

TRAFFIC

R E P O R T

NOVEMBER 2016

AN ASSESSMENT OF TRADE

In bear bile and gall bladder in Viet Nam

Daniel Willcox, Nguyen D. T. Minh and Lalita Gomez





TRAFFIC REPORT

TRAFFIC, the wildlife trade monitoring network, is the leading non-governmental organization working globally on trade in wild animals and plants in the context of both biodiversity conservation and sustainable development. TRAFFIC is a strategic alliance of WWF and IUCN.

Reproduction of material appearing in this report requires written permission from the publisher.

The designations of geographical entities in this publication, and the presentation of the material, do not imply the expression of any opinion whatsoever on the part of TRAFFIC or its supporting organizations concerning the legal status of any country, territory, or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The views of the authors expressed in this publication are those of the writers and do not necessarily reflect those of TRAFFIC, WWF or IUCN.

Published by TRAFFIC.
Southeast Asia Regional Office
Unit 3-2, 1st Floor, Jalan SS23/11
Taman SEA, 47400 Petaling Jaya
Selangor, Malaysia
Telephone : (603) 7880 3940
Fax : (603) 7882 0171

Copyright of material published in this report is vested in TRAFFIC.

© TRAFFIC 2016.
ISBN 978-983-3393-66-4
UK Registered Charity No. 1076722.

Suggested citation: Willcox, D., Nguyen, M. D. T., and Gomez, L. (2016). *An assessment of trade in bear bile and gall bladder in Viet Nam*. TRAFFIC. Petaling Jaya, Selangor, Malaysia

Front cover photograph: A rescued Asiatic Black Bear from a bile extraction facility in Viet Nam
Credit: Animals Asia

AN ASSESSMENT OF TRADE

In bear bile and gall bladder in Viet Nam

*Daniel Willcox, Nguyen D. T. Minh and Lalita
Gomez*



A rescued Asiatic Black Bear from a bile extraction
facility in Viet Nam



A black bear is shown in profile, facing left, in a lush green field. The bear has a blue ear tag with the number 'V039' on its left ear. The background is a soft-focus green field of grass.

TABLE OF CONTENTS

Acknowledgements	ii
Abbreviations And Acronyms	ii
Definition Of Terms	iii
Executive Summary	1
Background	5
Legislative Framework	10
Methods	12
Results	16
Discussion	26
Conclusion	32
Recommendations	33
References	35

ABBREVIATIONS AND ACRONYMS

AAF	Animals Asia Foundation
cm ³	cubic centimetres
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
DPR Korea.....	Democratic People’s Republic of Korea (also known as North Korea)
ENV	Education for Nature - Vietnam
EP.....	Environmental Police (Viet Nam)
FPD.....	Forest Protection Department (Viet Nam)
g	gramme
IUCN.....	International Union for Conservation of Nature
kg	kilogramme
MARD.....	Ministry of Agriculture and Rural Development (Viet Nam)
TM.....	Traditional Medicine
UDCA	Ursodeoxycholic acid
USD	United States Dollar
VND	Vietnamese Dong
WSPA	World Society for the Protection of Animals (now called World Animal Protection).

ACKNOWLEDGEMENTS

We owe a heartfelt thanks to Dr Chris R. Shepherd for driving the research on bear bile and the completion of this report. We thank Madelon Willemsen and Jill Capotosto for their invaluable time and advice in the drafting of this report. We are also grateful to James Compton, Tuan Bendixsen and Lorraine Scotson for their time as reviewers and to Richard Thomas for his meticulousness in copy editing this report. Lastly a big thank you to Animals Asia for generously funding and supporting our work on bears in Viet Nam.

DEFINITION OF TERMS

Bear parts	: Includes all bear parts such as canine teeth, paws, skin and bones etc., unless otherwise stated.
Bear farm	: Privately or publicly owned facility of any size, where bears are kept for the primary purpose of extracting bile and/or the whole gall bladder. Breeding bears may or may not occur, however there is no evidence that bears have ever been successfully bred in farms in Viet Nam, and all are assumed to be wild caught.
Bile	: A fluid produced by the liver and stored in the gall bladder that aids in the digestion of lipids in the small intestine, known as gall. In the context of this report “bile” refers specifically to the liquid extracted from bear gall bladder. Bear bile can either be sourced from a bear killed in the wild, or from a live bear kept in a bear farm.
Flakes	: Includes all small pieces of dried bile or dried gall bladder, sometimes also described as crystals and chips. Flakes, crystals, and chips were all considered as “flakes”.
Gall bladder	: A small organ, present in most vertebrates that stores bile produced in the liver. In the context of this report “gall bladder” refers specifically to bear gall bladder sold by the gramme, piece or whole form.
Ointment	: A salve containing bear bile, typically used for the treatment of sores or haemorrhoids.
Pills	: Capsules or compound pills containing bear bile and/or bear gall bladder.
Powder	: Dried bear gall bladder pieces or bear bile which has been ground into powder and sold in either pure form or compounded with other products.
TM Outlets	: Traditional Medicine outlets. Places where bear bile products and/or bear parts are sold including TM shops, markets, pharmacies and souvenir/antique shops.

EXECUTIVE SUMMARY

The commercial market for bear bile and bear parts is a threat to wild populations of Asian bear species. As a source, consumer and transit country Viet Nam plays a significant role in the trade dynamic for two globally-threatened bear species in Southeast Asia: Sun Bear *Helarctos malayanus* and Asiatic Black Bear *Ursus thibetanus*. The country's bear farming industry and persistent demand for bear bile and bear parts is driving regional declines in these two species. Bear bile products and whole gall bladders form a significant part of the illegal bear trade.

This report is the result of a survey in 2012 and a follow up survey in 2016 to investigate the availability and sources of bear bile, bear gall bladders and bear parts, and to document the market dynamics in traditional medicine (TM) outlets and bear farms in six major cities (Ha Noi, Ha Long, Vinh, Hue, Da Nang, and Ho Chi Minh City) across Viet Nam. This assessment follows a 2010-2011 TRAFFIC study of the bear bile trade across 13 countries and territories in Asia in which Viet Nam was identified as a significant consumer and producer of bear bile products (Foley *et al.*, 2011). Over the course of the 2012 survey, 78 traditional medicine outlets and 23 bear farms were surveyed, while 70 outlets were visited in the 2016 survey. Commercial trade in bear bile and gall bladders was prevalent in all six cities surveyed. In 2012, more than half (56%) of TM outlets and 74% of bear farms surveyed were found to be selling or admitted to selling bear bile products in violation of Viet Nam's wildlife protection laws. This was a slight decrease compared to the 65% of TM outlets observed selling bear bile products in 2010-2011. In 2016, this dropped even further to 40% of TM outlets surveyed, still a significant number given the illegality of this trade.

The most common form of bear bile product available was raw bile, reportedly sourced from bear farms in Viet Nam. Products in the form of powder, pills, or flakes were uncommon in surveyed TM outlets. In 2012, the majority of TM outlets and bear farms reported a stable or decreasing trade in bear bile products. Despite that, while farmed raw bear bile decreased in price in 2012 in comparison with the 2010-2011 TRAFFIC survey (Foley *et al.*, 2011), the price went up again in 2016 in spite of perceptions amongst retailers that consumers considered this product to be low quality and/ or fake, and therefore there was low demand. Bear parts and bear bile products (including raw bear bile) of purported wild origin carry a significant premium; it is likely that the trade in these products is increasingly lucrative. Wild sourced bear parts and/or products were reportedly obtained from Lao PDR, Russia, Thailand and Viet Nam. During the 2012 survey, it was alleged that some bear farmers conceal unregistered bears, sell body parts of deceased bears, and bribe Forest Protection Department (FPD) officials to ignore the sale of bear parts.

TRAFFIC's analysis of trade data, perceptions of consumer demand, and the declining number of bears in captivity indicates that bear bile farming is unlikely to be profitable and is in decline as an industry in the country. However, the trade in wild-origin products and parts in Viet Nam is lucrative and is an ongoing threat to bear populations across Asia. This trade dynamic strongly suggests that bear farming has not helped decrease the hunting pressures on wild populations; there is even a consumer preference for non-farmed bear bile recorded in China and Lao PDR (Dutton *et al.*, 2011; Davis *et al.*, 2016). Vietnamese consumers reportedly believe that products from farmed animals are of lower quality than wild-caught ones (WCS, 2008; Drury, 2009; Shairp *et al.*, 2016). It is therefore plausible that wildlife consumers in Viet Nam also perceive farmed bear bile as an inferior product to that sourced from wild animals. This is yet another example of farmed wildlife failing to satisfy consumer demand and not being a like-for-like substitution (e.g. Kirkpatrick and Emerton, 2010, Dutton *et al.*, 2011).



There are at least 13,000 bears held in farms across Southeast Asia to supply the traditional medicine market with bear bile products.

Bear farming in Viet Nam is very likely to have exacerbated the threats to wild bear populations in Southeast Asia, creating a network of captive facilities where it is relatively easy to launder in wild-caught bears. With the apparently limited demand for farmed raw bear bile in Viet Nam, bear farmers are very likely turn to the trade in bear parts from both farmed and wild source (e.g. paws and bones) and whole gall bladders, as these are considerably more profitable. In support of the evidence collected during this investigation, the Vietnamese media are reporting that bears in farms are being deliberately neglected or killed off, and their body parts then sold on (e.g. vietnamnet.vn, 2015). Bear farms, as well as facilitating the trade in live wild bears, are now also acting as a source for the illegal trade in bear parts. With 1,000+ bears still in captivity in bile farms in Viet Nam, this is a significant wildlife trade issue and is an urgent threat that needs addressing. Improved monitoring of bear farms, as well as the prompt confiscation of live bears from owners found to be violating national laws (under Decision No. 95 QD/2008/BNN-KL), needs to be urgently implemented. Stricter and more publicised supervision of the disposal of bears that die on bear farms is needed to prevent bear parts entering the trade.

