Xiongdanfen	New York, USA	China
Pien Zte Huang	New York, USA	China
Xiongdan Zhichuang Gao Ointment for piles	New York, USA	Japan
Kinshintan Heart Tonic Pill	New York, USA Toronto, Canada	Japan
Happy Dragon Heart Tonic Pills	New York, USA	Japan
Suxiaojiuxinwan Heart Tonic pills	New York, USA	China
Xiongdan Chuanbei Koufuye (熊胆川贝口服液) ((English translation 'bear bile fritillary bulb oral liquid')	San Francisco, USA	China
熊胆粉	San Francisco, USA	China
Pain relief pills Unspecified name	San Francisco, USA	China
Kyu-shin-tanHeart tonic pills	San Francisco, USA	Japan
Kyushin heart tonic pills	Toronto, Canada	Japan

There was a clear divide between the countries supplying raw bear products, such as powdered bile, liquid bile or gall bladders and those supplying manufactured medicine. All manufactured products seemed to be produced in either China or Japan.

The raw bile products with known origin (as stated by the vendor or on labels) originated from Russia, the USA, Canada, Austria or China. This suggests that China and Japan are primarily exporting manufactured bear bile pharmaceuticals, while raw bile products may be sourced from a variety of locations, including local bear populations.

Prices of all types of bear bile products had increased in Japan, Canada and the USA, since the collection of similar data by World Animal Protection in 2006, particularly the prices of gall bladders.

**Source countries for manufactured medicine containing bear bile**

**Source countries for raw bile products**

Source countries for manufactured medicine containing bear bile	Source countries for raw bile products
China	China
Japan	Canada
	Austria
	USA
	Russia

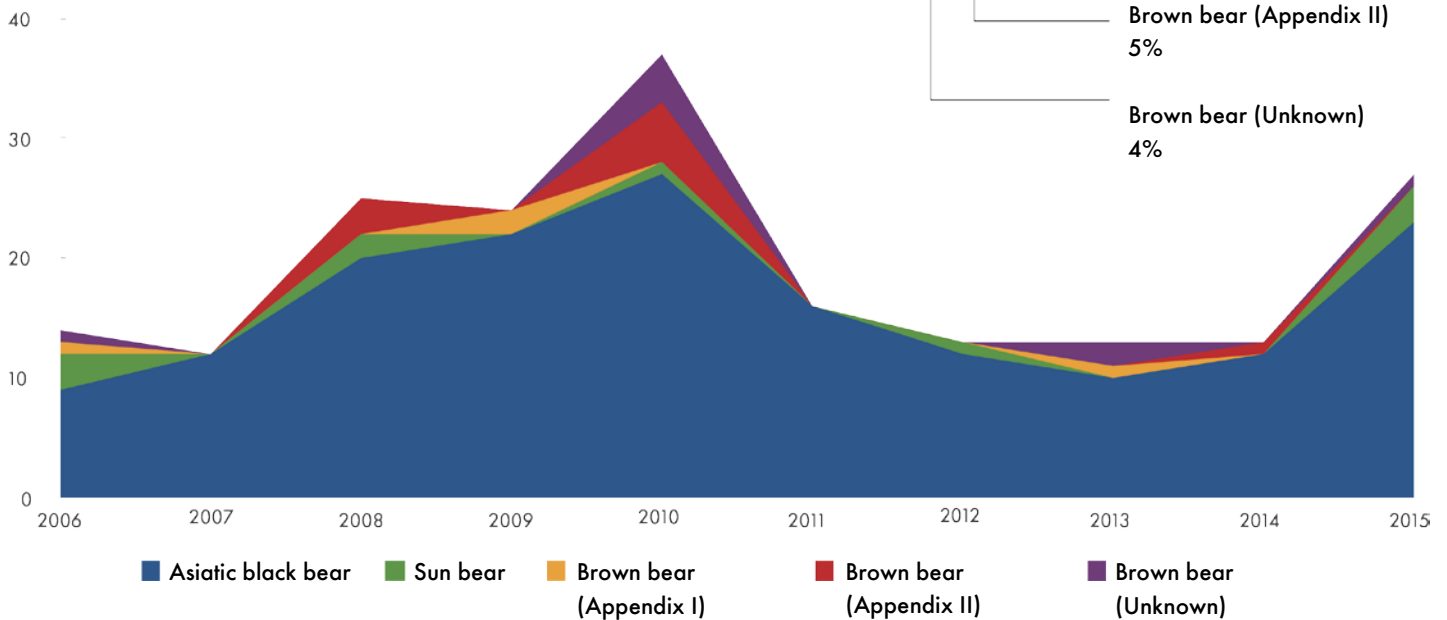
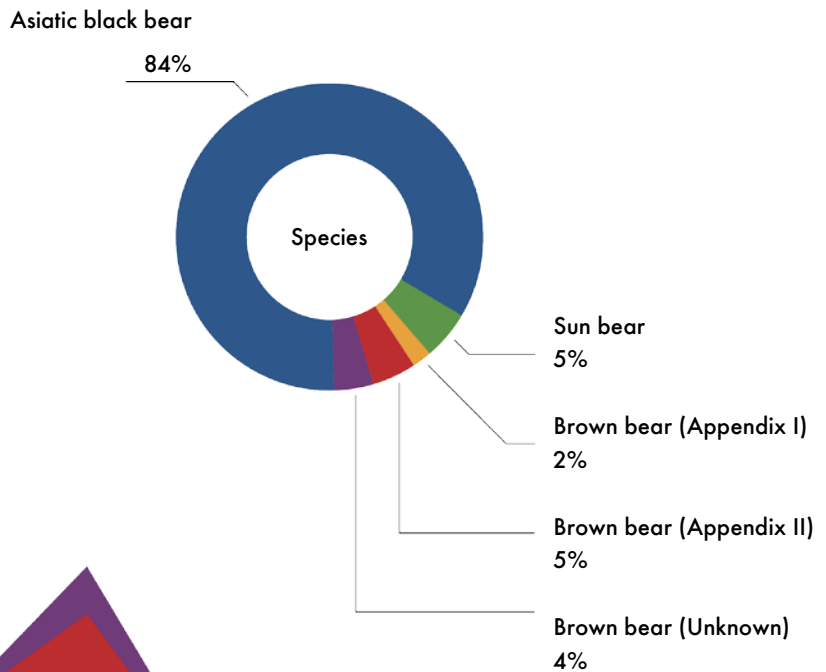
A review of the US LEMIS database that tracks seizures of illegal goods identified 194 seized bear bile shipments between 2006 and 2015. Of these, 84% were identified as containing Asiatic black bear. While 35% of these shipments came from unknown origin, 31% were identified as coming from China and 21% from Vietnam. At least 71% of the identified species were considered to have come from the wild. However, the methods to distinguish wild from captive products by US law enforcement are unclear.

## US imports of bear bile products by species between 2006 and 2015

Of the 194 imported bear bile-related shipments seized or abandoned with US customs between 2006 and 2015, 163 (84%) were identified as containing samples from Asiatic black bear, 10 (5%) were identified as sun bear, 9 were identified as brown bears from Russia where the species is listed under Appendix II of CITES, 8 (4%) were identified as brown bears from an unknown country of origin suspected to be China, 4 (2%) were identified as brown bears from China where the species is listed under Appendix I.

### US imports of bear bile products by species

Species	Entries
Asiatic black bear	163
Sun bear	10
Brown bear (Appendix I)	4
Brown bear (Appendix II)	9
Brown bear (Unknown)	8
<b>Total</b>	<b>194</b>





## US imports of bear bile products by species between 2006 and 2015

Species	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
Asiatic black bear	9	12	20	22	27	16	12	10	12	23	<b>163</b>
Sun bear	3	0	2	0	1	0	1	0	0	3	<b>10</b>
Brown bear (Appendix I)	1	0	0	2	0	0	0	1	0	0	<b>4</b>
Brown bear (Appendix II)	0	0	3	0	5	0	0	0	1	0	<b>9</b>
Brown bear (Unknown)	1	0	0	0	4	0	0	2	0	1	<b>8</b>
<b>Total</b>	<b>14</b>	<b>12</b>	<b>25</b>	<b>24</b>	<b>37</b>	<b>16</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>27</b>	<b>194</b>

Finally, statistics on USA patent applications and authorisations for traditional Chinese medicine from 1976 to 2003, demonstrated that Japan owned the largest proportion in foreign applications. This accounted for 38 items, 16.2% of the total applications (234 items in total).

In a separate study, 10 Chinese companies previously recorded as trading in bear bile related products were analysed for their business profile. This analysis was conducted in English and consequently limited to websites in English. These 10 companies, listed on page 26, are mostly large, multi-product and multi-division organisations, with wide global trade routes. They export products (not necessarily bear bile products) worldwide, to Canada, North and South America, Asia, Australia, Europe and Africa. Employee numbers ranged from < 20 to up to 500 people.

Where records of number of divisions were available, companies reported multiple divisions. These included import, export, production, research and development, foreign marketing, quality and technology, finances, customer services and transportation.

Some companies were subsidiaries of larger organisations, raising concerns that pharmaceutical companies manufacturing and exporting legal products, also produce products that are illegal to export.

This means they could easily use their trade channels to piggyback such illegal products (those containing bear bile) into global markets. Methods could involve using transport infrastructure, marketing channels, manufacture and storage facilities. Further research to substantiate or negate such concerns is required and increased scrutiny by Chinese authorities is recommended.

## A selection of chinese companies trading in bear bile products and their company outline

Company name	Trade routes	Staff	Products	Divisions
Chung Lien Drug Works <sup>10</sup>	Canada, USA, Indonesia, Malaysia, Singapore, Australia	Unknown	Multiple	Unknown
The United Pharmaceutical Manufacturer <sup>10</sup>	Malaysia, Canada, USA, Australia	Unknown	Multiple	Unknown
Guangzhou Pharmaceutical Import and Export Cooperation <sup>10</sup>	North America, South America, Eastern Europe, South East Asia	101 - 200	Raw products, medicines, equipment, health products	Export, import, foreign marketing, development, quality and technology, transportation
China National Medicine & Health Products Import and Export Corporation <sup>10</sup>	Canada, Indonesia (> 100 countries and regions)	Unknown	Medicines, equipment, health products	10 business units
Kwangchow Pharmaceutical Industry <sup>10</sup>	Canada	Unknown	Multiple	Unknown
Anbao International Pharmaceutical (Xiamen) Co Ltd <sup>54</sup>	Unknown	Unknown	Unknown	Unknown
OYEA Biotechnology Group Ltd <sup>55</sup>	North America, South America, Western Europe, Eastern Asia, South East Asia, Middle Africa, Oceania	< 50	Natural Food Colour and Natural Herbal Extracts	Unknown
Wuhan Hezhong Bio-chemical manufacture CoLtd <sup>55</sup>	North America, South America, Europe, South East Asia, Middle East, Africa, Oceania	300- 500	Multiple; raw materials, steroids, hormones, organic solvents	Production, research and development, technical lab, marketing, finances, customer services
Xitao Pharmaceutical Factory, Kunming, Yunnan <sup>56</sup>	Europe, America, Asia		Herbs and medicines from plant extracts	
Nationality Pharmaceutical Factory <sup>57</sup>	No records found	No records found	No records found	No records found

## Bear bile market in China

We commissioned research on manufacturing companies in China, available products on the legal domestic market and estimated sales values (Study E).

This study identified 114 companies manufacturing bear bile-containing products. The total sales value of each company's top bear bile product on the Chinese market was estimated to be more than one billion US\$(1,080,282,700) in 2017. However, the sales value appears to be on the rise - the first two quarters of 2018 already showed sales values of 62% (US\$668m) of the 2017 full-year sales. These values are partly based on wholesale prices by the manufacturers, which suggests that consumer market value is significantly higher.

But, not all 114 companies' products sales values were publicly accessible. Where no sales values could be found, statistical modelling was used to derive an estimate. More details are available in Appendix 3. This study's figures roughly correlate with previous 2012 figures by Animals Asia Foundation. These stated that there were 153 different products with bear bile on the market, totalling a sales value of US\$1.6 billion.<sup>58</sup>

It is unclear if the difference in those two market analyses reflect changes of the market or are due to different research methodologies. For example, some manufacturing companies may produce and sell more than one brand of bear bile products, which the present study would not have picked up.

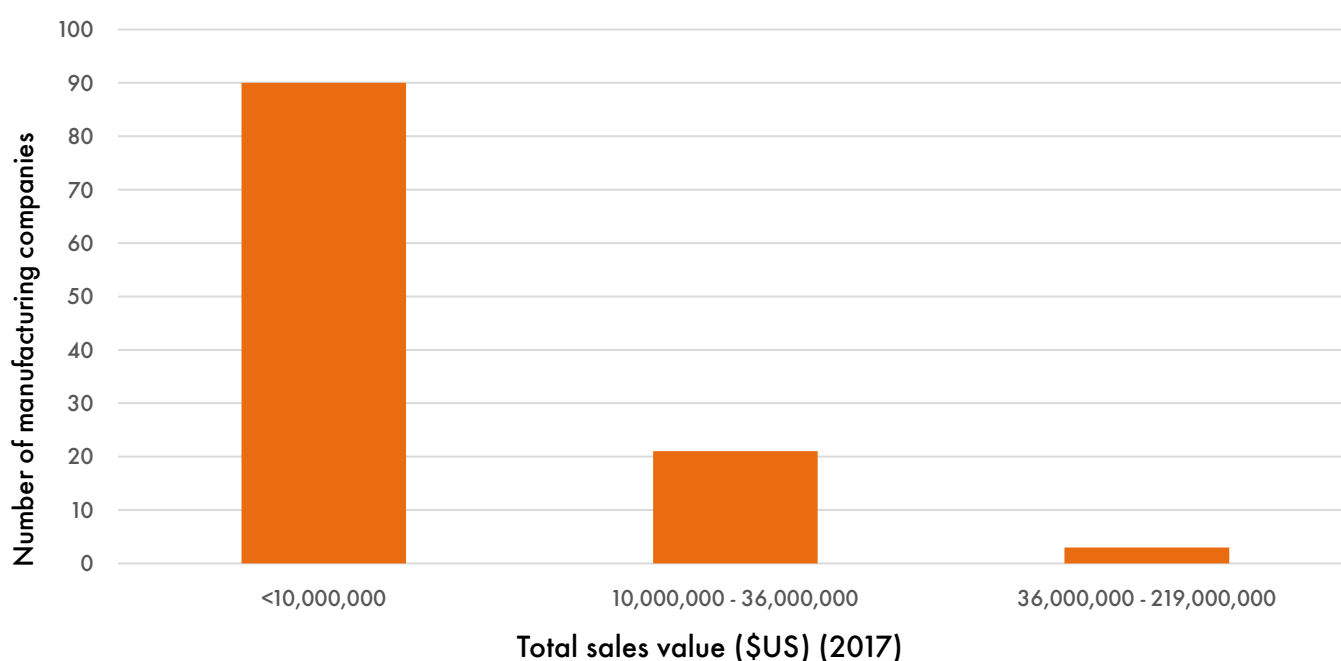
Thirteen of the 114 bear bile manufacturing companies were owned by parent companies. Thirty one of these companies (eg Fujian Guizhentang) owned bear farms and were producing and harvesting the bile themselves.