Viet Nam has a crucial role to play in limiting the illegal cross-border trade from countries in the region that still have relatively healthy wild bear populations; although it is likely to be too late for the wild populations in Viet Nam. A genuine commitment to law enforcement along its borders as well as better monitoring of existing bear farms and TM outlets in the country are crucial actions if Viet Nam is to halt the negative impacts of the country's role in the illegal bear trade. Besides, the eventual closure of all bear farm facilities in the country, the amendment of opaque laws that support wildlife farming and high-level government support of demand reduction campaigns are required. There are more than 1,000 bears in captivity in Viet Nam, a number that likely exceeds remaining wild populations in the country. They will require immediate confiscation, rehabilitation and long-term care as the majority will never be able to be released back into the wild. Other longer-term actions aimed at reducing consumer demand for bear bile products and bear parts will be essential, in tandem with increased law enforcement efficiency to prevent wild bear poaching, capture and trafficking, to support the recovery of wild populations of both bear species in the country.

RECOMMENDATIONS

The Vietnamese Government is making progress in addressing the illegal trade of bear products and reducing the number of bears held in farms, however further work is required to end these practices overall. At the time of writing this report the Viet Nam Administration of Forestry and Animals Asia were drafting an MOU which outlined a “Road Map” to end all bear farming in Viet Nam by 2020. The following items should be considered for inclusion in the Road Map and actioned by the Viet Nam Government and NGO partners:

This Road Map should provide a plan of action to close the gaps in the **legal and policy frameworks** as they exist at the moment:

- As a signatory to CITES, Viet Nam has an obligation to implement CITES Resolution Conf. 10.8 (Rev. CoP14) on the Conservation of and trade in bears (CITES, 2007). Key recommendations in the Resolution call for the improvement of legislation and enforcement to control the illegal export and import of bear parts and derivatives.
- The Ministry of Health and the Administration of Traditional Medicine Management should provide leadership and issue a directive abolishing the use of bears, their parts and derivatives as well as other endangered species in traditional medicine in Viet Nam. All references to bear products and other endangered species in the Vietnamese government authorized Traditional Medicine Pharmacopeia need to be deleted in accordance with national/international laws and regulations.
- Viet Nam’s bear keeping regulation (Decision No. 95 QD/2008/BNN-KL: Table 1) should be amended to include the welfare of bears that are kept in bear farms. If bear farm owners can no longer afford to keep their animals because of the declining market for raw bear bile, then these animals should be transferred to rescue centres as soon as possible and the welfare of the animals in the interim monitored closely. This is to avoid the situation where owners allow their bears to die through neglect, and then illegally sell off the parts.
- Other countries within the ranges of Asiatic Black Bear and Sun Bear are currently expanding or establishing bear farms (e.g. Lao PDR; Livingstone and Shepherd, 2014). Some of these wildlife farming initiatives have the support of national governments and are written into the policy/strategy documents of government departments mandated to conserve wildlife. Both non-governmental and governmental stakeholders, who are engaged in developing national policies and legislation, should recognize that wildlife farming in Asia does not support conservation in the region and should be actively discouraging its implementation. As a key player in ASEAN, Viet Nam has a clear role to dissuade other countries in the region from adopting bear farming as a conservation strategy, by disseminating information and publishing reports on the ongoing efforts to diminish the illegal trade in country.

The Road Map also needs to have further direction on **law enforcement and monitoring**:

- Monitoring of bear farms should be strengthened and improved to ensure that these farms are adhering to regulations, and to deter them from laundering live bears and from selling the parts of their current captive stock. This is in line with recommendations made under resolution WCC-2012-Rec-139-EN at the 2012 IUCN World Conservation Congress (IUCN, 2012).

- The Forest Protection Department of Viet Nam and most provincial authorities lack the capacity or resources to monitor bear farms using microchip scanners, which were introduced in 2006 (e.g. vietnamnet.vn, 2015). The same applies to most potential third party monitors (e.g. local civil society). A relatively inexpensive technique to monitor bear numbers in captivity could be to record individual markings, particularly the chest patterns. This technique has been used to monitor Asiatic Black Bear populations (Higashide *et al.*, 2012; 2013).
- Ministry of Health and the Administration of Traditional Medicine Management need to monitor their constituencies for the use of bear bile and products of other endangered species in Traditional medicines.

Government should work further with NGO partners to **reduce the demand for bear products** in Viet Nam through raising awareness and behaviour change efforts:

- Further advocacy with the Ministry of Health and the Administration of Traditional Medicine Management need to take place for integration of the 32 herbal alternatives to bear bile that have been endorsed by Viet Nam's Traditional Medicine Association, into the Vietnamese TM practices nationwide.
- Traditional Medicine practitioners need to be actively targeted and provided with the booklet of alternatives and information on the illegality of prescribing and use of bear products and other endangered species in traditional medicine practices.
- Existing awareness-raising campaigns should be strengthened and involve behaviour change strategies to target bear bile and bear product users and engage the public in responsible and legal purchasing of TM products.

The Road Map should have a clear direction on action for closing of **bear farms**:

- Phasing out and closing down the bear farms is in line with recommendations 2a and 2b made under resolution WCC-2012-Rec-139-EN at the 2012 IUCN World Conservation Congress (IUCN, 2012). There are currently not enough appropriate captive/rescue facilities in the country that could support the 1000+ bears that remain in bile farms, and it is highly unlikely that these bears would survive if immediately released into the wild. To facilitate the immediate phasing out of bear farming in Viet Nam, the government should establish a sound veterinary triage process of bears which are healthy and candidates for rehabilitation, increase support of existing rescue facilities (e.g. Vietnam Bear Sanctuary, Tam Dao National Park), and consider the transfer of bears to international zoos or sanctuaries where there are the skills and resources to rehabilitate and provide long term care for bears.
- Provincial governments in Viet Nam should commit to prohibiting new bear farms in their provinces or to allowing new bears to be laundered into existing facilities. Bear farms that have voluntarily transferred or had their bears confiscated by enforcement agencies should be regularly monitored to ensure that the cages are not re-used, and the cages should be broken down and sold for scrap. As long as these captive facilities remain extant there is significant potential that wild bears will continue be laundered in and that the illegal trade, particularly in parts and live animals, will continue.

BACKGROUND

Status and distribution of bears in the wild

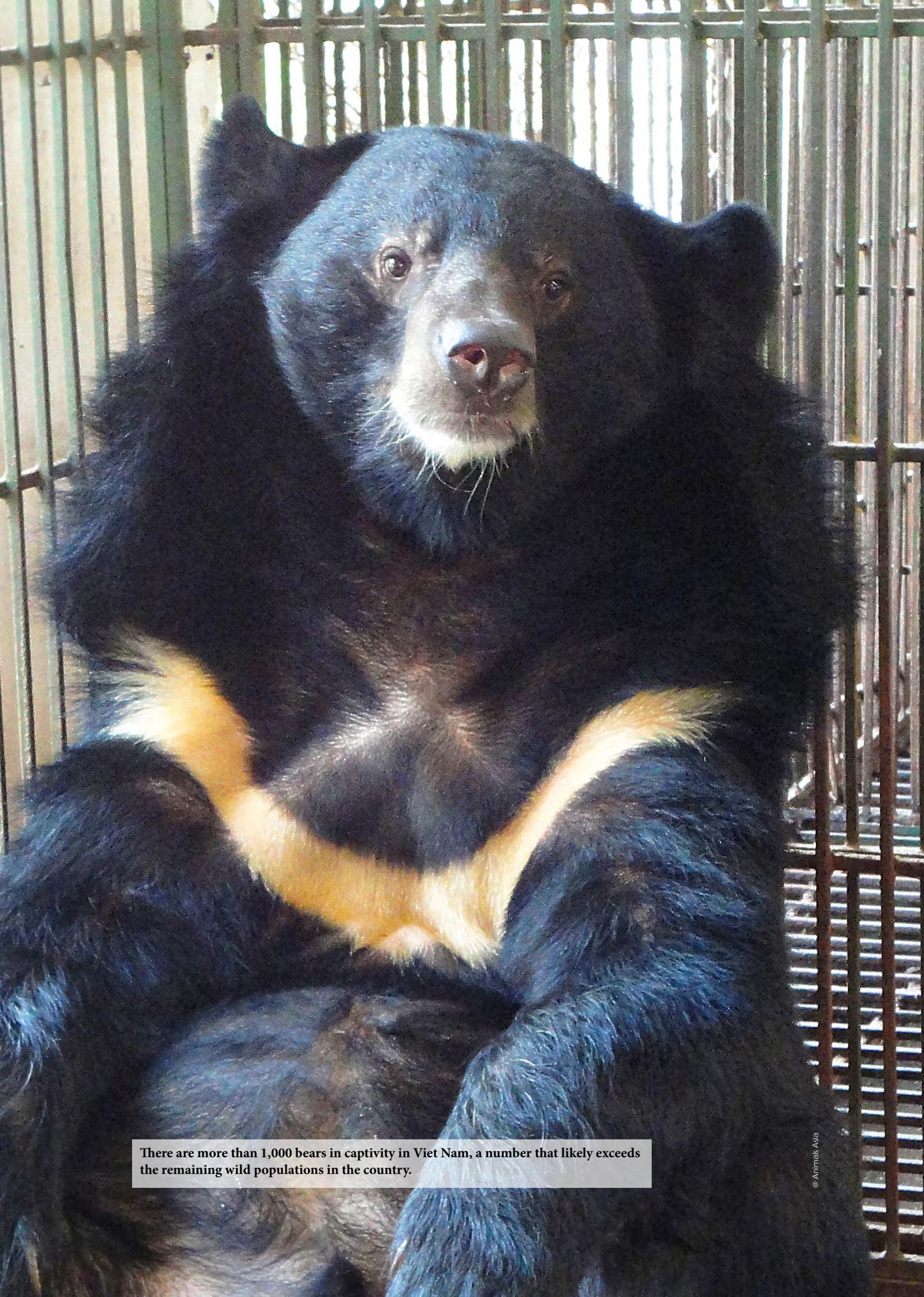
Of the world's eight bear species, five are listed in Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), including Asiatic Black Bear *Ursus thibetanus* and Sun Bear *Helarctos malayanus*. Both species are native to Viet Nam and are threatened by the traditional medicine (TM) trade.