Further analysis looked at individual sales values of the primary bear bile product produced by each company. Based on this, Shanghai Kaibao Pharmaceutical stands out with an annual sales value of over US\$218m for their Tan Re Qing product. This injectable product has been reported to contain between 45% and 50% raw bear bile.<sup>59</sup> They were followed by Jilin Hinan Sanhe Pharmaceutical with US\$109m for their Longze Bear Bile Capsule.

A further 22 companies showed estimated sales values based on their company size between \$US10m and \$36m for their key products. The remaining 90 companies showed estimated sales values of less than US\$10m.

However, actual profit margins are unclear. Previous reports have flagged possible economic struggles of some of the key players such as Kaibao and Fujian Guizhentang. Kaibao's stock market value shrunk by over 50% since 2016 and Guizhentang's attempted stock market listing failed in 2012. Guizhentang has since been involved in court cases, failing to pay back their investors.<sup>60</sup> Importantly, Kaibao Pharmaceutical is collaborating with the Shanghai University of Traditional Chinese Medicine to develop a substitute for bear bile.

**Figure 3: The number of bear bile manufacturing companies with a 2017 sales value of \$US<10m, between \$US10m and \$US36m, and between \$US36m and \$US218m.**



Identified products were sold by 139 pharmacy retail companies, together operating 21,574 stores across China. Yifeng Pharmacy Flagship Store owned the most physical shops, with 2,274. Two other retailers had more than 1,000 stores: Henan Zhangzhongjingda Pharmacy Co Ltd and Lanzhou Huirentang Pharmaceutical Chain Co Ltd.

A further 45 chains owned between 100 and 1,000 shops. All 139 companies seemed to operate online stores as well. The study estimated that approximately 51.1% of sales were done via offline retail stores vs 48.9% online.

Some products were available in retail stores in China. These included bear bile wine, Shennong analgesic plaster, bear bile nasal spray, and bear bile powder produced by Heilongjiang Heibao Pharmaceutical Co Ltd. This powder is very popular in Heilongjiang Province. During the research period, the company was running a bear farm with more than 2,000 bears<sup>61</sup> and producing various kinds of medicines, many were related to bear bile.

In 2001 the former ministry of health announced it would no longer approve the production of tonic-based bear bile products.<sup>62</sup> However, this rule does not apply to tonic products that were approved by the authorities prior to the announcement. Consequently, bear bile wine and tonic products can still be found on the market.

Pictures of all products found during the investigation are listed in Appendix 1. Some examples appear below.



**Top left:** Bear gall bladders in a Korean traditional Chinese Medicine market.



**Bottom left / right:** Bear wine at an animal tourist attraction in China.



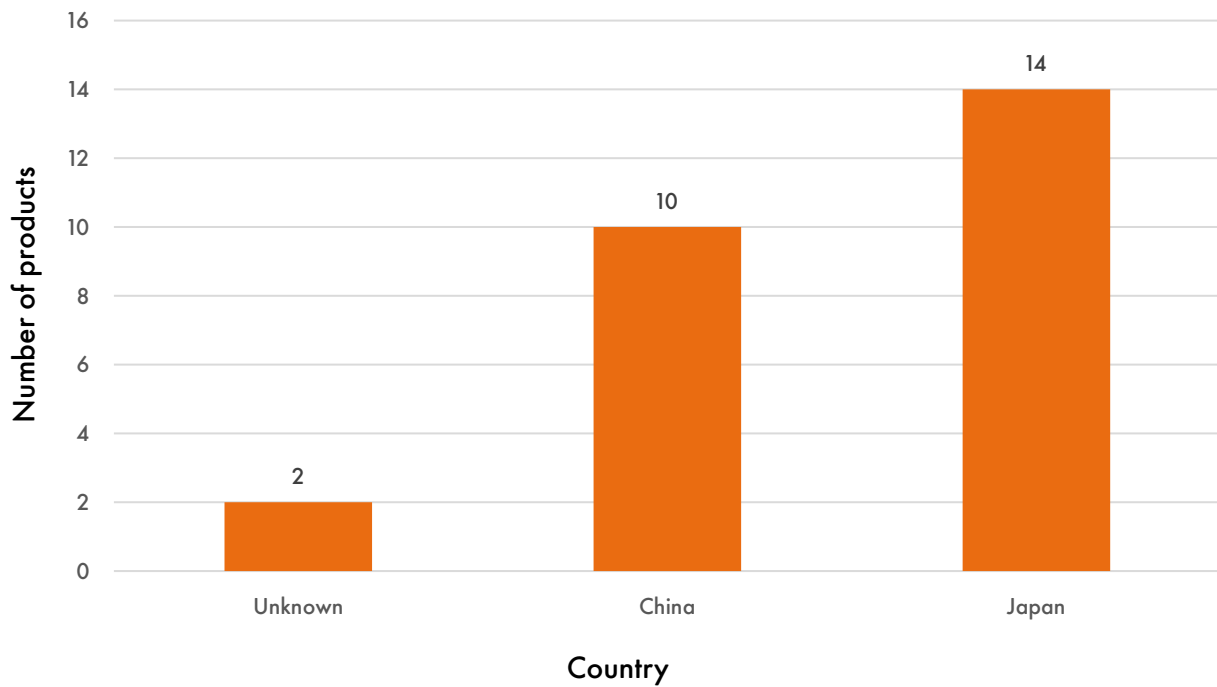
## Bear bile market in Japan

Japanese 'Kampo', the country's traditional medicine pharmaceutical sector, is a large-scale industry. Bear bile products have been part of Kampo medicine for hundreds of years. However, Japanese nationals are not the primary consumers of bear bile. They appear to prefer non-animal traditional medicine products. The few Japanese Kampo products containing bear bile are aimed at Chinese tourists or Chinese online consumers (Study C).

Figure 4 demonstrates the number of manufactured bear bile products originating in Japan, the USA and Canada that were identified during the study C investigation. We found most manufactured products came from Japan.

Japan's ministry of health, labour and welfare describes Kampo medicine as including 148 prescription medicines, 210 over-the-counter and crude drug preparations. A Kampo guide website outlines various Kampo medicine raw materials. These feature herbs and animal ingredients, including bear bile.

**Figure 4:** Countries of origin of manufactured medicine containing bear bile (Study C).



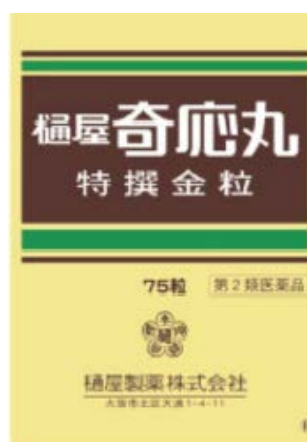
基本情報	
別名	熊の胆(くまのい)
学名	Ursus thibetanus
原材料	クマ科ツキノワグマ、ヒグマの胆汁を乾燥したもの
薬用部位	動物性
採取・時期	—
産地	日本
漢方医学的情報	
生薬分類	清熱薬
薬味	苦味
薬性	寒性(食べると寒くなる)
薬効・薬理	明目, 止瘧, 清熱, 解毒
帰経	肝経, 心経, 胆経, 胃経
<b>配合漢方薬</b>	六神丸、妙巧十一丸(反魂丹)、奇応丸、松井熊参丸
<b>Prescriptions with bear bile</b>	



**Above:** Evidence of the introduction of bear bile on the Kampo Guide website.<sup>63</sup> The scientific name provided is Asiatic black bear. The text in the table states that the bear bile is produced in Japan, has a bitter taste and can be used to treat fever.

The Japanese ministry of health, labour and welfare’s official website lists 36 medicines containing animal bile. Twelve clearly list cow bile as an ingredient; others do not specify the animal bile used. One medicine called Rokushigan (六神丸) claims the bear bile it contains is imported from countries including China, Canada, and Russia.

Japanese domestic online pharmacy websites list three bear bile medicines: Kensyuyujigan (熊参丸, Rokushigan (六神丸) and Hiya Kiogan Tokusen Kintsubu (奇应). Kensyuyujigan can be purchased through the Rakuten pharmacy site and shipped overseas.



**Left to right:** Kensyuyujigan, Rokushigan, and Hiya Kiogan Tokusen Kintsubu.



Left: Rakuten's global online store

This study found the drug Jiu Xin Wan on sale in Japan, but with an ambiguous description of animal bile being used in this product. Jiu Xin Wan is a very popular traditional Chinese medicine product in China. We found it can be easily bought by tourists in Japan and taken to other countries.

There are no bear farms in Japan and hunting is strictly regulated. According to study K, between 2010 and 2016 around 3,400 bears were killed annually in Japan. On average 12.6% of these were hunted, while most were killed through pest control measures.

Hunters can legally sell bear galls to pharmaceutical manufacturers authorised by the ministry of health, labour and welfare. But past studies indicate the supply from hunters is not regular and the price of bile from hunted bears is higher than that obtained from elsewhere.<sup>51</sup> So, bear bile sourced from wild bears in Japan is unlikely to be the only supply of bile for the pharmaceutical industry.

Between 2012 and 2017 an average of 13.3% of bear bile acquired by Japanese manufacturers was imported according to the ministry of health, labour and welfare's bear bile trade data.

Some traditional Chinese medicine vendors claim that Japanese manufacturers, such as Kracie and Tochimoto, obtain import licences to do this legally. However, it should not be possible for manufacturers to obtain a valid import licence for Chinese bear products (as Asiatic black bears are CITES Appendix I listed). Some companies may hold licences to import brown bear parts from Russia (CITES Appendix II species) legally.

Study K obtained import data from the CITES trade database for all bear products imported to Japan between 2010 and 2017 (Table 2). All products were declared as brown bear (*Ursus arctos*) exported from Hong Kong; they were originally declared as derived from wild-caught bears in Russia. Products included gall, gall bladders, powder, and manufactured medicine.

There are concerns regarding the import route of these products via China – a country keeping over 20,000 Asiatic black bears (CITES Appendix I) in captivity – rather than directly importing them from Russia, their supposed country of origin. Consequently, Japanese and Chinese authorities should scrutinise this trade route to ensure no Asiatic black bear products are disguised as Russian brown bear products. During the same period, Japan exported bear bile medicine to New Zealand, Hong Kong and USA.

**Table 2: The amount of bear bile imported to Japan annually, according to the CITES trade database.**

Year	Volume of bear bile (g)
2017	4,800
2016	4,750
2015	No data
2014	8,478
2013	4,730
2012	998
2011	530
2010	1,000

Although imported bear bile accounts for roughly 13.3% of the bile acquired annually by Japanese manufacturers, Japan's bear bile industry holds significantly more stock than these figures suggest. A freedom-of-information request to Japan's ministry of health, labour and welfare, during study K, revealed that in 2017, 35 companies held bear bile stockpiles totalling 299kg. A decrease in numbers of companies since 2012 (down by 10%) and the size of the stockpile (down by 6%) may suggest a decrease in consumer demand for bear bile.

Interestingly, Japan was the first country to identify UDCA as the medically effective agent in bear bile. In 1957 this led to the world's first synthetic UDCA drug to be released on the market by Tokyo Tanabe Co Ltd.

#### **Bear bile markets in South Korea, Myanmar and Vietnam**

A study of 105 traditional Chinese medicine shops in five South Korean markets (Study D) highlighted that 19 (18%) shops were selling or mediating gall bladder sales. This showed a decrease in availability compared to 2003 (38%) and 2011 (42%) studies. Campaigning activity in South Korea, leading to the sterilisation of all remaining farmed bears and a steep drop in their numbers, has most likely resulted in this decline.

Only 2 of the 19 shops sold gall bladder from South Korean farms; the remaining shops offered to mediate the illegal sale of gall bladders from Russian or Chinese bears. Many vendors recommended against buying gall bladders, either based on illegality or because fake products were commonplace. Instead, boar gall bladder or herbal alternatives were offered.

In Myanmar for study I, bear bile flakes from Shin Long Bear Farm were found in several traditional Chinese medicine shops in Mongla City at the Chinese border. Of the six farms surveyed, four offered entire gallbladders for sale.

This report does not cover market bear bile availability in Vietnam. However, we presume product availability is declining due to decreased consumer demand and improved enforcement activities preventing the extraction and sale of bear bile products.

During study A, interviews with Vietnamese bear farmers confirmed the dire situation for the remaining bears on farms: 92% of farmers cage their bear all day and night. The average size of the cages was claimed to be 5m<sup>2</sup>.

The study also found that 54% (15/28) of active farm owners stated that they make less money than a year ago. Their opinion was that the bile price had eroded while general inflation continued. This made it harder to benefit financially from bear keeping.