An Appendix I listing means that all international commercial trade in these species, including their parts and products, is illegal. CITES Resolution Conf. 10.8 (Rev. CoP14) on the conservation of and trade in bears notes that “the continued illegal trade in parts and derivatives of bear species undermines the effectiveness of the Convention and that if action is not taken to eliminate such trade, poaching may cause declines of wild bears that could lead to the extirpation of certain populations or even species” (CITES, 2007).

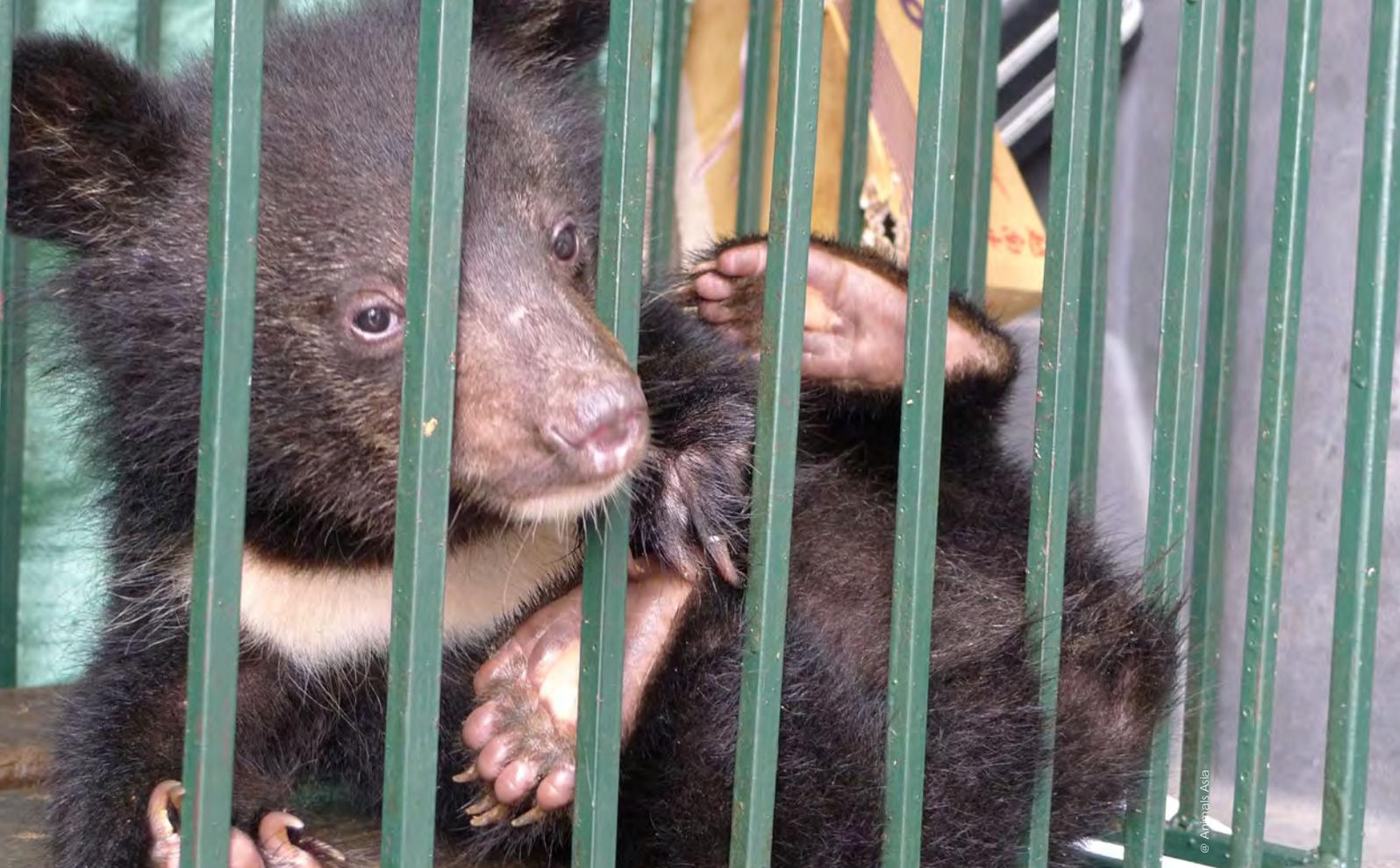
The Asiatic Black Bear is the most commonly exploited bear species for use in traditional medicine (Feng *et al.*, 2009; Foley *et al.*, 2011; Burgess *et al.*, 2014). It is patchily distributed across 18 countries in Asia and is assessed as Vulnerable on the IUCN Red List of Threatened Species (Garshelis *et al.*, 2008).

Extant Sun Bear populations are distributed across Southeast Asia, although the species has become extinct in Singapore and is extremely rare in Bangladesh, China and Viet Nam (Fredriksson *et al.*, 2008; Islam *et al.*, 2010; Krishnasamy and Shepherd, 2014). The Sun Bear is assessed as Vulnerable on the IUCN Red List with a declining population reported across its range (Fredriksson *et al.*, 2008). Illegal wildlife trade and habitat loss are considered the main factors behind population declines for both species.

Despite the increased use of survey methods that can produce verifiable records (e.g. camera-trapping) there are few confirmed records of either bear species in the wild in Viet Nam (Le Trong Trai *et al.*, 1999; Brickle *et al.*, 1998; SFNC 2000; Swan and O'Reilly, 2004; Scotson 2008). Two records of Asiatic Black Bears were captured by camera traps in Quang Nam province in 2012 and 2014, though a relatively high survey effort of 10,000+ nights of camera trapping was required to produce these two records (WWF, 2014). The low number of recorded bear sightings in Viet Nam despite several surveys in protected areas suggests the populations of both species are in decline and are likely to be approaching local extirpation in large parts of the country. Available trade data support this suspected decline; bears are now sourced from neighbouring countries such as Cambodia and Lao PDR to satisfy demand in Viet Nam (Nguyen, 2007; Burgess *et al.*, 2014).



There are more than 1,000 bears in captivity in Viet Nam, a number that likely exceeds the remaining wild populations in the country.



Medicinal use of bear bile

Bile is a dark brownish-yellow, viscous liquid synthesized in the liver as a digestive juice and stored in the gall bladder. All vertebrates produce bile to aid in the absorption of fatty acids and cholesterol, but bears (except Giant Panda *Ailuropoda melanoleuca*) are the only animals known to produce a significantly large amount of ursodeoxycholic acid (UDCA, also known as “ursodiol”) in their bile (Feng *et al.*, 2009). UDCA is an active pharmaceutical compound effective in treating a variety of ailments (Rubin *et al.*, 1994; Li, 2004; Amaral *et al.*, 2009), which makes bear bile a valuable ingredient in traditional medicines. The Latin name *Fel ursi* is the pharmaceutical name for bear bile.

History of bear gall bladder and bile use

Traditional medicine is a form of therapeutic treatment originally developed in China (Wertz, 2011). Traditional medicine and its concepts are a strong part of Chinese culture and lifestyle, passed down through the generations and reflected in the language, food, social interactions and spiritual beliefs. Today, Traditional Medicine (TM) remains as one of the two mainstream medical practices in the Chinese health care system and its development is supported by the Chinese government by increasing investment in TM research and administration (Judy Xua and Yue Yang, 2008). Similarly, the Vietnamese government also prioritizes the development of traditional medicine in combination with modern health care practices. This was demonstrated by the Prime Minister’s Decision No. 2166/QD-TTg on Viet Nam’s traditional medicine development plan by 2020. In the first five-year implementation of the plan, the network of traditional medicine has been consolidated and expanded nationwide. The number of traditional medicine hospitals at provincial level in Viet Nam has expanded from 53 in 2010 to 58 in 2015. In 2015, 92.7% general hospitals in the country has traditional medicine department which has increased 3.2% in comparison with 2010 (Communist Party of Vietnam Online Newspaper, 2016).

The use of bear parts in TM can be traced back around 3,000 years when TM first flourished. In the Ming Dynasty, a comprehensive medical volume *Beng Cao Gang Mu* (本草纲目) listed plant and animal species, along with minerals and other ingredients believed to have medicinal properties, including the Asiatic Black Bear (Watkins, 2002). Today, TM continues to recognize the use of bear bile and gall bladder (Wiseman and Ellis, 1996). Considering the 1,000 year Chinese domination of Viet Nam which has left strong influences, bear bile has also been widely used in Vietnamese traditional medicine. Usages of bear bile were documented in a book on Vietnamese medicinal plants and herbal remedies by the late renowned Professor Do Tat Loi (Do Tat Loi, 2004). A 2012 survey of 1,149 TM practitioners in nine provinces in Viet Nam, indicated that use of bear bile was however relatively low, with only 17% using this animal product when administering TM (Animals Asia, unpublished data). Scientific studies have found bear bile to be efficacious in treating severe eye problems, liver diseases and kidney malfunction (Jeng and Cheng-Low, 1992; Williams, 1993; Lee, 1999; Gao, 2002; Feng *et al.*, 2009).