Nonetheless, the study also found that up to 70% of bear farmers continued to illegally extract and sell bear bile from their bears. And despite declining profits and improving enforcement of laws that prohibit extracting bear bile, 82% of bear farmers expected to continue bear farming. Only 39% of bear farmers were aware of the voluntary surrender process for bears (see box out).

Bear farmers identified the average age of bears on farms as 15 years. This suggests that the remaining bear population is elderly and will continue declining over the next five years by approximately 50% (Table 3).

**Table 3: Age of bears on bear farms as stated by bear farmers of 28 active bear farms in Vietnam.**

Age of bears	Total
1-4	7%
5-9	29%
10-14	42%
15-20	16%
Above 20	1%
I do not know	5%
Refuse to answer	1%
<b>Average age</b>	<b>15</b>

## Surrendering bears

Bear farm owners in Vietnam can surrender their bears in several ways. The most direct way is to transfer ownership to the government. The process can be started by the farmer informing their local district and provincial Forest Protection Department (FPD) authorities of their wish.

Alternatively, they can contact a local non-governmental organisation, such as Education for Nature (ENV), who will liaise with the local authorities and sanctuaries to receive the bear. They could also contact an NGO that runs a sanctuary, such as Animals Asia, Four Paws or Free the Bears.

This transfer can take anywhere from a few weeks to a few months depending on the willingness of the farm owner and the readiness of authorities to coordinate it. Transfer costs (eg transport and care of the bear) are paid for by the government and/or the receiving sanctuary.

## Bear bile alternatives and substitutes

UDCA, the effective ingredient in bear bile, can be obtained from other sources including the livestock slaughter industry. Bile from domesticated livestock has shown similar properties to bear bile and is considered a viable substitute<sup>5</sup>. Bile from pigs and rabbits has equivalent chemical and pharmacological effects; solutions made from them are claimed to have anti-inflammatory, anti-convulsion and analgesic properties. Several Chinese manufacturers are producing UDCA based on livestock products and approved pharmaceutical preparations exist from about 40 domestic companies. China's largest bear bile company, Kaibao Pharmaceutical is collaborating with the Shanghai University of Traditional Chinese Medicine to develop a livestock UDCA based substitute for bear bile.<sup>19</sup>

Using livestock by-products to produce UDCA may help alleviate wildlife conservation impact concerns, but there are obvious concerns about the welfare of the livestock involved. For example, intensive livestock farming causes unacceptable suffering to billions of animals worldwide.

Making non-animal based UDCA is technically possible but is prohibitively expensive.

Alternatively, traditional Chinese medicine practitioners in Australia, Canada, USA and the UK identified bear bile herbal substitutes for a 2005 World Animal Protection survey. These substitutes have similar properties to bear bile in clearing heat and detoxifying, purifying the liver and improving eyesight. For example, *Scutellaria baicalensis* (Georgi, Huangqin in Chinese) and its active components, Chrysin and Wogonin, have potential anti-inflammatory values.<sup>6</sup>

A World Animal Protection in-depth review of the non-animal alternatives to bear bile confirmed the many available. The review conducted by a traditional Chinese medicine scholar concluded that bear gall bladder (Xióng dǎn) and bear bile (Xióng dǎn zhī) can be efficiently substituted by non-animal-based alternatives.

Chinese herbal medicine 'Materia medica' references reviewed for this report contain 32 plant and mineral-based alternatives, depending on the specific indication being treated. The actual substitution depends on the prescribing practices of a specific practitioner, style of practice or Chinese medical tradition. Possible non-animal-based alternatives are listed in the table below.

**Table 4:** Plant and mineral-based alternatives are listed in the table below by function in Chinese medicine. Each medicinal is listed by pinyin and scientific name. Mineral sources include *shí jué míng*, 石決明, abalone shell, and *zhēn zhū mǔ*, 珍珠母, mother-of-pearl – both are marked with an \*, as these are animal based but have in some cases important value as alternatives to bear bile.

Functions	Alternatives		
	Pinyin <sup>2</sup>	Chinese	Species (all)
Clears heat from the liver and gall bladder and stops spasm	Gōu téng	鉤藤	Uncaria rhynchophylla (MIQ.) JACKS. U. macrophylla WALL. U. hirsuta HAVIL. U. sinensis (OLIV.) HAVIL. U. sessilifructus ROXB.
	Tiān má	天麻	Gastrodia elata BL.
	Bái huā shé shé cǎo	白花蛇舌草	Hedyotis diffusa WILLD.
Clears heat and resolves toxicity	Bài jiàng cǎo	敗醬草	Patrinia villosa (THUNB.) JUSS. P. scabiosaefolia FISCH. ex TREV.
	Bái tóu wēng	白頭翁	Pulsatilla chinensis (BGE.) REGEL
	Bái xiān pí	白鮮皮	Dictamnus dasycarpus TURCZ.
	Chuān xīn lián	穿心蓮	Andrographis paniculata (BURM.F.) NEES
	Chuí Pén Cǎo	垂盆草	Sedum sarmentosum BUNGE.
	Dà qīng yè	大青葉	Isatis indigotica FORT.
	Hóng téng	紅藤	Sargentodoxa cuneata (OLIV.) REHD. & WILS.
	Jīn yín huā	金銀花	Lonicera japonica THUNB. L. hypoglauca MIQ. L. confusa DC. L. dasystyla REHD.
	Lián Qiào	連翹	Forsythia suspensa (THUNB.) VAHL
	Mǎ chǐ xiàn	馬齒莧	Portulaca oleracea L.
	Pú gōng yīng	蒲公英	Taraxacum sinicum KITAG. T. mongolicum HAND.-MAZZ.
	Qīng Dài	青黛	Baphicacanthus cusia (NEES) BREMEK Polygonum tinctorium AIT. Isatis indigotica FORT. Indigofera tinctoria LINNAEUS
	Shān Dòu Gēn	山豆根	Sophora tonkinensis GAGNEP S. subprostrata CHUN & T. CHEN
	Shè gān	射干	Belamcanda chinensis (L.) DC.
	Yú xīng cǎo	魚腥草	Houttuynia cordata THUNB.
	Zǐ huā dì dīng	紫花地丁	Viola yedoensis MAKINO
	Qín pí	秦皮	Fraxinus rhynchophylla HANCE

<sup>2</sup> The terms in this column are in pīnyīn. Pīnyīn (拼音) is one of two ways to render Chinese characters into Latin script.

**Functions**

**Alternatives**

	<b>Pinyin<sup>2</sup></b>	<b>Chinese</b>	<b>Species (all)</b>
Clears and drains liver heat and benefits the eyes	Chē qián zǐ	車前子	Plantago asiatica LINNAEUS P. depressa WILLD.
	Gǔ jīng cǎo	穀精草	Eriocaulon Buergerianum KOERN.
	Jué míng zǐ	決明子	Cassia obtusifolia LINNAEUS C. tora LINNAEUS
	Jú huā	菊花	Chrysanthemum morifolium RAMAT.
	Màn jīng zǐ	蔓荊子	Vitis trifolia L. var. simplicifolia CHAM.
	Mì méng huā	密蒙花	Buddleja officinalis MAXIM.
	Mù zéi	木賊	Equisetum hiemale LINNAEUS
	Qīng xiāng zǐ	青箱子	Celosia argentea LINNAEUS
	Sāng yè	桑葉	Morus Alba L.
	Xià kū cǎo	夏枯草	Prunella vulgaris L.
	Shí jué míng	石決明	*Haliothis diversicolor REEVE *H. discus hannai INO *H. ovina GMELIN *H. ruber (LEACH) *H. asinine (LINNAEUS) *H. laevigata (DONOVAN)
	Zhēn Zhū Mǔ	珍珠母	*Hyriopsis cumingii (LEA) *Cristaria plicata (LEACH) *Pteria martensii (DUNKER)

## Consumer attitudes

Understanding cultural approaches to consuming traditional Chinese medicine products is critical in ending the bear bile industry.

The highest demand for bear products comes from Chinese and Vietnamese nationals, and Chinese diaspora and Chinese tourists abroad. Although small amounts of traditional Chinese medicine products are consumed in surrounding South East Asian countries, these consumers are likely to have a lesser impact on the demand. In 2011 the Chinese diaspora included approximately 40 million people living outside China – a significant market.<sup>64</sup>

World Animal Protection studies F, G and H, regarding Vietnamese and Chinese consumer insights into bear bile product consumption and the bear bile industry, are discussed below.

### Consumer demographics

Study H found that 20% of Vietnamese survey participants previously or currently use bear bile products. Slightly more men (24%) than women (17%) claimed bear bile use. This complements results from a recent study regarding Vietnamese bear bile consumption which found a slightly higher percentage of men than women consumed bear products. The survey also found that traditional Chinese medicine practitioners said that men were more likely to be prescribed bear products than women.<sup>46</sup>

Education level made no difference to the consumption behaviour of women, but a higher number of men with advanced education (26%) than a basic education (22%) claimed to use bile products. This could indicate a gender difference in the social factors influencing bear product consumption. However, other research has shown that women are less likely to admit the behaviour in question. Consequently, the gender balance observed in these surveys could be a result of a bias not related to actual consumer behaviour.

Study G, the quantitative survey of the Chinese public, highlighted that 25.4% of participants or their families have purchased or used bear bile products at least once. Among these actual consumers, 43.3% (or 10.5% of all participants) are considered long-term users of bear bile products. Long-term bear bile consumers were most likely to be university educated and have a family income of more than 20,000 yuan (US\$3,000) per month.

Study G also considered demographic differences regarding whether consumers had heard about the social debates surrounding the bear bile industry. Younger people tended to have heard more frequently about problems associated with the bear bile industry than older people.

People educated to higher levels and with higher incomes were more likely to have heard about the social discussions regarding bear bile. A higher percentage of young people also deemed bear bile extraction as a cruel practice. Older people tended to believe it "very cruel but has to be done". A lesser difference was detected between genders: a similar percentage of male respondents (93%) and female respondents (88%) had heard about the social debate regarding bear bile.

Interestingly, the study found that the demographic groups of participants most likely to consume bear products were also the group most aware of the social issues surrounding the bear bile industry. High-education and high-income elite groups had the highest degree of knowledge of this industry, the strongest desire to ban it and to participate in bear protection.

Participants with a family income of more than 20,000 yuan per year (\$US3,000) and a post-graduate level education had more knowledge about the social debates on bear bile extraction. They were more concerned about bear bile extraction cruelty and the side effects of bear bile products. They were also more willing to participate in bear protection.

However, the same demographic group also showed the highest ratio of bear bile product consumption. This demonstrates that knowledge and attitudes do not necessarily correlate with behaviour; there may be stronger influences, for example social influences, driving the continued consumption of these products.

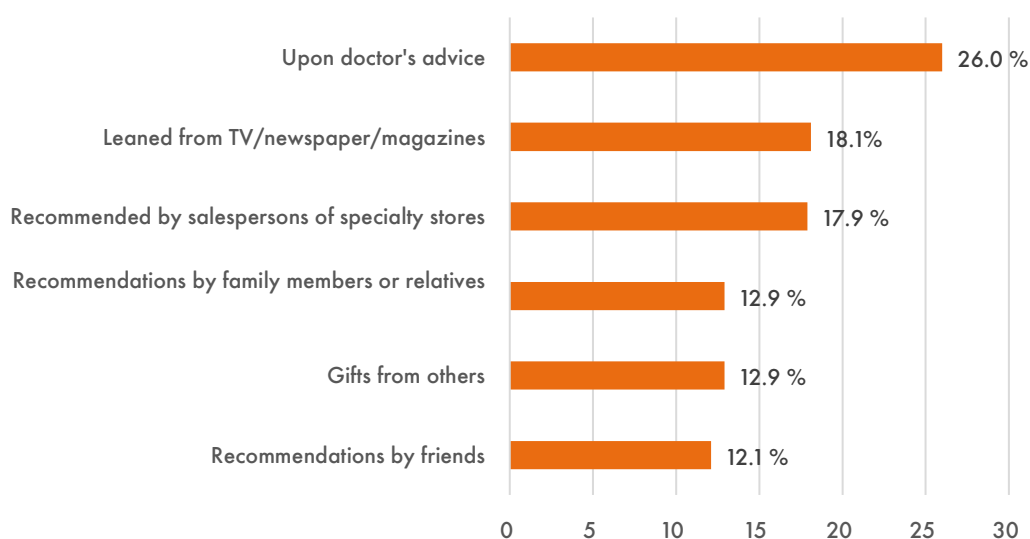
**‘Long-term bear bile consumers were most likely to be university educated and have a family income of more than 20,000 yuan (US\$3,000) per month.’**

## Consumer influences

Our Chinese consumer studies F and G found that the media, family and friends, and health care practitioners influenced people to buy bear bile products. However, the studies found contrasting results regarding which of these influences was greater. This is possibly due to the different nature of the studies. Study F was a qualitative study with in-depth interviews of a smaller group of participants, while study G was an online-based quantitative study with many participants.

Study G showed that only 26% of consumers started to use bear bile products upon a professional doctor's advice; non-professional advice seemed to play a stronger role. This included: television or newspaper messages (18.1%); recommendations by salespersons of specialty stores (17.9%); recommendations by family members or relatives (12.9%), and recommendations by friends (12.1%). The remainder of consumers started using the products after being given them as gifts (12.9%).

**Figure 5: Reasons that Chinese consumers gave for starting to use bear bile products (Study G).**



Study F found that Chinese consumers (more than 70%) obtained information on bear bile products from media sources including television and portal websites. This was followed by messaging and social media app WeChat and close social circles represented by family members/relatives/friends/colleagues (about 50%). Lastly, encyclopaedia and library websites were used by about 40% of consumers.

Age affected the main influences on consumers. Television and portal websites were most trusted by participants aged 30 years and below. TV, encyclopaedia and library websites were most trusted by participants aged 31–40 years; close social circles and encyclopaedia and library websites were most trusted by participants aged 41–45 years.

Checking out products on the internet was common to all age groups, particularly when products had been recommended by non-experts (eg friends or acquaintances). Consumers of all ages trusted the advice of health care practitioners.

Both studies found the opinions of health care professionals to be very influential. Study F found that people believed: "Doctors are authoritative and professional, laying a solid foundation for reasonable use of bear bile products". Both studies indicated that interventions for demand reduction should be implemented first among doctors.

A recent study investigating bear bile consumption in Vietnam found someone's social network was the most important factor influencing bear bile product use, rather than a practitioner's advice.<sup>46</sup>

**Consumer attitudes towards herbal and synthetic substitutes versus real bile**

Study F, the qualitative survey with in-depth interviews of Chinese participants, highlighted that equivalent efficacy to bear bile is the primary factor considered by consumers for substitutes. However, four primary concerns and perceptions of herbal substitutes stop this group changing their behaviour.

- 1 The efficacy of Chinese herbs is not obvious and can only be witnessed after a long time.
- 2 The preparation and administration of Chinese herbs is troublesome.
- 3 Animal products have better effects than plant products.
- 4 Chinese herbs are primarily used for prevention rather than healthcare.

**‘Many respondents asserted they were not aware of the relevant synthetic or herbal substitutes and pointed out that their doctors recommend products that contain bear bile.’**

Overall, Chinese participants believed that herbal remedies are for less severe illness, and bear bile products for severe illness.

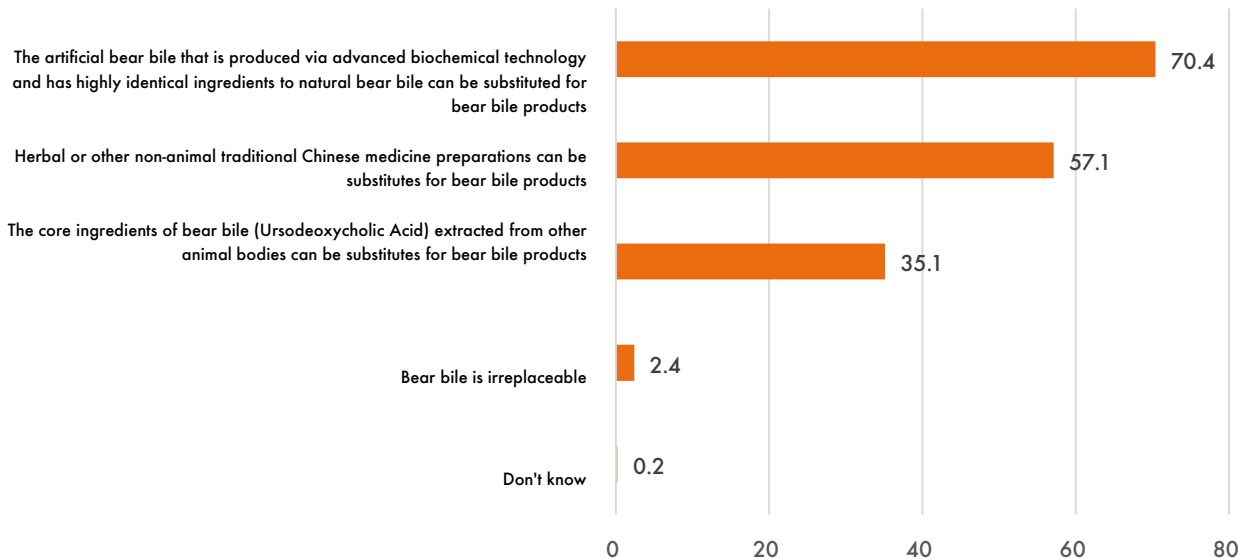
Some concerns expressed by the participants regarding ‘synthetic’ bile substitutes (bile extracted from domestic animals such as cows and pigs, or produced with biochemical technology) were:

1. The active ingredients were less pure, so a larger dosage would be required, and the effects would be slower to show.
2. Synthetic adjuvants and additives are unhealthy.
3. They would feel side effects and experience drug resistance.
4. Synthetic substitutes are only appropriate for certain diseases.

The study found that public awareness of substitutes is generally low. Many respondents asserted they were not aware of the relevant synthetic or herbal substitutes and pointed out that their doctors recommend products that contain bear bile.

Encouragingly, study G found that when participants were informed about artificial bear bile substitutes, 97.4% said they believed the effects of bear bile products could be replaced. In this survey, 40% of people believe "successful development of substitutes" is the precondition to ban this industry. The results show that potential consumers can view substitutes positively when they are aware of their existence and efficacy.

**Figure 6: Chinese consumers belief in the replaceability of bear bile (%) (Study G). Note: this was a multiple-choice question. The sum of the percentages of various choices is higher than 100%.**



Preliminary findings of these studies suggest that there is a willingness to consume herbal or synthetic alternatives instead of products currently containing bear bile. Better awareness of availability and comparable efficacy of herbal alternatives could be effective in persuading most consumers to stop purchasing bear bile – from farmed or wild sources. This is particularly the case if it is supported by traditional Chinese medicine practitioners or physicians and TV media. These are the main information channels trusted by bear bile consumers.

Study participants believed sports stars or business elites are better positioned to advocate for the substitute products, rather than entertainment stars. This is because they felt entertainment stars are not always considered to be sources of reliable, factual information.

### **Consumer understanding of the medicinal value of bear bile products**

Study F, the qualitative survey with in-depth interviews of Chinese participants, identified two predominant beliefs of Chinese consumers regarding the medicinal value of bear products.

- 1 Bear bile products are traditional Chinese medicine that have fewer side effects than western medicine
- 2 Bear bile products are from wild animals and so are pure nature and do not include additives

The study concluded that it would be unrealistic to change the widespread public perception by consumers that bear bile products are effective. However, it may be possible to educate people about the limitations of bear bile and the feasibility of substitutes while acknowledging the efficacy of bear bile.

The study also found that consumers held a lot of trust in the market, particularly in large pharmaceutical companies. This could be further exacerbated by trust in health care professionals (such as doctors, hospitals and pharmacies) that recommend bile products. More than 80% of customers of bear bile products tended to buy them in physical stores, where the opportunity for professional advice is given.

Compared with actual consumers, participants from the general public group were much more concerned about side effects of bear bile products. Some participants expressed the belief that bears from which bile is extracted are sick, and that this could cause side effects for people consuming their bile. Given the general public's strong concern about side effects, this can be emphasised as interventions for new consumers.

The study concluded that the consumers often believed in big brands, trusting that the products are safe and the conditions the bears are kept in are adequate. Convincing the public and consumers that company size does not guarantee better conditions for bears, or improved product safety, could decrease demand.

The respondents also said they trusted the safety and efficacy of bear bile products because they are recommended by family and friends and by health care professionals.

Outlining potential side effects of bear bile products could potentially help influence the decision of consumers. In study F, 48.8% of respondents expressed concern over the potential safety risks of using bear bile medicine.

Relevant research shows that 100% of bears subject to long-term bile extraction suffer from cholecystitis and 38% of bears die of liver cancer<sup>12</sup>. It shows that extracted bear bile may often originate from sick bears. This could correspond with considerable safety concerns, although specific studies on this are missing to date.

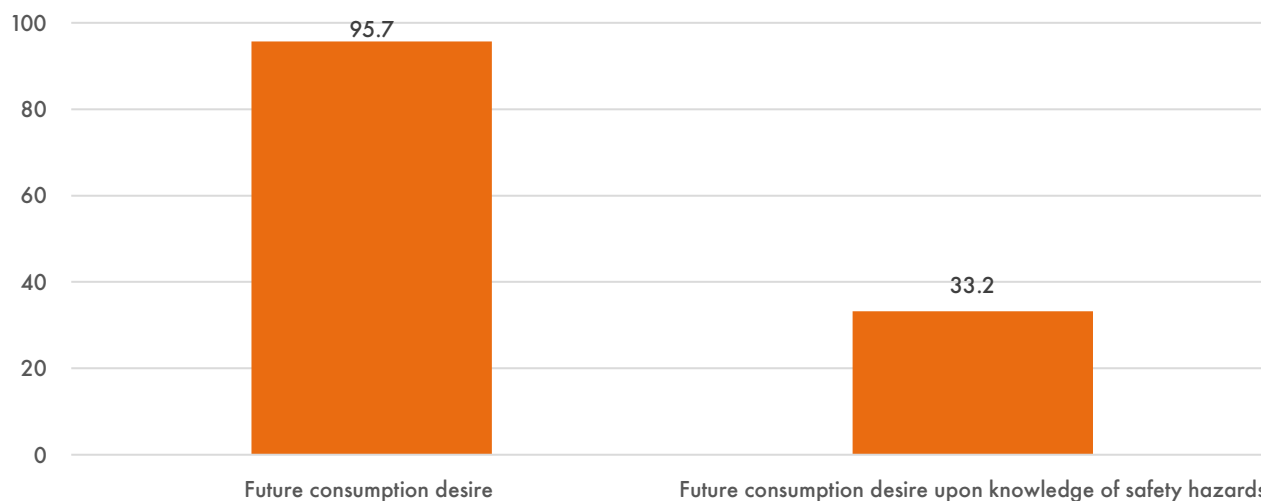
Study G of Chinese nationals showed that more than 95.7% of consumers will continue use of bear bile products when health hazards are not mentioned. But once informed about hepatitis, cholecystitis and other health hazards in bears subjected to bile extraction, only 33.2% consumers said they would continue using bear bile products. More than 60% of consumers said they would not.

To reduce bear bile use by highlighting the health hazards of farmed bear bile, it is crucial to promote herbal or synthetic substitutes. This will avoid pushing demand into illegal, wild-sourced bile products.

**'The study also found that consumers held a lot of trust in the market, particularly in large pharmaceutical companies.'**



**Figure 7:** Desire to continue use of bear bile products in the future before and after knowing safety hazards (%) (Study G).

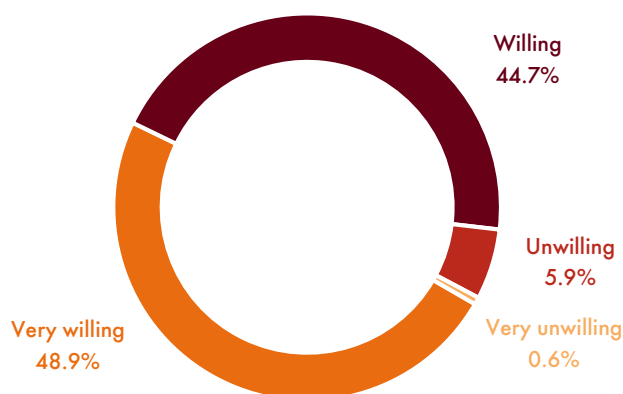


**Consumer attitudes towards the cruelty associated with bile farms**

Study G, the 2018 online survey of 2,000 Chinese citizens across 10 Chinese cities found that 90% of respondents had heard about the discussions surrounding bear bile extraction. Furthermore, after hearing about the process of bile extraction 97% believed that it is cruel. Twenty one percent said while believing that it is cruel also felt that it “has to be done”. Eighty four percent of interviewees responded that they hoped the bear bile industry would be banned; this included 69% of long-term bear bile users.

The study surveyed people’s willingness to protect Asian black bears and found that 93.6% wished to be involved in the banning of bear bile extraction and black bear protection. Despite these encouraging findings of urban Chinese populations, the demand for bear bile products continues – at least within China and in Chinese diaspora communities.

**Figure 8:** Percentage of people who wished to be involved in banning of bear bile extraction and black bear protection (Study G).



Conversely, study F, the qualitative survey of Chinese consumers and non-consumers, found that cruelty did not seem to be an important factor. Some participants expressed that humans are at the top of the food chain with the prerogative to use other species for gain, as any other wild animal would.

Other people commented that they felt sorry for the bears, but it would not change their consumption of the products. When discussed further, it appeared that these participants did not have an accurate understanding of bear farming practices. Overall, they believed the following:

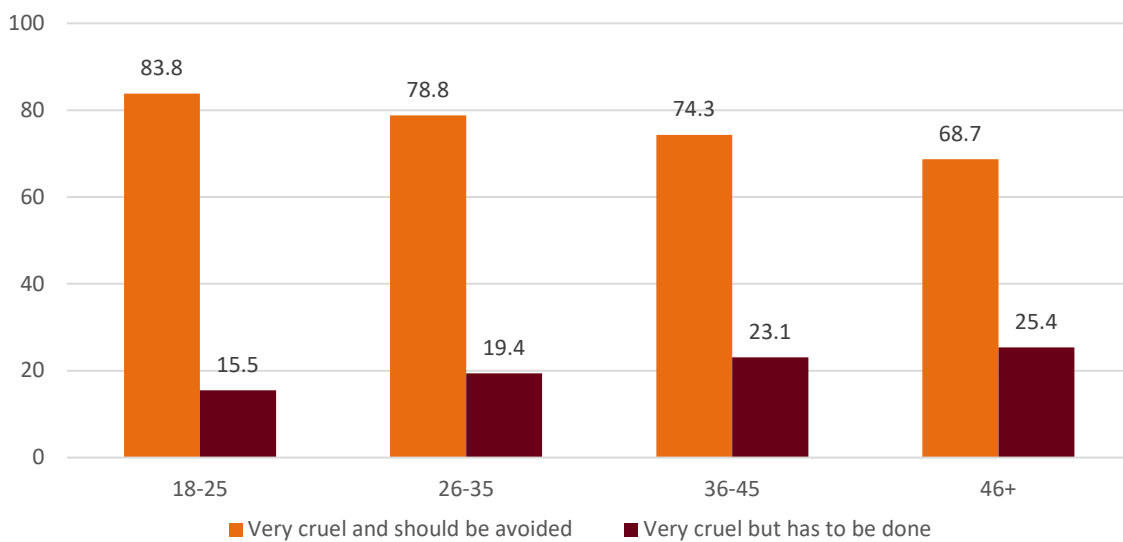
- There must be significant different environments for bile extraction between large and small bear farms. Large farms provide a more humane environment than small farms, with less pain for bears and better sanitary conditions.
- Legal bear farms must have a different bile extraction process.