Alternatives to bear bile use

The TM community has identified as many as 54 herbal alternatives to bear bile (Pong *et al.*, 1999; Anon., 2005). Synthetic alternatives have been chemically developed in laboratories, and several pharmaceutical companies manufacture UDCA using bile from cows or pigs for use in conventional Western medicine to dissolve gallstones (Li *et al.*, 1995; Richards and Wang, 2006). However, many TM practitioners reject these pharmaceutical substitutes because of their synthetic nature and a deep-rooted cultural belief that products from wild animals are better quality (Macartney, 2006).

Bear bile farms

Bear bile extraction facilities, also commonly referred to as bear “farms”, were first established in China in the mid-1980s supposedly to reduce the pressure on wild bear populations. In reality, bear bile products from these facilities confuse users and enforcement authorities about the origin and legality of bear products, as it is impossible to differentiate between products from captive-bred and wild bears in the hand, without resorting to expensive and sophisticated forensic analysis. The facilities may even fuel demand for wild-sourced bear bile and gall bladder, which encourages more poaching (Anon., 2007; Dutton *et al.*, 2011). Another conservation implication is that bears are taken from the wild to stock these facilities (Phillips and Wilson, 2002; Feng *et al.*, 2009; Dutton *et al.*, 2011; Burgess *et al.*, 2014; Livingstone and Shepherd, 2014). Inhumane treatment and abuse of bears are widely documented in these facilities (Maas, 2000; Li, 2004; Loeffler *et al.*, 2007; Calvari, 2008). Procedures to extract bile via catheters are often unhygienic, resulting in wound infection and contamination of extracted bile (Robinson *et al.*, 2006; Bekoff, 2011; Kikuchi, 2012).

More than 13,000 bears are thought to be held in bear bile extraction facilities across Asia (Kikuchi, 2012). China, where the domestic sale of bear bile remains legal, reportedly holds more than 10,000 animals, mostly Asiatic Black Bears (Bekoff, 2011; Animals Asia, 2014). In the Republic of Korea, bile extraction from bears is illegal, but farmed bears can be slaughtered legally for their parts when they are 10 years old (Loeffler *et al.*, 2007). In Lao PDR, the number of bears in farms was found to have tripled to over 120 animals from 2008 to 2012, with many of the bears thought to be either taken from the wild in Lao PDR or imported illegally (Livingstone and Shepherd, 2014). In Viet Nam, farmed bears are considered government property and are supposed to be micro-chipped. Farm owners are allowed to keep the micro-chipped bears but bear bile extraction is illegal (see Legislative Framework).

In September 2012, a resolution to phase out bear farming at the IUCN World Conservation Congress was passed. It recommended that all illegal bile extraction facilities should be closed down, that the industry should not be expanded and that no more bears from the wild should be used to stock captive facilities (IUCN, 2012).

Bear trade in Viet Nam

Wildlife trade is considered a major threat to Viet Nam's and the region's biodiversity (Bell *et al.*, 2004; Sodhi *et al.*, 2004; CEPF, 2012; WWF, 2013). Viet Nam's pernicious wildlife trade includes species of fauna that range in size from squirrels *Callosciurus* to Asian Elephant *Elephas maximus* (Compton and Quang, 1998; Bell *et al.*, 2004; Robertson, 2007; Venkatararam, 2007; CEPF, 2012). The wildlife trade is driven by a demand for wild meat, pelts, pets, wildlife trophies and traditional medicine (e.g. Robertson, 2007; Nijman, 2010; Bush *et al.*, 2014). China and Viet Nam have been identified as having significant market demand for wildlife and wildlife products in the region (Bell *et al.*, 2004; Nijman, 2010; Drury, 2011; Bennet, 2015). Illegal hunting for the wildlife trade is the main factor behind the population declines of several species of fauna in Viet Nam and the country is now within a national extinction crisis; most large mammal species are either extirpated e.g. Javan Rhinoceros *Rhinoceros sondaicus annamiticus* (Brook *et al.*, 2012), or are perilously close to being so e.g. Tiger *Panthera tigris*, Asian Elephant *Elephas maximus* (IUCN, 2015). Hunting for the illegal wildlife trade has been cited as a main cause of decline/extirpation for a large number of vertebrate fauna in Viet Nam (IUCN, 2015).

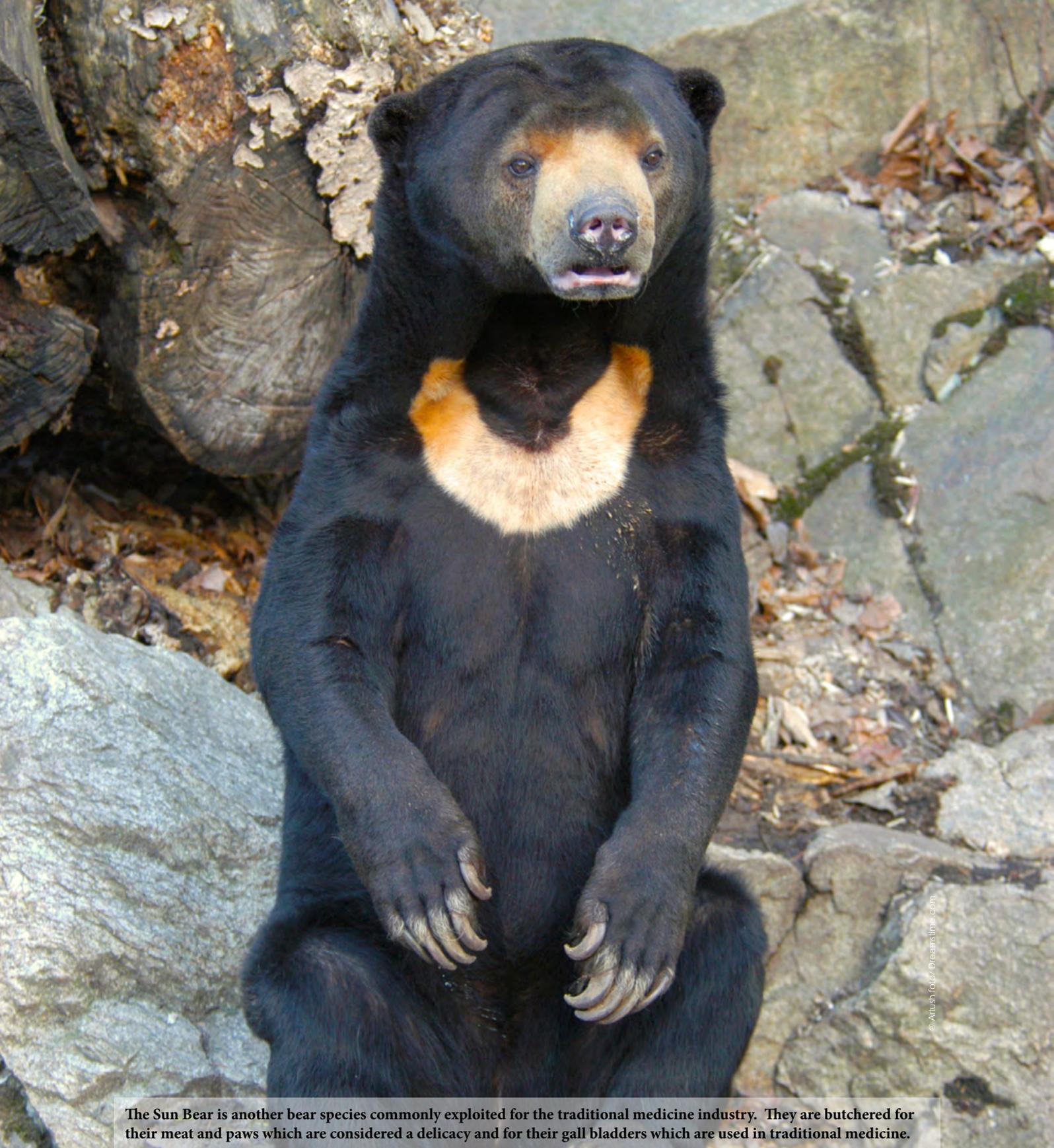
Viet Nam is considered a significant consumer, source and transit country in the illegal bear trade involving live animals as well as their parts and derivatives (Foley *et al.*, 2011; Burgess *et al.*, 2014; Krishnasamy and Shepherd 2014; Lee *et al.*, 2015). Bear bile and whole gall bladder forms a significant part of the TM trade (Mills *et al.*, 1995; Vu Quyen Thi 2010, 2012).

In response to increasing consumer demand for bear parts and derivatives, bear farming was established in Viet Nam in the 1990s (Vu Quyen Thi, 2010). Viet Nam's adoption of an open market policy during this period provided an ideal economic climate and wildlife farming operations grew rapidly in the country. Wildlife farms for bears and a myriad of other taxa including ungulates, crocodiles, porcupines, civets, pythons can now be found throughout Viet Nam (WCS, 2008). Both Asiatic Black Bear and Sun Bear have been recorded in bear farms in Viet Nam, although Asiatic Black Bear is more common (Vu Quyen Thi, 2010; Foley *et al.*, 2011). At the peak of Viet Nam's bear farming activities, there were an estimated 4,500 bears in farms in the country, although this number is decreasing; in 2010, it was estimated that 3,500 bears existed in captivity (Vu Quyen Thi, 2010) and in 2015, this had further reduced to 1,250 (ENV, 2015). Despite this decline, wild bears continue to be sourced for bear farms, usually as live cubs (Vu Quyen Thi, 2010; Burgess *et al.*, 2014). Raw bear bile prices in Viet Nam have dropped from a high of USD10/ml in 2005 (Vu Quyen Thi, 2010) to around USD5/ ml in 2010 (Foley *et al.*, 2011). However, prices for bear gall bladder, either whole or per gramme; remain high in Viet Nam, as well as in other consumer countries (Mills *et al.*, 1995; Foley *et al.*, 2011), with the trade in the whole bear gall bladders considered lucrative.

LEGISLATIVE FRAMEWORK

Table 1. National legal protection

Law/Decree Number and Title	Date	Relevance to bear species
<i>National Action Plan to Strengthen Control of Trade in Wild Flora and Fauna</i>	2004	In 2004, Viet Nam enacted the National Action Plan to Strengthen Control of Trade in Wild Flora and Fauna. In order to monitor numbers of captive bears on bile farms, all captive bears were micro-chipped by the FPD working with World Society for the Protection of Animals (WSPA) with the intent of keeping wild bears from entering the farmed bile trade.
<i>Decision No. 02/2005/QD-BNN: On the Regulation of Captive Bear Management</i>	2005	This Decision aimed to manage the number of bears in captivity and prevent the introduction of new bears caught in the wild. It was established in response to expansion of bear farming in Viet Nam. The Decision stated that the cut-off date for registration and microchipping of captive bears was 28 February 2005. From 1 March 2005 onwards, any unregistered bears will be treated as new, illegally farmed bears and will be dealt with according to the regulations of the law i.e. bears would be confiscated and owners subject to punishment. All bears are currently considered government property. However, owners of micro-chipped bears are permitted to keep them but extraction of bear bile from these animals is illegal.
<i>Decree 32/2006/ND-CP: Management of Endangered, Precious, and Rare Species of Wild Plants and Animals</i>	2006	Viet Nam's main wildlife protection law. Both Asiatic Black Bear and Sun Bear are given full protection from commercial exploitation of any kind (Group 1B). Under this law it is illegal to hunt, transport, keep, advertise, sell, purchase and consume either bear species or their parts and derivatives.
<i>Governmental Decree No. 82/2006/ND-CP: Management of export, import, re-export and introduction from the sea, transit, breeding, rearing and artificial propagation of rare, endangered and previously wild animals and plants</i>	2006	Article I states that wild animals, plant species and processed parts listed in treaties to which Viet Nam is a Party to, are nationally banned for exploitation and use. This wording covers the import, export and transit of CITES-listed species as well as species protected by Vietnamese laws. However, it does not cover native species or specimens of unclear origin.
<i>Decision No. 95 QD/2008/BNN-KL: On the promulgation of the Regulation on the Management of Captive Bears (replaced Decision No. 02/2005/QD-BNN)</i>	2008	This Decision contains provisions on housing conditions, hygiene, veterinary and other conditions for registered bear farms. It also prohibits the acts of hunting, trapping, purchase, sale, slaughter, transport, advertising, export, import, and temporary import for re-export of bears and bear products derived contrary from the provisions of the law. The law is considered weaker than Decision No 02 as it does not cover bear cubs born in captivity (Foley <i>et al.</i> , 2011).
<i>Decree 160/2013/ND-CP: Criteria for identification and management of endangered, rare and precious species, prioritized for protection</i>	2014	Management of Endangered, Precious, and Rare Species of Wild Plants and Animals protected under Decree 32 is regulated by this law, including both Asiatic Black Bear and Sun Bear.



The Sun Bear is another bear species commonly exploited for the traditional medicine industry. They are butchered for their meat and paws which are considered a delicacy and for their gall bladders which are used in traditional medicine.

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

Since 1979, both the Asiatic Black Bear and the Sun Bear have been listed in Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which prohibits commercial international trade. Viet Nam has been a signatory to the Convention since 1994.

METHODS

Between 2010 and 2011, TRAFFIC conducted an extensive study on the scale and availability of bear parts across 13 countries and territories in Asia (Foley *et al.*, 2011). Viet Nam was identified as a significant player, both as a producer and consumer of bear bile products which were sold in over 65% of TM outlets that were surveyed. Based on these findings, the present study was initiated to investigate in depth the scale of the current illegal bear bile trade in Viet Nam with the aim of aiding enforcement agencies in the country to take action against this trade and guiding TRAFFIC's own work in reducing the trade in bears, their parts and derivatives. As the illegal wildlife trade in general and the bear bile trade in particular are complex and constantly changing, two surveys were undertaken for this assessment in order to achieve a holistic view of the bear bile trade in Viet Nam. The first survey was undertaken between May and July of 2012 and the second follow-up survey was undertaken in March 2016 over a two-week period. The sale of bear products in TM outlets and bear farms was investigated within six major cities in Viet Nam: Ha Noi, Ha Long, Vinh, Hue, Da Nang, and Ho Chi Minh City.

Ha Noi and Ho Chi Minh City are the largest cities in Viet Nam; the former being the capital of Viet Nam and the latter is the country's economic centre. Ha Long city is considered a significant trading hub, and is well-known for having large bear farms that are targeted towards Asian tourists (ENV, 2011). These three cities have been included in this survey as a comparison and update of previous analysis on the bear trade by Foley *et al.*, (2011). Vinh, Hue and Da Nang were included as these are prominent cities covering the north-central and south-central regions in Viet Nam.

Traditional Medicine outlets and bear farms were identified in each city based on information from previous TRAFFIC surveys (Foley *et al.*, 2011), consultation with various stakeholders e.g. Education for Nature - Vietnam (ENV), Wildlife Conservation Society (WCS) Vietnam, and Animals Asia Foundation (AAF), and the Forest Protection Department (FPD)'s 2005 list of registered bears and farms. The FPD list of registered bear farms was compiled as part of the bear microchipping programme carried out under Decision No.02/2005/QD-BNN (see Table 1). In each city, members of the public (e.g. hotel owners, taxi drivers, and restaurateurs) were also questioned on the whereabouts of TM outlets and bear farms. Any additional TM outlets and bear farms mentioned during the survey (i.e. from information given by TM retailers/practitioners or bear farm owners/workers) were added to the survey list.

It should be noted that any outlets that were observed selling bear parts and derivatives, which encompassed TM shops, markets, pharmacies and souvenir/antique shops are grouped together and referred to as TM outlets in this report as they represented the majority of places surveyed (~90%). TM outlets included outlets owned by traditional medicine practitioners and shops selling traditional medicine, with the latter also having some form of TM knowledge.

TM outlets in six major cities which were surveyed in 2012 were re-visited in 2016 to compare results and changes in trade trends.



© Csamurai2931/Dreamstime.com

Interviews

Interviews in TM outlets and bear farms were primarily conducted by a local Vietnamese researcher in order to avoid suspicion from traders and reduce the potential for biased market data such as inflated prices, which are often quoted to non-locals. Survey questions were memorized and delivered in a semi-structured interview by the researcher. All interviewee answers were memorized and then noted down within five minutes of the interview finishing and the interviewer returning to a safe place. Following the first visit to a facility, a second visit (either later that day or the following day) was undertaken by another researcher (DW) posing as a tourist. This duplicate interview approach allowed for some confirmation of the wildlife products available in each TM outlet or bear farm, although price data were largely ignored on the second visit as this is usually inflated for foreigners.

Traditional medicine outlets and bear farms observed selling or claimed (by owners and/or employees) to be selling bear bile, bear parts, or other bear products were questioned on price, turnover, demand, origin, market destinations, and enforcement activities carried out by the Forest Protection Department (FPD) and/or Environmental Police (EP).

It is impossible to confirm, without the aid of forensic analysis, the species origin of the gall bladders observed during this research. Therefore, all statements from owners and/or employees of TM outlets and bear farms regarding the species of bear, authenticity of bear parts and derivatives and the source of the bears (captive or wild) were taken as stated. Records were made of incidences where bear products were on open display, the presence of advertising associated with the trade as well as other

wildlife products being sold by the retailer. Owners and/or employees of any TM outlet or bear farm who were no longer selling bear bile or other products/parts were also questioned why they had stopped their involvement in the bear trade.

All monetary values in this report are presented in USD, based on conversion rates of USD1 = VND20,830 in July 2012 and USD1 = VND22,286 in March 2016 (www.xe.com).

Field surveys

Survey efforts in each city (Table 2 and 3) were dependent on the numbers of TM outlets or bear farms identified within a particular area. In 2012, a total of 78 TM outlets were successfully surveyed, including 69 TM shops, three pharmacies, three souvenir/antique shops, two TM practitioners, and one wildlife wholesaler. This was slightly less than the number of TM outlets surveyed during TRAFFIC's 2010 survey (Foley *et al.*, 2011) as a few outlets (n=5) were found to have ceased operations in 2012 (Table 2).