- There are, or could be, regulations in place protecting bears from negative impacts of bile extraction. They thought there were or could be limits for timing, frequency and amount of bile extraction or extracting bile during sleep.
- Bears extracted for bile can express natural behaviours. This highlighted that participants either did not know these bears were caged or were unaware that caging bears would affect their behaviour.
- There were no health hazards for bears, such as wound inflammation and other illnesses, caused by bile extraction.

Given the quantitative study findings we believe, that if the participants understood the cruelty endured by bears on bear farms, they would have been more opposed to bear farming.

Demographics also affected opinions according to study G. Older people were less averse towards bear bile extraction; 15% fewer respondents believed bear bile extraction was cruel in the 46+ category compared to the 18-25 category.

**Figure 9: People’s attitude to the bear bile extraction process, across different age groups (% of respondents agreeing with the statement) (Study G).**



Very few people maintain a neutral or pro-attitude when made aware of the cruelty of the industry. This indicates that bear bile extraction directly challenges the basic moral principles of the public.

In 2012, conditions of bears in Fujian Guizhentang Pharmaceutical Co Ltd were exposed. This led to public condemnation of the bear bile industry where 72 prominent figures and Chinese celebrities spoke out against bear farming.<sup>1</sup> Combined with ongoing activity from Chinese animal welfare groups, their actions increased awareness throughout the country.

## Consumer attitudes towards making bear bile products illegal

Study F, the qualitative study with in-depth interviews of Chinese participants found that most respondents in the consumer category said they would not buy bile products if they were illegal. However, respondents in the general public category said they did not think it was necessary to criminalise the buying and selling of bear bile products.

They gave the following reasons.

- If the consumption of bile from artificially bred bears is criminalised, wild black bears may be at the risk of being killed.
- Even if the criminalisation is defined, "people with wealth, power or curiosity" will try to buy bear bile through a variety of channels.
- Substitutes are not yet accepted by the public, so people's health may be in danger if the bear bile product is made illegal.

The study found that few consumers would seek bear bile products in illegal markets, and most people will resort to substitutes.

## Consumer attitudes towards continuing the trade

Study C, regarding the availability of bear bile products on the international market, suggests a thriving industry that has sustained high demand.

Study F results from Chinese consumers support these bear bile product supply findings. They also indicate that regular bear bile users are generally unwilling to change their consumption behaviour even if presented with rational arguments against it. Communicating the availability and superiority of substitutes for bear bile could, however, encourage people to change their minds particularly if communicated through credible spokespeople, eg physicians.

Most consumers researched for study F believe that the bear bile industry can only be ended when "alternative drugs are successfully developed". The public said they believed that the industry is brutal and should be banned without many prerequisites. Despite this, the study F public group thought it a bad idea to criminalise the buying and selling of bear products.

Study H found that 73% of Vietnamese bear bile user interviewees said they had not used it within the past two years. This result represents a 61% decrease compared with the findings of a similar survey in 2009. The reduction of bear bile use was widespread across all different groups of surveyed participants, including gender, education level and geographic location within Vietnam.

**'This study also highlighted the importance of acknowledging that knowledge and behaviour do not necessarily match each other. For example, high-education and high-income groups showed the highest degree of knowledge of this industry, the strongest desire to ban the industry and participate in bear protection. However, they also had the highest ratio of bear bile product consumption.'**

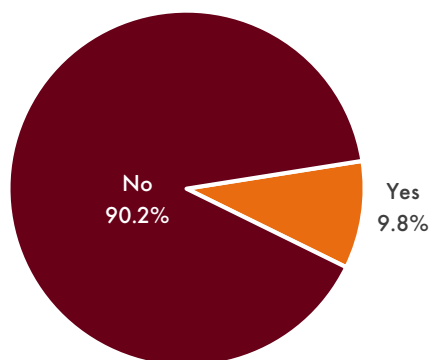
More than half of survey participants said that they had been exposed to some bear protection awareness materials or activities. Eighteen percent said they had not used bear products again because they were concerned for the bears. This complements results from study A focussing on bear farmers in Vietnam. This study showed that 54% of active Vietnamese bear farmers admitted that they had already made less money than in the previous year.

Encouragingly, study G found that only 9.8% of the 1,412 survey respondents that had purchased or used bear bile in the past would continue to use products in the future. More than 90% said they would not. Additionally, in a wider survey of a mixture of people who had and had not used bile before, 83.9% of people hoped to ban the business. Furthermore 93.6% of people wished to be involved in the efforts to stop bear bile extraction and to protect bears.

Reasons for opposition to the bile extraction industry involved: cruelty to bears (73.8%); substitutes could be used instead (65.9%); and potential safety risks of bear bile medicine (48.8%).

This study also highlighted the importance of acknowledging that knowledge and behaviour do not necessarily match each other. For example, high-education and high-income groups showed the highest degree of knowledge of this industry, and the strongest desire to ban the industry and participate in bear protection. However, they also had the highest ratio of bear bile product consumption.

**Figure 10:** Percentage of survey respondents that will consume bear bile in the future. Survey of 1,412 Chinese people who have purchased or used bear bile in the past (Study G).



Participants in study F, the qualitative survey with in-depth interviews of Chinese consumers and non-consumers, listed the following explanations of non-consumers for not using bear bile products.

Reason	Explanation
No personal demand	No need to buy drug in the case of minor health problem
Limited understanding	Limited understanding of bear bile products (brands, efficacy, etc) and dare not try
Price	Rare and expensive; youths can maintain health by physical exercise
Efficacy	Concern about inadequate content of bear bile and limited efficacy
Safety	Concern about possible disease in bears and consequent health hazards
Ingredients	Concern about possible additives and side effects, because the products are mostly compounds
Purchasing channel	Harder and harder to find in markets
Acceptable substitutes	Chinese herbal is better, more environmentally friendly and humane
Humanistic consideration	Live bear bile is cruel and inhumane

Considering all studies' findings, the following points should be emphasised when campaigning via public-service ads to deter bear bile use and promote substitutes.

- Concrete evidence should be given showing that existing bear bile products may have potential health hazards due to the poor health of the bears.
- Thorough comparisons between bear bile products and substitutes should be made, highlighting any applicable rational benefits of substitutes. These could include better efficacy, bioavailability or better taste.
- Objective descriptions about the current situation of Asian black bears in farms should be given. And the names of famous brands and large-scale farms should be exposed to dispel the image of a clean industry.
- Information about the threats to wild bears in Asia due to bear bile consumption should be included. For example, one participant in the study stated: "If black bears were endangered why would bile extraction be allowed? I have never heard of bile extraction from a panda."

It is important to include health care professionals, especially hospitals and doctors, when promoting substitutes. This will help ensure the public trusts the information of the new products. It will also ensure the information reaches the rural population and the older populations who may pay less attention to media outlets.

### Consumer study limitations

Consumer preferences and behaviour play an important role in product demand<sup>65</sup>. Human behaviour is influenced by individual attitudes, which are influenced by knowledge and value orientations.<sup>1</sup> These in turn are dictated by the cultural environment. Therefore, cultural, social and economic backgrounds and attitudes of consumers must be addressed to understand illegal wildlife trade and to develop demand reduction strategies.<sup>1,66,67</sup>

All participants in our consumer studies were based in cities and all studies were conducted either partially or fully online. This slightly limits how we can interpret the data, as the results are biased to a certain demographic. Very little data address the consumers in rural communities in China. Given bear bile is a 'traditional' industry it is likely to be used more in places less modernised than cities.

Additionally, a huge majority (74.6%) of people surveyed in study G had never purchased or used bear bile products. This considerably limits our insights into consumer demographics from these results. However, the study did include a subset of actual consumers surveyed on certain topics, which mediates some of this limitation.

Only 10.5% of the total sample of respondents were long-term users of bile products. It is likely that long-term users are the demographic driving most of the demand for bile products, so this is an important, but small, sample. The study included a broad sample of ages, professions, education background and incomes.

Finally, none of the surveys used specialised questioning techniques in the methodology to account for potential social desirability and illegality bias,<sup>46</sup> which could have affected survey results. It is unlikely this would affect the results for Chinese participants, given that bear bile consumption is completely legal in China.

While the trade in bear bile is illegal in Vietnam it is widely considered socially acceptable. Study H assured anonymity to reduce the occurrence of false answers regarding the use of bear bile by respondents.

**'Cultural, social and economic backgrounds and attitudes of consumers must be addressed to understand illegal wildlife trade and to develop demand reduction strategies.'**

# Conclusions and recommendations

More than 24,000 bears are enduring extreme pain and distress to fuel the traditional Chinese medicine industry and demand for their bile. And despite outcry from some NGOs and the general public, legal and illegal bear bile products are readily available and popular in several countries. Farmed, captive-bred bears are not the only victims of the trade, local wild bear populations are being poached to supply farms or killed for their gall bladders.

Illegal bear bile products are sold outside Asia too - with the USA and Canada being hotspots. According to LEMIS data, large quantities of bear products are illegally brought into the USA. While some products were raw bile parts, possibly collected from local (US) bear populations, many were industrially manufactured medical products produced in Japan or China.

Japan's traditional medicine industry plays a major role in the international bear bile market. The perceived higher quality of products from Japan are favoured among consumers within China and elsewhere. Some bear bile used in Japanese products is declared as originating from Russian brown bears and imported to Japan via China.

However, it is unclear whether the declared amounts of Russian brown bear products are enough to fuel Japanese manufacturers demand. It is possible that some are falsely declared as brown bear to appear as a legal product but could have been illegally sourced elsewhere.

In China, bear bile is a legal industry worth more than a billion dollars. It caters to consumers who believe in bear bile's effectiveness as a health or medical product, or who like to give or receive bile products as gifts. Two especially popular bear bile products achieve more than US\$100m in sales each year.

More than 20,000 bears suffering on registered bear farms within China supply the industry. There is also increasing Chinese investment in bear farms in the popular Chinese tourist destinations of Lao PDR and Myanmar. These countries on China's borders are entirely reliant on wild bears to supply the bear bile industry and their farms and are directly fuelling the poaching of wild bears.

Thankfully, NGO campaigning efforts in South Korea and Vietnam have led to a phase-out of the industry, with consumer demand declining as well. However, illegal bear extraction activities on some Vietnamese farms still need to be stopped.

Chinese consumers show a strong belief in the effectiveness of bear bile products. They are influenced by television adverts, family or friends, pharmacy staff and medical practitioners. 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 better products.

However, when the process of bile extraction is described, many Chinese people strongly agree that the practice is very cruel. Unfortunately, these concerns are not necessarily leading to a change in behaviour; many consumers believe their health is more important than that of the bears.

Awareness of alternatives to bear bile by users is inadequate and is marred by beliefs or perceptions that substitutes for bear bile would lack efficacy or are inconvenient to use. However, most consumers showed a remarkable readiness to switch to alternatives when convinced they compare well with bile in effectiveness and convenience.

Data regarding future consumer behaviour of urban Chinese people suggests a general decrease in desire to consume bear bile. Ninety percent of those that have consumed it in the past say they will not do so in the future. This non-consumption trend is supported by a previous study showing that 60-70% of Chinese and Vietnamese consumers could be influenced to give up bile consumption.

Stronger public outcry about animal welfare conservation issues and the bear bile industry within China are leading to non-bear bile substitutes being developed.

Based on these conclusions, we recommend the following actions from governments and CITES to protect bears from the horrific suffering they endure to supply the cruel bear bile industry.

**'When the process of bile extraction is described, many Chinese people strongly agree that the practice is very cruel. Unfortunately, these concerns are not necessarily leading to a change in behaviour.'**

## Recommendations to all national governments, particularly those with existing consumer demand for bear bile products

- **Fully** comply with CITES Resolutions Conf 10.8 (Rev. CoP14), Conf. 10.19 (Rev. CoP14) and Conf. 17.4) to reduce the demand in the illegal trade in products containing bear parts and derivatives.
- **Disseminate** information about herbal or animal-friendly synthetic bear bile substitutes, through physicians, other health care practitioners and relevant media channels to raise awareness for suitable and more sustainable alternatives.
- **Ensure** that information reaches rural communities, older generations and lower socio-economic communities who may not be aware of the issues surrounding bear farms and bear bile products.
- **Highlight** any benefits of substitutes, eg equal or better efficacy, lower health risks through fewer side effects, better bioavailability or improved taste.
- **Encourage** research on sustainable and humane alternative ingredients in traditional medicine that can replace ingredients derived from wild animals.
- **Make sure**, when campaigning to reduce bear bile use, that welfare and conservation issues caused by traditional Chinese medicine products containing bear bile are highlighted. These issues should include the threats to wild bears in Asia and the cruelty and suffering of captive bears associated with the industry.
- **Discourage** or ban the promotion or advertising of medicines and health products containing bear bile in the press and other media.

### Recommendations to the government of China

- **Revise** relevant current laws - including the Wildlife Animal Protection Law and the Chinese Medicine Law - to end captive breeding of bears for commercial use of their body parts and derivatives.
- **Convince** bear bile producers that it makes good business sense to replace bear bile in their products and use animal-friendly synthetic or non-animal based traditional medicine ingredients. Existing government-supported research developing commercially viable bear bile alternatives through in vitro technology, with Kaibao Pharmaceutical, should be used as an example of success.

- **Encourage** pharmaceutical retailers to promote traditional medicine with animal-friendly synthetic or herbal alternatives to bear bile and phase out bear bile products.
- **Initiate** or support more studies to identify non-animal derived, sustainable and medically effective ingredients to replace bear bile or other animal ingredients in traditional medicine. This would make the traditional Chinese medicine industry more attractive to potential markets outside of China and increase demand within.
- **Persuade** corporates involved in illegal practices or animal cruelty to abandon the trade in products derived from them.
- **Implement** policy recommendations to initiate a phase-out of the bear farming industry combined with the shift in demand for more sustainable, non-animal based traditional medicine products. Critical steps are: shutting down non-registered farms; considering a sterilisation programme for captive bears and adopting a plan to fully phase out bear farming within one bear generation.