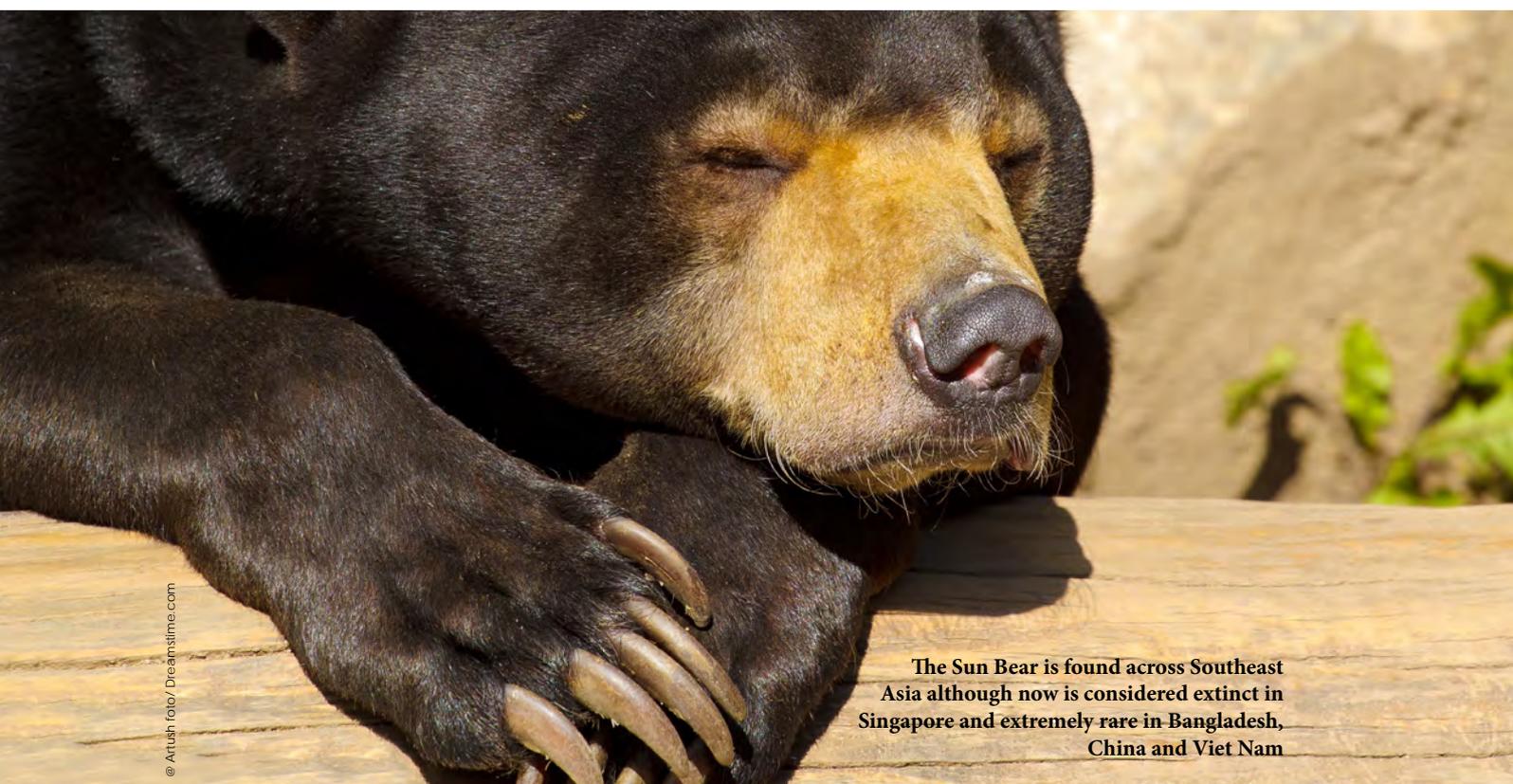
These same 78 TM outlets were surveyed in 2016 but an additional eight outlets were found to have closed down since the 2012 survey. Furthermore, one TM outlet has since been converted into a clothing shop, although it still offers bear bile for sale. It could not be confirmed whether the current owner of the clothing shop was the same owner of the TM outlet previously. A total of 70 outlets (Table 2) were successfully surveyed in 2016: the clothing shop, 61 TM shops, one TM practitioner, three pharmacies, three souvenirs/ antique shops, and one wildlife wholesaler. An additional three TM outlets were also identified and visited that were not previously surveyed in 2012, as recommended by owners and/ or employees of other TM outlets during the 2016 survey. Those three TM outlets were found selling bear bile. However, as this study is a direct comparison of the TM outlets surveyed in 2012 and again in 2016, these additional three TM outlets are excluded from further analysis in this report. It should be noted that their details were included in a report which was submitted to law enforcement authorities for their further action.

Bear farms were visited in 2012 only in or near Ha Noi, Ha Long and Ho Chi Minh City as these areas have some of the highest concentrations of farms in the country. There are a relatively large number of bear farms in Nghe An Province but these were not surveyed due to time constraints. Of the 41 bear farms initially identified for the study, only 23 bear farms were successfully surveyed; two had ceased operations since being surveyed in Foley *et al.* (2011), seven denied access to the research team and nine could not be found due to insufficient address details from previous research (Table 3).

In 2016, a systematic survey of the same bear farms visited in 2012 was not undertaken due to time and financial constraints, as well as the fact that all of the bear farms in or near Ha Long City have since been closed down. Nevertheless since bear farms supply most of the bear bile available at TM outlets (as was discovered during the 2012 survey), nine bear farms previously surveyed in 2012 near Ha Noi were re-visited in 2016 to get an update on the trade trends. Considering the small number of bear farms surveyed in 2016 and limited data that were recorded, these bear farms have been excluded from further analysis in this report. The findings however have been briefly described in the "Discussion" section and the details of these bear farms offering bear bile for sale has been included in a report to law enforcement authorities for further action.

Table 2. Number of outlets surveyed for bear products and bear parts in 2012 and in 2016

Type of outlet	Ha Long		Ha Noi		Vinh		Da Nang		Hue		Ho Chi Minh City		TOTAL	
	2012	2016	2012	2016	2012	2016	2012	2016	2012	2016	2012	2016	2012	2016
TM shops	5	3	10	9	4	4	13	11	17	16	20	18	69	61
TM practitioner	1	0	0	0	0	0	0	0	0	0	1	1	2	1
Pharmacy	1	1	1	1	1	1	0	0	0	0	0	0	3	3
Souvenir/Antique shop	1	1	0	0	0	0	0	0	0	0	2	2	3	3
Wildlife wholesaler	0	0	0	0	1	1	0	0	0	0	0	0	1	1
Others	0	1	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL	8	6	11	10	6	6	13	11	17	16	23	21	78	70
Ceased operations	0	2	0	1	1	0	1	2	1	1	2	2	5	8



The Sun Bear is found across Southeast Asia although now is considered extinct in Singapore and extremely rare in Bangladesh, China and Viet Nam

Table 3. Number of bear farms surveyed for bear products and bear parts in 2012

Status of bear farms surveyed	Ha Noi	Ha Long	Ho Chi Minh City	TOTAL
Successfully inspected	12	2	9	23
Entry to premises denied	2	2	3	7
Unable to locate	7	2	0	9
Ceased operations	0	0	2	2

RESULTS

Outlets

Between 2012 and 2016, the availability of bear bile in the six cities surveyed in Viet Nam declined in both quantity and forms. Of the 70 TM outlets surveyed across Viet Nam in 2016, 40% were observed selling or admitted to selling bear bile, down from 56% (44/78) in 2012 (Figure 1). This was largely attributed to the decrease in the number of TM shops observed selling bear bile i.e. in 2012, 59% (41/69) of shops surveyed sold bear bile whereas in 2016, this dropped to 41% (25/61); as well as closure of eight TM shops that were surveyed in 2012. In addition, of the three pharmacies surveyed, two were found to be selling bear bile in 2012, but when re-visited in 2016, no bear bile was observed for sale in any of the three pharmacies. In contrast, bear bile was observed in one of the souvenir/antique shops surveyed in 2016 whereas in 2012 none of the three had been found selling bear bile. The one wildlife wholesaler surveyed was observed with bear bile for sale during both surveys.

Almost all of the outlets observed with bear bile for sale had stock available on site with the exception of three retailers in 2012 and two retailers in 2016 who reportedly did not store bear bile on their premises. Nevertheless, very few retailers openly displayed bear bile products i.e. only two retailers in 2012 and one retailer in 2016. Forms of bear bile available for sale in Viet Nam included raw bear bile, gall bladder (sold either whole or per gramme), powder, pills and flakes. No bear bile pills or flakes were observed for sale in the 2016 survey while only one TM shop was observed with these product types in 2012 (Table 4).

Figure 1. Number of surveyed outlets that sold bear bile products in 2012 and in 2016.

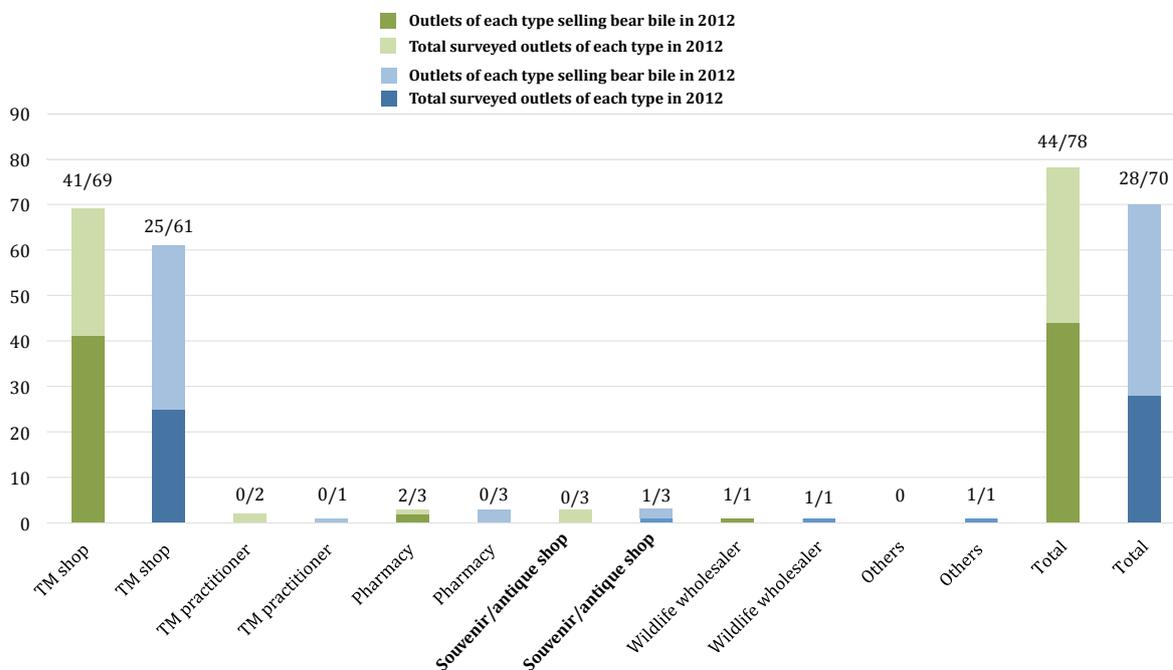


Table 4. Bear bile products on sale in surveyed outlets in 2012 and in 2016

<i>Available product (unit sold as)</i>	<i>Year</i>	<i>Wild or Farm origin</i>	<i>Claimed country origin</i>	<i>% of surveyed outlets selling product</i>	<i>Mean price per unit (price range) in USD</i>
<i>Gall bladder (whole)</i>	2012	Wild	Viet Nam Lao PDR Thailand	6% (5/78)	598.18 each (38.41 – 960.15)
	2016	Not specified	Not specified	3 (2/70)	157.04 each (134.61 – 179.48)
<i>Gall bladder (per gram)</i>	2012	Wild	Viet Nam Lao PDR Thailand Russia	5% (4/78)	24.12 per g (7.20 – 67.21)
	2012	Farm	Viet Nam	3% (2/78)	19.24 per g (9.60 – 24.00)
	2012	Not specified	“another country”	1% (1/78)	8.64 per g
	2016	Not specified	Not specified	3% (2/70)	Not specified
<i>Raw bile* (vial)</i>	2012	Farm	Viet Nam	42% (33/78)	4.07 per cm ³ (2.40 – 7.44)
	2012	Wild	Viet Nam	4% (3/78)	8.80 per cm ³ (4.80 – 14.40)
	2012	Not specified	Viet Nam	1% (1/78)	1.92 per cm ³
	2016	Farm	Viet Nam	21% (15/70)	5.19 per cm ³ (2.69 – 11.22)
	2016	Not specified	Viet Nam	16% (11/70)	1.44 per cm ³ (1.79 – 6.73)
<i>Powder (vial)</i>	2012	Wild	DPR Korea	1% (1/78)	6.72 per g
	2012	Not specified	DPR Korea China	3% (2/78)	4.40 per g (1.60 – 7.20)
	2012	Wild	Not specified	1% (1/78)	No price given only “expensive”
	2016	Wild	Not specified	1% (1/70)	6.28 per g
	2016	Not specified	DPR Korea	1% (1/70)	33.65 per g
	2016	Not specified	Not specified	1% (1/70)	6.73 per g
<i>Flakes (vial)</i>	2012	Wild	Viet Nam	1% (1/78)	48 per g
<i>Pills (pill)</i>	2012	Farm	Viet Nam	1% (1/78)	3.60 each**

* Price data exclude one quote for raw bear bile given by a TM shop in Ho Chi Minh City during the 2012 survey of USD288.05 per cm³ (approximately 50 times higher than the average price data collected during this survey). Attempts to confirm this price were made by a second researcher who visited five days later, who was told that the TM shop no longer had raw bear bile available for sale.

** price data by weight were not available.

Viet Nam's bear farming industry and persistent demand for bear bile and bear parts is driving regional declines in the populations of both Asiatic Black Bears and Sun Bears.

Bear Products Observed for Sale

Raw bear bile

Raw bile was the most frequently sold form of bear product in Viet Nam in both 2012 and 2016.

Of the 78 TM outlets surveyed in 2012, 37 outlets (47%) were found selling bear bile in vials (one vial = one cm³). Owners of all 37 outlets reported that the bile was sourced from Viet Nam, with 33 (89%) reporting their source as bear farms, three (8%) as wild bears, while one declined to answer. At an average of USD8.80 per cm³, the price of wild-sourced bear bile was twice that reported for farmed bear bile which averaged at USD4.07 per cm³. When asked on the frequency of their sales, only 28 (76%) outlet owners provided information on their turnover, with nine declining to answer. Sales of raw bear bile were not high, with most retailers selling fewer than 10 vials/month, but this varied with location. In Da Nang and Hue, most of the retailers reportedly sold only one or two vials every three months. Five of the 10 retailers surveyed in Ho Chi Minh City said that they sold between 11–50 vials/month, suggesting that consumer demand was higher in this city. Only two TM retailers in Ha Noi offered information on turnover which indicated low and medium turnover. The highest sales volume recorded was in Vinh, where a wholesale wildlife trader claimed that they were selling 100 vials/month, but the majority of sellers who reported their turnover rates reported low turnover of fewer than 10 vials/month (Table 5).

In 2016 no raw bile sourced from wild bears was observed. Of the 70 outlets surveyed, 26 outlets (37%) were found with raw bear bile, all reportedly originating from Viet Nam, with 15 (21%) reporting their source as bear farms and 11 (16%) declining to answer. Price for farmed bear bile increased slightly from USD4.07 per cm³ in 2012 to USD5.19 per cm³ in 2016.

Table 5. Reported turnover rates for the sale of raw bear bile in surveyed TM outlets, 2012

<i>Number of outlets that reported turnover of bear bile vials</i>	Ha Noi	Ha Long	Da Nang	Hue	Vinh	Ho Chi Minh City	TOTAL
<i>Low turnover (≤ 10 vials sold per month)</i>	1	2	3	6	3	5	71% (20/28)
<i>Medium turnover (11 – 50 vials sold per month)</i>	1		1			5	25% (7/28)
<i>High turnover (51 – 100 vials sold per month)</i>					1		4% (1/28)
TOTAL	2	2	4	6	4	10	28

Gall bladder

Gall bladder was available in 12 (15%) of the TM outlets surveyed in 2012. These were either sold whole (five outlets) or by the gramme (seven outlets). The price for a whole gall bladder varied between USD38 and 960 with three of the five retailers selling in the higher price range of USD700 – 900. This significant difference in prices of whole gall bladders might be due to their origin i.e. farmed or wild. However, it is nearly impossible to confirm origin of these whole gall bladders and during the survey, all whole gall bladders were reportedly of wild origin. Prices per gramme for these varied between USD7.20 and 67.21/g, while farm-origin gall bladder was being sold for between USD9.60 – 24.00/g.

Of these 12 TM outlets, the majority of retailers (75%) stated that the origin of these bear parts was wild-caught; five retailers claimed that these had come from wild bears in Viet Nam, and four retailers claimed other countries as the source, including Lao PDR, Russia and Thailand. The remaining three retailers stated that the gall bladders came from bear farms in Viet Nam.

Only six of the 12 TM retailers provided an estimate of sales frequency. The remaining six retailers declined to answer or simply stated that “it was sold on demand”. Quoted turnover rates ranged from one to two whole gall bladders per year and to as high as four to five whole gall bladders sold per month. Based on the lowest turnover estimate provided by each retailer, the number of whole gall bladders sold within a year could represent at least 108 gall bladders.

The availability of bear gall bladder dropped significantly between 2012 and 2016. Only two (3%) of the outlets surveyed admitted to selling bear gall bladder, both as whole and by gramme, compared to the 12 outlets in 2012. While one retailer reported the price for a whole gall bladder at USD157.04, the other retailer said that they did not keep bear gall bladder on the premise, so the price varies based on the source. Both retailers declined to report the origin of the gall bladder on sale (either whole or by gramme) and prices per gramme.

Powder, pills and flakes

Bear bile products in the form of powder, pills, or flakes were uncommon in Viet Nam. Of the 78 TM outlets surveyed in 2012, only four (5%) were found selling powder and one (1%) found selling pills or flakes (Table 6). Prices for the sale of powder containing bear bile ranged from USD1.60/gramme for products sourced from China to USD6.72–7.20/gramme for products sourced from the Democratic People’s Republic (DPR) of Korea. Flakes observed for sale in one TM outlet were priced at USD192 per box of 4 g (USD48/g) reportedly made from the bile of wild-sourced bears from Viet Nam (Table 6). This bile flake product was significantly more expensive than the bile flakes observed in the 2010 trade survey (Foley *et al.*, 2011), which were reportedly sourced from China (Figure 2).

During the 2016 survey, no pills or flakes containing bear bile were observed for sale, and only three (4.23%) of the 70 surveyed outlets admitted to selling bear bile powder (Table 6). Two of the retailers reported similar prices for bile powder of farmed origin (USD6.73/gramme) and wild origin (USD6.28/gramme), although no specific country of origin was reported (Table 6). The price for bear bile powder sourced from the DPR of Korea was reported at USD33.65/gramme, a significant increase from the price quoted in 2012 in addition to that reported by Foley *et al.*, 2011 (Figure 2).