### Recommendations to the government of Vietnam

- **Revise** relevant administrative decrees to include sufficiently high penalties for farmers not reporting births of bear cubs on their farms.
- **Ensure** penalties within the law and criminal justice system allow the punishment of people found guilty of extracting bile.
- **Strengthen** regulations on facilities labelled for 'conservation', particularly licensing through the Biodiversity Law. This is to ensure facilities permitted to breed bears only do so to conserve wild bear populations. This law should ensure that bears are not used for bile extraction and other illegal activities including any commercial activities.
- **Microchip**, register and rigorously monitor all bears held in captive facilities and confiscate unregistered, illegal bears.
- **Continue** to implement your public commitment to end bear bile farming on your territory.

### Recommendations to the government of South Korea

- **Continue** to monitor all captive bears on farms to ensure that no new bears enter the bile industry.
- **Increase** penalties for illegal breeding of bears and rigorously prosecute any infractions of the law.
- **Strengthen** the monitoring systems for bear farms and of bears on exhibition facilities. This should be done through the introduction of a DNA database, to ensure that there is no illegal entry of bears into the industry.
- **Agree** to the construction of a high-welfare bear sanctuary facility for as many sterilised bears from bear farms as possible.
- **Abolish** the provision under the Wildlife Management and Protection Act permitting bears to be killed after 10 years of age for their bile and body parts.
- **Continue** to enforce the commitment made in 2017 to prevent any exhibition bears used in entertainment being converted by administration procedures to bears that can be killed for their bile.

### Recommendations to the government of Japan

- **Take** measures to strictly monitor and regulate where Japanese pharmaceutical manufacturers source their bear bile to prevent import of illegal bear bile. For example, Asiatic black bear bile may be disguised as Russian brown bear bile and brown bear products.
- **Stop** the illegal export of these products overseas.

### Recommendations to the government of Lao PDR

- **Demonstrate** political will to end captive breeding of bears for commercial use and prevent the expansion of bear farms in the country. This involves strengthening law enforcement measures including the implementation of Order No 5 prohibiting the farming of protected species.
- **Ensure** that national laws comply with CITES regulations.
- **Increase** efforts to monitor the wildlife trade (domestic and international), especially within the Special Economic Zones.
- **Close** all enterprises selling wildlife illegally and prosecute individuals implicated to the maximum extent of the law.

### Recommendations to the government of Myanmar

- **Collaborate** with border countries, especially China, to ensure that CITES regulations are effectively enforced to end the illegal international trade in bear parts and derivatives.
- **Strengthen** domestic law and enforcement efforts to stop hunting and poaching of bears for their bile.
- **Close** illegal bile production facilities and prosecute individuals involved in illegal bear bile trade to the full extent of the law.

### To the government of the United States of America

- **Review** bear product commerce by prohibiting the import, export, and interstate trade in bear gall bladders or bile.
- **Act** on evidence of ongoing illegal sale of bear bile containing products in the USA. Investigate vendors and enforce the law to close down the illegal market for bear bile products.

### Recommendations to the government Canada

- **Strengthen** the Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act. This will ensure consistency of legislation between provinces and that the traffic and possession of illegal bear parts and derivatives are prevented.
- **Ensure** government authorities crack down on ongoing trade in bear bile being sold in shops in Canada and prevent future sales.



## Recommendations to CITES secretariat and parties

### Monitoring and enforcement

- The Standing Committee should recommend that bear-range states and parties with captive bear facilities increase enforcement and report seizures of bear bile products and wild bear parts to the secretariat.
- CITES should review Appendix II listings for brown bears in Japan, where some sub-populations are considered threatened with extinction. Up-listing the bears to Appendix I should be considered. This will address the challenges of controlling legal trade caused by difficulties of identifying species and origin of bear products regarding Appendix classification. Brown bear populations in Bhutan, China, Mexico (extirpated) and Mongolia are covered by Appendix I. All others, including Japan, are Appendix II.
- CITES parties should call for the investigation of all bear holding facilities and places of entertainment that hold and/or breed bears. This is to determine the role these businesses play in supplying live animals, and their parts and derivatives to the black market. The number of zoos and places of entertainment involved in illicit trade should be recorded, with the species and numbers held, numbers produced, and destination of sale. Scientific studies should be undertaken, in collaboration with affected range states and relevant organisations regarding legal and illegal trade in bears, including parts and derivatives. This is to ascertain the origin and smuggling routes. Findings should be published in a peer-reviewed format.
- CITES secretariat should investigate the legality of transactions of Asian black bears recorded on the CITES database to determine the legality of these transactions. Mechanisms can be put into place to flag illegal transactions to parties and enforcement action urged.

Parties to CITES should assess their national legislation to ensure that it is effective. It should not allow any loopholes for Appendix I bear parts or derivatives to be traded internationally.

The data and research identified above should be collated and distributed to parties so that they may take appropriate action. This should include revisions to Resolution Conf. 10.8 (Rev. CoP14) on Trade and Conservation of Bears, and relevant Decisions.

### Captive breeding and traditional medicine

- CITES parties should globally recognise that bear parts and derivatives should not be traded or used for traditional medicine. They should pass a decision or resolution to restrict the captive breeding of bears to a level supportive only of conserving wild bears. Bears should be prohibited from being bred for commercial trade in their parts and derivatives.
- Parties with captive breeding facilities should ensure there are adequate management practices and controls. These controls should prevent parts and derivatives from entering the illegal trade from or through such facilities, as called for by CITES.
- Strengthen and take concrete steps towards the implementation of Resolution Conf. 10.19 (Rev. CoP14).

## Recommendation to companies manufacturing or trading in bear bile products and traditional medicine practitioners

- **Adopt** animal welfare policies that prohibit animal suffering and the use of endangered animals such as the Asiatic black bear.
- **Replace** bear bile ingredients in traditional Chinese medicine products with animal-friendly synthetic alternatives or herbal alternatives as outlined in reports from traditional Chinese medical practitioners.
- **Offer** customers traditional Chinese medicine alternatives without bear bile to treat the ailments for which bear bile is usually prescribed. There are many traditional Chinese medicine alternatives available that can replace the revenue gained from bear bile.

# Appendix 1

List of pictures of all manufactured bear bile products found across the following recent World Animal Protection product surveys in the USA, Canada, Japan, South Korea and China.

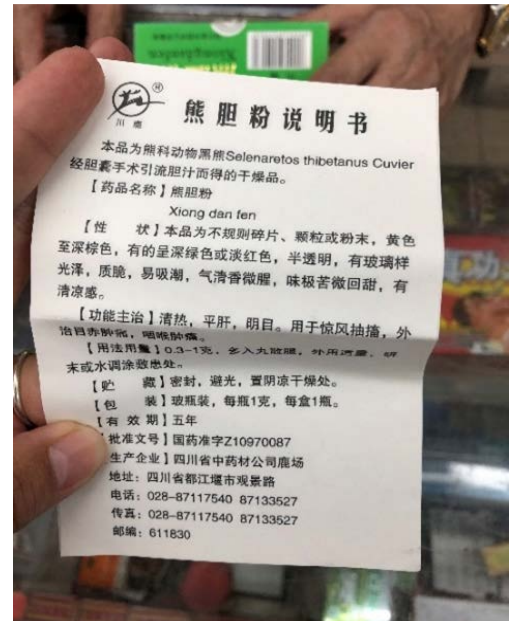
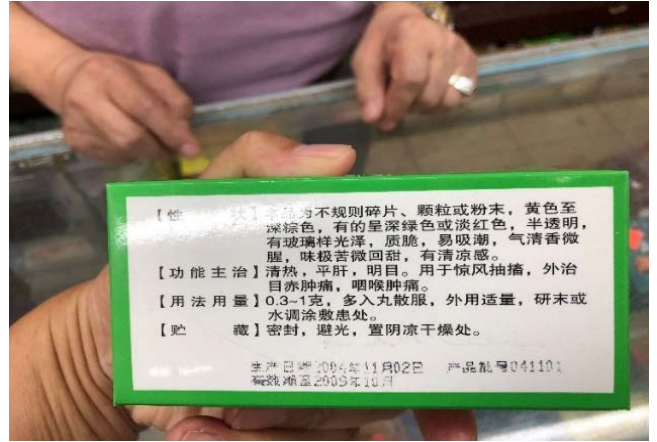
## Product 1 (Osaka, Japan)



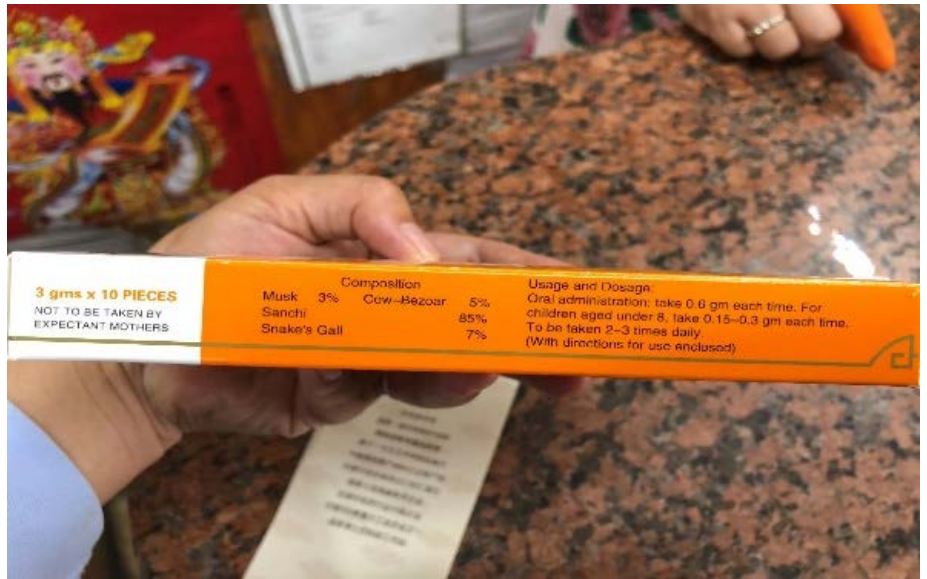
## Product 2 (New York, USA)



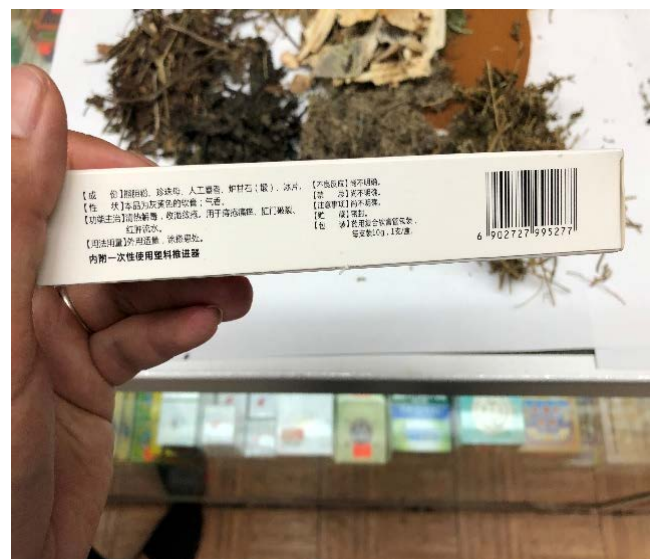
Product 3 (New York, USA)



Product 4 (New York, USA)



Product 5 (New York, USA)



Product 6 (New York, USA, and Toronto, Canada)



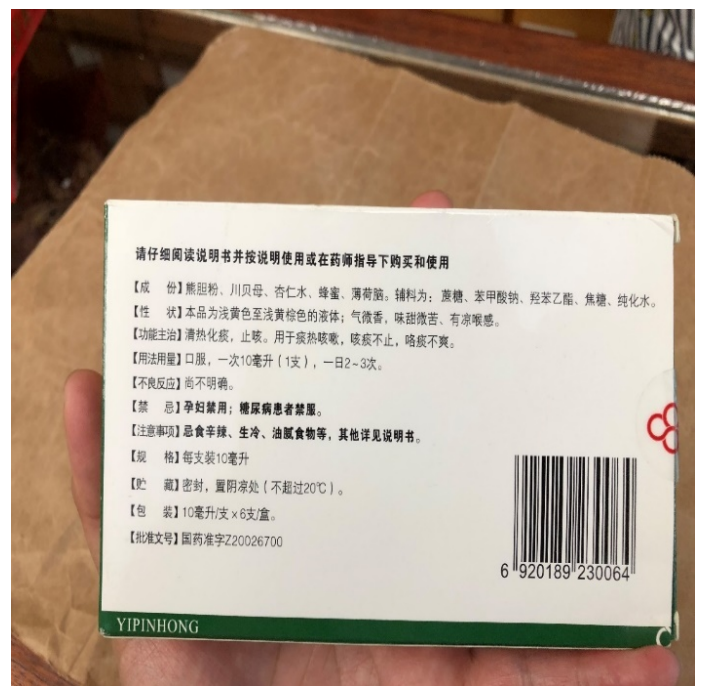
Product 7 (New York, USA)



Product 8 (New York, USA)



Product 9 (San Francisco, USA)



## Product 10 (San Francisco, USA)



## Product 11 (San Francisco, USA)







Product 14 (Osaka, Japan)



# Appendix 2

List of pictures of all raw bear bile products found across the following recent World Animal Protection product surveys in the USA, Canada, Japan, South Korea and China.

Product 1 (Unprocessed bear bile in a jar, on sale in Japan)



Product 2 (Unprocessed bear bile in a jar and a dry gallbladder, on sale in Japan)



Product 3 (Unprocessed bear bile sample, on sale in Japan)



Product 4 (Unprocessed bear bile in a cup, on sale in Japan)



Product 5 (Dry gall bladder, on sale in Japan)



Product 6 (Dry gall bladder, on sale in Canada)



Product 7 (Gall bladders on sale in South Korea)



# Appendix 3

Details of all studies conducted, commissioned or supported by World Animal Protection that fed into this report.

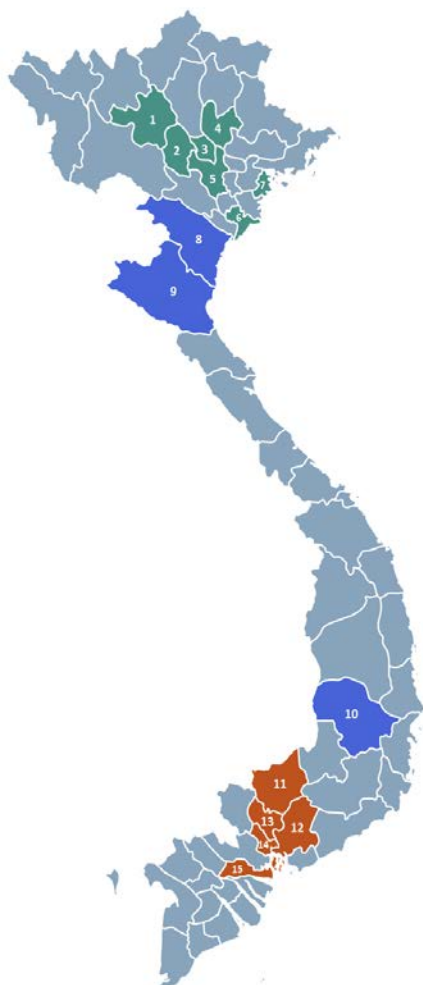
## Study A – Vietnamese bear farmers’ motivations and perceptions (2018)

This study aimed to obtain information regarding bear farmers’ knowledge of laws and regulations surrounding bear keeping, their understanding of bear behaviour and needs, and motivations for keeping bears. Data were collected by ‘Cimigo’ market research company.

Thirty-seven semi-structured interviews were conducted with 28 active bear farmers and nine former bear farmers across 14 provinces in Vietnam. All interviews were conducted in Vietnamese. The respondents were recruited from a list provided by World Animal Protection (N=34 interviews) or local knowledge of researchers (N=2 interviews) and referrals from farmers interviewed (N=1 interviews).

Farmers were informed that interviews would be anonymous and that no personal identifying information would be recorded. Quotas were applied so that 12 interviews were conducted at small active farms with fewer than four bears. Sixteen interviews were conducted at large active farms with four or more bears. There was no quota on farm size for inactive farms. The demographics of the farmers interviewed were as follows: GENDER (62% male, 38% female). AGE (5% 30-39, 22% 40-49, 41% 50-59, 24% 60-69, 8% 70-79).

The image below shows the farm locations for the study.



	North	Active farms	Inactive farms
1	Yên Bái	1	
2	Phú Thọ	1	
3	Vĩnh Phúc	1	1
4	Thái Nguyên	1	
5	Hà Nội	7	
6	Nam Định	1	
7	Hải Phòng	2	
Central and highlands			
8	Thanh Hóa	1	
9	Nghệ An	4	7
10	Đắk Lắk	2	
South			
11	Bình Phước	1	
12	Đồng Nai	3	1
13	Bình Dương	1	
14	Hồ Chí Minh	1	
15	Tiền Giang	1	

## Study B – Reduce or Redirect? Which social marketing interventions could influence demand for traditional medicines? (2020)

This published study supported by World Animal Protection aimed to understand consumer attitudes towards the use of traditional Chinese medicine products containing animal parts. It also aimed to understand consumer knowledge and perceptions of herbal alternatives.

Two thousand respondents (1,000 Vietnamese and 1,000 Chinese) were surveyed online.

This study was published in *Biological Conservation*, co-authored by researchers from Wildlife Conservation Research Unit, University of Oxford and World Animal Protection as:

Moorhouse TP, D’Cruze N, Macdonald DW (2020) Reduce or Redirect? Which social marketing interventions could influence demand for traditional medicines? *Biological Conservation* 242: 108391.

## Study C – Investigating the availability of bear and big cat products on the global market (2018)

In a follow-up to a similar 2007 study, World Animal Protection investigated 134 traditional medicine shops in six locations across four countries.

Country	City	Number of shops
Japan	Tokyo	5
	Osaka	7
Canada	Toronto	25
USA	New York	44
	San Francisco	33
UK	London	20
<b>Total</b>		<b>134</b>

A total of four investigators conducted the survey (one in each country). Each investigator had Chinese nationality and Chinese language fluency but held local residency in each respective country.

The shops were selected through a combination of reviewing traditional Chinese medicine association resources, online searches, and other traditional medicine shop directories.

Once shops had been selected, investigators visited each shop and inquired about available bear bile products. Conversations were steered towards gathering information about the price and source of the bear

## Study D – Investigating the availability of bear bile products in South Korea. This study was conducted in collaboration with Green Korea United (2018)

In total, 105 randomly selected shops across five traditional medicine markets in Korea were surveyed for the availability of bear bile products. The markets were:

- Gyeongdong Market (Seoul)
- Moran Market (Seongnam)
- Yakcho Market (Jecheon), Haneuiyak Street (Daejeon)
- Yakryeong Market (Daegu)

If no big cat products were available, the investigators asked the vendors if they would be able to mediate the trade. Information was gathered about the products on sale and the products that vendors claimed to mediate. The price, the origin of the products, the year of production, the type of products, and the timing of mediation were asked for. No product was purchased.

## Study E – Scale and value of the Chinese bear bile pharmaceutical industry (2018)

The study was commissioned from the Economics Intelligence Unit.

Publicly available information on the scale and value of the bear bile pharmaceutical market, manufacturers and bear bile farms was collected to gain understanding of the supply situation and economic drivers. Where necessary, statistical modelling was used to derive estimates for total sales or scale of bile production. Two examples of such modelling are given here:

1. Published data existed for tonnes of bear bile produced in each year from 2009 to 2015. The average growth rate from those years was used to estimate bile production for years 2016, 2017 and 2018.
2. Published data existed for sales value of bear bile products of 10 of the 114 identified bear bile manufacturing companies. Where these values were unknown, the study ranked companies according to their Baidu hits. A correlation between those hits and company size was assumed. Zipfian was used to estimate distribution sales values in relation to the companies’ rank to the known sales value of the largest company.

## Study F – Qualitative study on Chinese bear bile consumer attitudes and characteristics (2017)

This study was conducted to understand consumer attitudes and general public perceptions of bear bile product consumers. The study was conducted via in-depth interviews in focus group sessions consisting of 6–8 participants. Nine discussions were held with actual consumers of bear bile products in five cities.

A professional facilitator guided and facilitated open-ended discussions on bear bile product consumption behaviour and attitudes based on a drafted interview outline. Discussions lasted approximately two hours and were acoustically recorded. An additional organiser observed the focus group discussion through a one-way mirror to glean information about the characteristics of the consumers.

Participants were categorised as ‘Actual consumers’ if they met the following criteria:

- were 22–45 years old
- had resided in the local area for at least one year
- had bought or used bear bile products in the last six months
- had bought the products for disease treatment, healthcare or gifting

Actual consumers were divided into: a disease treatment group, a healthcare group and a gifting group based on how they consumed bear bile.

Participants were categorised as ‘General public’ if they met the following criteria:

- were between 22 and 45 years old
- had resided in the local area for at least one year
- had heard of bear bile products, but had never bought or used bear bile products
- had no family members that were market researchers, were involved in the bear bile industry, or in animal protection
- had not participated in any market research activity in the six months prior to the interview.

## Study G – Attitude of Chinese nationals towards bear bile extraction (2016)

This study aimed to investigate Chinese urban residents' knowledge of and attitude towards bear bile products and their awareness of bear protection. It also aimed to understand how socio-economic factors affect people's attitudes.

This study was conducted via an online survey with 1,892 respondents in 2016. The respondents were spread across 10 cities in China (Beijing, Shanghai Guangzhou, Harbin, Fuzhou, Wuhan, Chengdu, Xi'an, Taoyuan, and Kunming), with roughly equally balanced sample sizes from each city (ranging between 187 and 193).

All participants:

- were above the age of 18
- were residing in cities
- had not attended any form of market survey in the six months prior to the survey
- did not work at, and had no family members that worked at, market research, advertising, or media related industries.

The demographics of the participants included 50.8% male and 49.2% female respondents, of age groups 18–25 years (20.8%); 26–30 years (29.4%); 36–45 years (32.7%), and 46 years and over (17.1%).

## Study H – Analysis of change of bear bile use in Vietnam (2015)

This study was done in collaboration with Education for Nature Vietnam. The study was a follow up from a similar survey conducted in 2009 and used similar methodology.<sup>49</sup>

The survey was carried out in Hanoi, Da Nang and Ho Chi Minh City, Vietnam's three major cities. These cities represent the three geographic regions of north, central and southern Vietnam.

From each city, 1,000 participants were randomly contacted and interviewed via telephone at different times of the day and week. All interviewees were over 18 years of age, and phone numbers were provided to ENV by the Vietnam Multimedia Corporation (VTC) who randomly selected them from their pool.

The questionnaire had 19 questions. It was aimed at learning about the perceived values associated with bear bile, why people use it, frequency of use and the primary sources for obtaining bear bile. The interviewee's intention regarding future use, their understanding of the law and their opinions about how to reduce and eliminate bear bile consumption and phase out bear farming in Vietnam were also sought.

Bear bile users were divided into two groups; past and current bear bile users. The term 'past users' here refers to people who used bear bile at any time in the past but stopped using bear bile in the past two years. 'Current bear bile users' include those who used bear bile at least once over the past two years.

## Study I – The bear trade and bear farms in the border regions of eastern Myanmar (2016)

Conducted by Biodiversity and Nature Conservation Association in Myanmar, commissioned by World Animal Protection. It was based on thorough desktop research, followed by direct field surveys around Mongla, Panghsang, Muse, Ruli, Tachileik, and Kyeik Htee Yoe, in the selected border regions of eastern Myanmar. Bear farms and traditional medicine shops were visited as well as interviews with potential informers conducted.

## Study J – A review of bear farming and bear trade in Lao PDR (2018)

This World Animal Protection supported study was published by Livingstone, Gomez and Bouhuys in *Global Ecology and Conservation*, Vol 14, January 2018. The following is the abstract of this paper.

This study reviews the bear farming industry in Lao PDR. The objective was to document the number of commercial bear facilities (ie captive bear facilities judged to be trading in bear bile and/or bears and bear parts) and the number of bears contained within. Changes were noted since it was last examined between 2000 and 2012 by Livingstone and Shepherd (2014). We surveyed all known commercial bear facilities and searched for previously unrecorded facilities. We compared our records with Livingstone and Shepherd (2014) and corrected some duplicate records from their study.

In 2017, we recorded seven commercial facilities; four dedicated bear farms, and three tiger farms reportedly also keeping bears. We found that between 2012 and 2017 the recorded number of dedicated bear farms reduced by two, and the recorded number of tiger farms, also keeping bears, increased by one.

Within the same period, the total number of captive bears among all facilities in Lao PDR hardly changed (+one), but the number of bears within each facility did. The northern facilities, owned by ethnic Chinese, have expanded since 2012, and central and southern facilities have downsized or closed.

While bear farming appears to be downsizing in Lao PDR overall, efforts to phase it out are undermined by the expansion of foreign-owned facilities in Special and Specific Economic Zones in the north. These largely cater to a Chinese market, and in these zones the Lao PDR's government's efforts to enforce laws and protect wildlife appear to be lacking. Closing the facilities in the north will require political will and decisive law enforcement.

## Study K – A review of bear bile trade in Japan (2018)

The Japan Wildlife Conservation Society was commissioned by World Animal Protection to conduct a desktop study reviewing illegal and legal sourcing of bears for the trade in bear bile in Japan.

The study obtained data from CITES; the Japanese ministry of economy, trade and industry; the ministry of health, labour and welfare; the national police agency, the ministry of environment and the ministry of finance. Additionally, the Pharmaceuticals and Medical Devices Act and the Act on Welfare and Management of Animals were reviewed in the context of bear bile product production and trade.

# References

1. Davis EO, O'Connor D, Crudge B, et al. Understanding public perceptions and motivations around bear part use: A study in northern Laos of attitudes of Chinese tourists and Lao PDR nationals. *Biol Conserv.* 2016;203:282–289.
2. Gomez L, Shepherd CR. Trade in bears in Lao PDR with observations from market surveys and seizure data. *Glob Ecol Conserv.* 2018;15:e00415.
3. Huang J. Asian perspectives on therapeutic value of bear bile and alternatives. In: *Proceedings of the International Symposium on the Trade of Bear Parts for Medicinal Use.* ; 1994:9–11.
4. Dutton AJ, Hepburn C, Macdonald DW. A stated preference investigation into the Chinese demand for farmed vs. wild bear bile. *PLoS One.* 2011;6(7):e21243.
5. Feng Y, Siu K, Wang N, et al. Bear bile: dilemma of traditional medicinal use and animal protection. *J Ethnobiol Ethnomedicine.* 2009;5(1):2.
6. World Animal Protection (WSPA). *Finding Herbal Alternatives to Bear Bile.* World Animal Protection (WSPA); 2005. [https://d31j74p4lpxrpf.cloudfront.net/sites/default/files/ca\\_-\\_en\\_files/findingherbalalternativestobearbilev3\\_tcm22-2705.pdf](https://d31j74p4lpxrpf.cloudfront.net/sites/default/files/ca_-_en_files/findingherbalalternativestobearbilev3_tcm22-2705.pdf).
7. Kanazawa T, Shimazaki A, Sato T, Hoshino T. Syntheses of ursodesoxycholic acid and its conjugated bile acid. *Proc Jpn Acad.* 1954;30(5):391–392.
8. Servheen C. *Bears: Status Survey and Conservation Action Plan.* Vol 44. IUCN; 1999.
9. Livingstone E, Shepherd CR. Bear farms in Lao PDR expand illegally and fail to conserve wild bears. *Oryx.* 2016;50(1):176–184.
10. Watkins V. Historical Perspective to the Bear Trade. In: *The Bear Bile Business: The Global Trade in Bear Products from China to Asia and Beyond.* World Animal Protection (WSPA); 2002.
11. Maas B. *The Veterinary, Behavioural and Welfare Implications of Bear Farming in Asia.* World Animal Protection (WSPA); 2000.
12. Loeffler IK, Robinson J, Cochrane G. Compromised health and welfare of bears farmed for bile in China. *Anim Welf.* 2009;18(3):225–235.
13. Bhiksu WH, Bjorkenstam Bonfiglio M, Chen Y-M, et al. *The Bear Bile Business: The Global Trade in Bear Products from China to Asia and Beyond.* World Animal Protection; 2002.
14. State Forest Administration China. Technical specification of breeding and using Asiatic black bear - Part 2: Feeding and management. June 2017. <https://www.docin.com/p-2089401480.html>.
15. Williamson DF. Introduction to Proceedings of the Fourth International Symposium on Trade of Bear Parts. In: *Proceedings of the Fourth International Symposium on Trade of Bear Parts.* Nagano, Japan: TRAFFIC East Asia - Japan; 2006.
16. Livingstone E, Gomez L, Bouhuys J. A review of bear farming and bear trade in Lao People's Democratic Republic. *Glob Ecol Conserv.* 2018;13.
17. World Animal Protection. *Ending Bear Bile Farming in South Korea.* London, UK: World Animal Protection; 2017. [https://www.worldanimalprotection.org/sites/default/files/int\\_files/bear\\_bile\\_white\\_paper.pdf](https://www.worldanimalprotection.org/sites/default/files/int_files/bear_bile_white_paper.pdf).
18. Education for Nature - Vietnam. Public urged to reject using bear bile and help end bear farming in Vietnam. 2018. [https://envietnam.org/images/News\\_Resources/Press\\_Releases/MS-Teddy-Bear-PSA.pdf](https://envietnam.org/images/News_Resources/Press_Releases/MS-Teddy-Bear-PSA.pdf).
19. Jiwen C, Shenzhen G. Investigation report. Research on the Current Situation of Chinese Bear Bile Industry and Strategies for Transition. *Dev Res Cent State Counc Beijing China.* 2016.
20. IUCN. Motions. In: *Congress Document WCC-2012-9.6.* Jeju, South Korea: IUCN; 2012.
21. Banks D. Personal communication. 2016.



22. Xinhua. Bear bile maker criticized for resuming IPO plan. *China.org.cn*. [http://www.china.org.cn/environment/2012-02/13/content\\_24624962.htm](http://www.china.org.cn/environment/2012-02/13/content_24624962.htm). Published February 13, 2012. Accessed January 29, 2019.
23. Environmental Investigation Agency. *Sin City - Illegal Wildlife Trade in Laos' Golden Triangle Special Economic Zone*. Environmental Investigation Agency; 2015. <https://eia-international.org/wp-content/uploads/EIA-Sin-City-FINAL-med-res.pdf>.
24. Duckworth J, Salter R, Khounbolin K. *Wildlife in Lao PDR: 1999 Status Report*. IUCN; 1999.
25. Hendrie D. Personal comms. 2019.
26. Crudge B, Nguyen T, Cao TT. The challenges and conservation implications of bear bile farming in Viet Nam. *Oryx*. 2018;1-8.
27. Education for Nature - Vietnam, World Animal Protection. *An Analysis of Change in Bear Bile Use in Vietnam*; 2015. [http://envietnam.org/images/News\\_Resources/Publication/Analysis-of-change-in-bear-bile-use-2015.pdf](http://envietnam.org/images/News_Resources/Publication/Analysis-of-change-in-bear-bile-use-2015.pdf).
28. Allen G, Lasher C. *Japanese Bear Parks*. Wild Welfare; 2015. [http://wildwelfare.org/wp-content/uploads/2017/11/Japanese\\_Bear\\_Parks\\_Report\\_2015.pdf](http://wildwelfare.org/wp-content/uploads/2017/11/Japanese_Bear_Parks_Report_2015.pdf).
29. McAlister E, Jones D. *Bear Parks in Japan - Report on a Visit by Ed McAlister and David Jones*. World Animal Protection and WAZA; 2006.
30. Foley K-E, Stengel CJ, Shepherd CR. *Pills, Powders, Vials and Flakes: The Bear Bile Trade in Asia*. TRAFFIC Southeast Asia; 2011.
31. Broom DM, Johnson KG. *Stress and Animal Welfare*, Chapman and Hall. London; 1993.
32. Malcolm KD, McShea WJ, Van Deelen TR, et al. Analyses of fecal and hair glucocorticoids to evaluate short-and long-term stress and recovery of Asiatic black bears (*Ursus thibetanus*) removed from bile farms in China. *Gen Comp Endocrinol*. 2013;185:97-106.
33. Robinson J, Cochrane G, Loeffler K. Discussion regarding the impacts of bear bile farming on wild bears in China and Vietnam. In Proceedings of the Fourth International Symposium on the Trade in Bear Parts. In: *In Proceedings of the Fourth International Symposium on the Trade in Bear Parts (Ed. Williamson, D.F.)*. Tokyo, Japan: TRAFFIC - East Asia-Japan; 2007:67-73.
34. Garshelis D, Steinmetz R. *Ursus thibetanus*. [errata version published in 2017]. The IUCN Red List of Threatened Species. 2016. *IUCN Red List*. 2016. doi:<http://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22824A45034242.en>
35. Scotson L, Fredriksson G, Ngoprasert D, Wong W-M, Fieberg J. Projecting range-wide sun bear population trends using tree cover and camera-trap bycatch data. *PLoS One*. 2017;12(9):e0185336.
36. Montreal Gazette. Black bear poaching operation busted by Quebec wildlife ministry. *Montreal Gazette*. <https://montrealgazette.com/news/local-news/black-bear-poaching-operation-busted-by-quebec-wildlife-ministry>. Published 2018. Accessed January 8, 2019.
37. Mills J, Servheen C. The Asian trade in bears and bear parts: impacts and conservation recommendations. *Bears Their Biol Manag*. 1994;161-167.
38. World Animal Protection (WSPA). *From Cage to Consumer - The Global Trade in Bear Parts from China to Asia and Beyond*. World Animal Protection (WSPA); 2007.
39. Interpol. *Assessment on Illegal Bear Trade*. Interpol, Environment Security Sub-Directorate; 2014.
40. Dinerstein E, Loucks C, Wikramanayake E, et al. The fate of wild tigers. *AIBS Bull*. 2007;57(6):508-514.
41. Damania R, Bulte EH. The economics of wildlife farming and endangered species conservation. *Ecol Econ*. 2007;62(3-4):461-472.
42. Drury R. Reducing urban demand for wild animals in Vietnam: examining the potential of wildlife farming as a conservation tool. *Conserv Lett*. 2009;2(6):263-270.
43. Shairp R, Verissimo D, Fraser I, Challender D, MacMillan D. Understanding urban demand for wild meat in Vietnam: Implications for conservation actions. *PLoS One*. 2016;11(1):e0134787.
44. Shirayama Y, Phompida S, Kuroiwa C. Modern medicine and indigenous health beliefs: malaria control alongside "Sadsana-pee"(animist belief system) in Lao PDR. *Southeast Asian J Trop Med Public Health*. 2006;37(4):622.
45. Evrard O. Interethnic systems and localized identities: the Khmu subgroups (Tmoy) in north-west Laos. In: *Social Dynamics in the Highlands of Southeast Asia*. Brill; 2007:127-160.

46. Davis EO, Glikman JA, Crudge B, et al. Consumer demand and traditional medicine prescription of bear products in Vietnam. *Biol Conserv.* 2019;235:119-127.
47. Environment Investigation Agency. China's Wildlife Protection Law. Saving Tigers. <https://eia-international.org/our-work/wildlife/tigers/tiger-farming/chinas-wildlife-protection-law/>. Published 2018. Accessed November 12, 2019.
48. Dang NX. Bear parts trade in Vietnam and measures for its control. In: *Proceedings of the 4th International Symposium on the Trade in Bear Parts.* TRAFFIC. Citeseer; 2006:61-66.
49. Education for Nature - Vietnam. *An Analysis of Attitudes and Bear Bile Use in Vietnam.* Education for Nature Vietnam; 2010. [http://envietnam.org/library/Resource%20and%20Publication/Bear\\_bile\\_report\(EN-final18Nov2010\).pdf](http://envietnam.org/library/Resource%20and%20Publication/Bear_bile_report(EN-final18Nov2010).pdf). Accessed January 7, 2019.
50. Burgess EA, Stoner SS, Foley KE. *Brought to Bear: An Analysis of Seizures Across Asia (2000-2011).* Ketaling, Malaysia: TRAFFIC; 2014.
51. Mano T, Ishii N. Bear gallbladder trade issues and a framework for bear management in Japan. *Ursus.* 2008:122-129.
52. Müller A, Kaji K, Kim M, Baskin LM, Jai-Chyi Pei K, Taber R. Wildlife Policy and Laws in East Asia. In: *North American Wildlife Policy and Law.* 1st ed. The Boone and Crockett Club; 2018.
53. World Animal Protection (WSPA). *The Bear Bile Business;* 2002.
54. Animals Asia Foundation. Bear Farming Industry in China. Animals Asia Foundation, Chengdu, China. 2011. <https://www.animalsasia.org/uk/our-work/bear-sanctuaries/china-bear-sanctuary/china-bear-sanctuary.html>. Accessed March 12, 2019.
55. World Animal Protection. *Exploring the Involvement of China in the Regional Bear Bile Industry.* World Animal Protection; 2017b.
56. IUCN and SFA of the PDR China. *Progress on Implementation of IUCN Recommendation 5.0139 'Bear Farming in Asia': A Joint Report by the IUCN Species Survival Commission and the State Forestry Administration of the People's Republic of China.;* 2016. [https://portals.iucn.org/library/sites/library/files/resrecrepattach/Workshop%20report\\_Progress%20on%20implementation%20of%20IUCN%20Recommendation%20139\\_23Aug2016\\_clean.docx](https://portals.iucn.org/library/sites/library/files/resrecrepattach/Workshop%20report_Progress%20on%20implementation%20of%20IUCN%20Recommendation%20139_23Aug2016_clean.docx). Accessed March 12, 2019.
57. Rose D, Gaski A. Proceedings of the international symposium on the trade of bear parts for medicinal use. In: *Proceedings of the International Symposium on the Trade of Bear Parts for Medicinal Use.* University of Washington, Seattle: Traffic USA, World Wildlife Fund; 1994. <https://www.traffic.org/site/assets/files/9569/first-international-symposium-on-the-trade-of-bear-parts-for-medicinal-use.pdf>. Accessed March 25, 2019.
58. Ke Z. Bear Battle in China. *China Dialogue.* February 2012. <https://www.chinadialogue.net/article/show/single/en/4779-Bear-battle-in-China>. Accessed November 2, 2019.
59. Luo H. 谁在给熊胆定价? (Who decides the pricing for bear bile). *South Wkly.* March 2012. <http://www.infzm.com/content/71734>. Accessed January 30, 2019.
60. Quin WW. Guizhentang is in trouble: the company has repeatedly become an "old Lai" and has owed taxes for 25 times (归真堂陷入困境 : 公司多次成“老赖”, 欠税已达 25 次). *Sohu.com.* July 2018. [http://m.sohu.com/a/240827649\\_100001551](http://m.sohu.com/a/240827649_100001551). Accessed March 11, 2019.
61. China Network TV. Heibao Pharmaceuticals denies "seeking a listing" or an annual output of tens of thousands of bear bile powder. *China Netw TV.* March 2012. <http://news.cntv.cn/20120303/107485.shtml>.
62. Wei Fa JF. Notice of the Ministry of Health on the non-approval of health foods produced from bear bile powder and creatine. September 2001. <http://www.zybh.gov.cn/newpage/zcfg/2001n267.htm>. Accessed March 12, 2019.
63. My Kampo Guide. Bear bile (熊胆). *My Herb Med Guide わたしの漢方薬ガイド.* 2018. [Kampoguide.com/syoyaku/yutan.html](http://kampoguide.com/syoyaku/yutan.html).
64. Poston Jr DL, Wong JH. The Chinese diaspora: The current distribution of the overseas Chinese population. *Chin J Sociol.* 2016;2(3):348-373.
65. Liu Z, Jiang Z, Fang H, et al. Perception, price and preference: Consumption and protection of wild animals used in traditional medicine. *PLoS One.* 2016;11(3):e0145901.
66. Nekaris KAI, Shepherd CR, Starr CR, Nijman V. Exploring cultural drivers for wildlife trade via an ethnoprimate approach: a case study of slender and slow lorises (*Loris* and *Nycticebus*) in South and Southeast Asia. *Am J Primatol.* 2010;72(10):877-886.
67. Challender DW, Wu SB, Nijman V, MacMillan DC. Changing behavior to tackle the wildlife trade. *Front Ecol Environ.* 2014;12(4):203-203.


## **World Animal Protection**

5th Floor

222 Grays Inn Road

London WC1X 8HB

UK

 +44 (0)20 7239 0500

 [info@worldanimalprotection.org](mailto:info@worldanimalprotection.org)

 W: [worldanimalprotection.org](http://worldanimalprotection.org)

 [/WorldAnimalProtectionInt](https://www.facebook.com/WorldAnimalProtectionInt)

 [/world\\_animal\\_protection](https://www.instagram.com/world_animal_protection)

 [/MoveTheWorld](https://twitter.com/MoveTheWorld)

 [/animalprotection](https://www.youtube.com/channel/UC...)

**Copyright © World Animal Protection**

**03.20**

World Animal Protection is the operating name of World Society for the Protection of Animals. Company Limited by Guarantee in England and Wales, Registration No. 4029540. Registered Charity 1081849