Prices for bear bile products

Although sample sizes are too small from which to derive any rigorous analysis, there are some patterns within the price data. Comparing records of the 2012 and 2016 survey with the 2010 market survey data (Foley *et al.*, 2011), price trends for most bear bile products were found to be unstable, with the exception of prices for bear bile powder which had increased over time. The average price for gall bladders was found to have decreased 74% between 2012 and 2016 after increasing 61% from

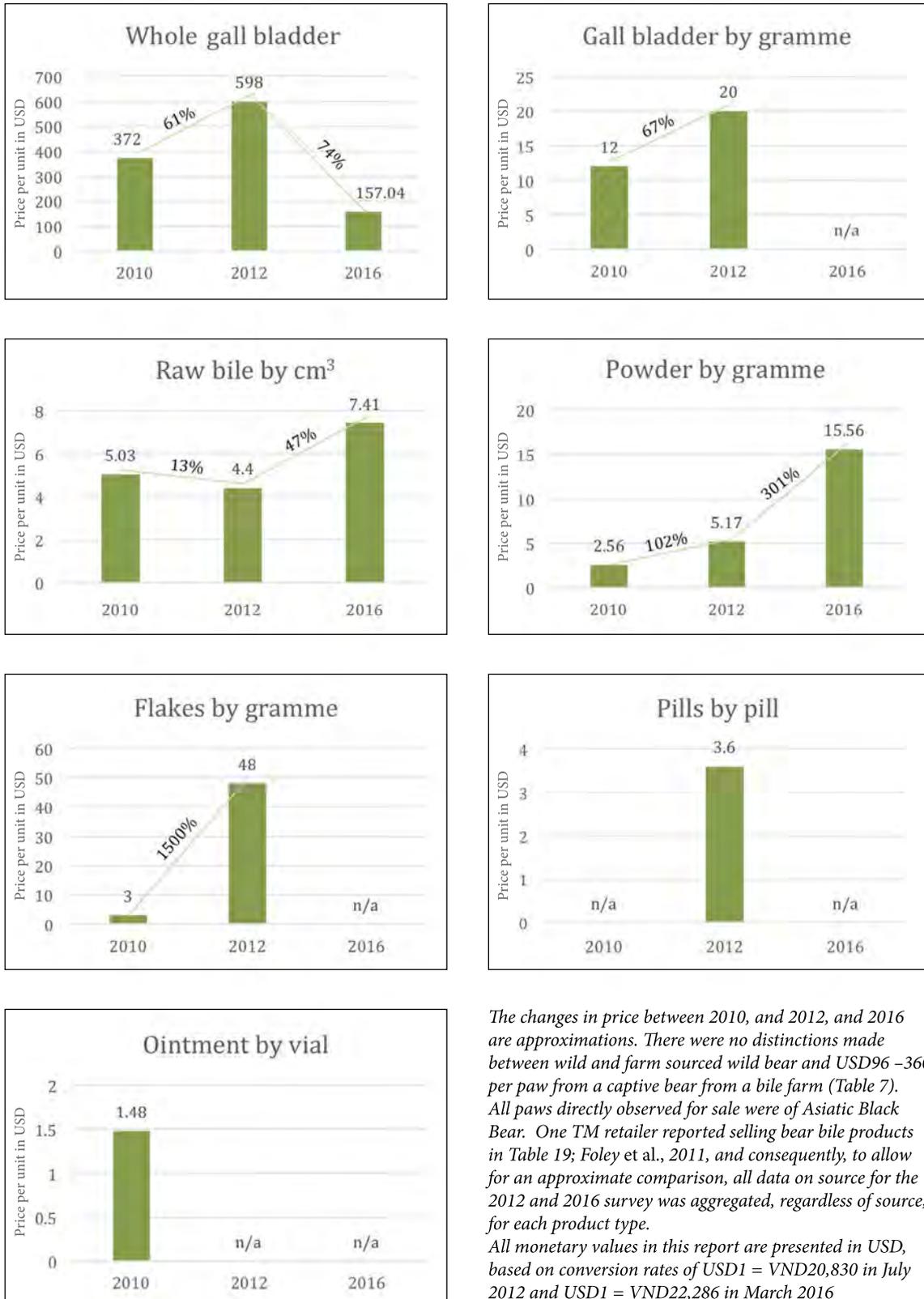
Table 6. Information on price and source of powder, pills and flakes containing bear bile found in outlets in Viet Nam in 2012 and in 2016

Year	Form	Source	Country origin	Quoted price		Unit price (USD / unit)	Estimated turnover
				USD	Unit		
2012	Powder	Not specified	China	9.60	Box of 6 x 1 g vials	1.60 /g	1 box every 2-3 months
2012	Powder	Wild	DPR Korea	67.21	Box of 2 x 5 g vials	6.72/g	“not many sold because it is expensive, people who buy this are rich”
2012	Powder	Wild	Not specified	“expensive”		n/a	Would not answer
2012	Powder	Not specified	DPR Korea	72.01	Box of 2 x 5 g vials	7.20/g	10 vials per month
2016	Powder	Farm	Not specified	Not specified	Not specified	6.73/g	n/a
2016	Powder	Wild	Not specified	Not specified	Not specified	6.28/g	n/a
2016	Powder	Not specified	DPR Korea	Not specified	Not specified	33.65/g	n/a
2012	Pills	Farm	Viet Nam	7.20	2 small pills	3.60 per pill	10 pills per month
2016	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2012	Flakes	Wild	Viet Nam	193.03	4 g	48.01/g	1 – 2 x 4g vials every 2 – 3 months
2016	n/a	n/a	n/a	n/a	n/a	n/a	n/a

2010 to 2012 (Figure 2). In contrast, the average price of raw bile had decreased 12% from 2010 to 2012 but went up again by 47% in 2016 (Figure 2). However, it should be noted that the trends identified here are only very rough approximations and might be inaccurate; there were no distinctions made between wild or captive sourced bear bile products in the 2010 market survey data (Foley *et al.*, 2011), and consequently, all the data from this survey had to be aggregated to allow for a comparison.

Mislabelling processed bear bile products (such as deliberately labelling Vietnamese products as originating from outside the country), is a practice that has previously been observed in Viet Nam and speculated to be done to either increase the perceived value of the product or for marketing to foreign tourists (Foley *et al.*, 2011). However, the 2012 and 2016 surveys could not confirm any evidence of this practice given both surveys were based on answers from shop owners/employees.

Figure 2. Comparison of available bear bile products with data from Table 19: Foley *et al.*, 2011



Bear parts

Whole bear paws and canine teeth were the only external body parts reported for sale during the 2012 survey and were available in seven TM outlets (9% of the surveyed TM outlets). Prices ranged from USD168-480 per paw from a wild bear and USD96-360 per paw from a captive bear from a bile farm (Table 7). All paws directly observed for sale were of Asiatic Black Bears. One TM retailer reported selling bear canine teeth for between USD93 and USD288/tooth, and two other retailers reported USD19/tooth. The lower price quoted suggests that these canine teeth were likely to be fakes, though this could not be confirmed during the survey.

Although only 9% of TM outlets surveyed in 2012 had bear parts for sale, most did offer to source claws, canine teeth, and whole paws on request. No information could be extracted on turnover rates of bear paws and canine teeth sold in Viet Nam, and details on the origin of bear parts were only given for bear paws (Table 7). These were allegedly sourced either within Viet Nam from bears held in farms, or internationally from wild populations in Lao PDR, Russia and Thailand.

In comparison, no non-bile derived products were observed for sale during the 2016 survey.

Table 7. Price information on bear paws sold in four outlets in 2012

Outlet	Stated price (USD)	Claimed origin	Claimed source
A	144.00 – 192.00 for two paws	Lao PDR, Thailand	Wild
B	96.00 each	Viet Nam	Farm
	480.00 each	Russia	Wild
C	144.00 each	Viet Nam	Farm
D	336.00 – 384.00 for two paws	Viet Nam	Farm



Interviewee perceptions of bear products

In 2012, approximately 15% (7/78) of the TM retailers surveyed stated that raw bear bile sold in Viet Nam was fake or of poor quality. Bile obtained from domestic animals (such as pigs and cows) were reported to be the most likely substitutes for bear bile and gall bladders. One retailer speculated that as much as 90% of all the raw bear bile available in Viet Nam was fake. Some of the retailers that were sceptical about the authenticity of raw bear bile available in the market sold other bear products such as whole gall bladders (four outlets) and flakes (one outlet). Two TM retailers stated that gall bladder was preferred by consumers over raw bile. However, there were also two retailers that refused to sell gall bladder in their stores because they said that too much of the gall bladder on the market was considered fake and that it was too difficult to identify authentic bear gall bladders. Only one TM outlet owner stated that he no longer sold raw bear bile because it was illegal.

Awareness of legal protection for bears was found to have increased between 2012 and 2016. The number of TM outlet owners stating that bear trade is prohibited by law increased to 11% (8/70) in 2016 compared to 1% (1/78) in 2012. However, five of these retailers continued to sell bear bile despite knowing that this act is illegal. Six of the 70 (9%) surveyed retailers stated that the majority of bear bile in Viet Nam is now fake. This included both retailers selling and not selling bear bile. Once again, the most likely substitutes for bear bile and gall bladders were said to be bile obtained from domestic animals (such as pigs and cows).

Bear farms

In 2012, a total of 23 bear farming operations were surveyed across Viet Nam, including 19 commercial farms, one household farm and three amusement parks containing wildlife menageries. Direct observations revealed a total of 266 Asiatic Black Bears and six Sun Bears in these 23 bear farms. Based on unconfirmed statements by bear farm owners/employees there were an additional 162 bears held out of sight on these facilities, suggesting that there could potentially be a number of undisclosed bears held in farms across Viet Nam. All the bears that were observed appeared to be malnourished and underweight with the exception of the animals held in one private zoo, for which there was no evidence that the bears were having their bile extracted. Many of the bears observed had poor skin condition, displayed behaviours that are uncommon for healthy bears, and were missing paws or limbs; which is likely the result of being caught in a cable-snare trap in the wild.

A reliable comparison of the number of bears recorded in farms in Foley *et al.* (2011) and the 2012 survey could only be evaluated for 12 bear farms. Of these 12 farms, five had no change in the number of captive held bears, five had a decrease in number and two had an increase in number over the two-year period from 2010 to 2012.

In 2016, nine bear farms nearby Ha Noi which were surveyed in 2012 were re-visited. However, the total number of bears could not be observed due to the farm owners'/employees' refusal to allow access to bear cages. The rest of the bear farms which were surveyed in 2012 could not be re-visited due to time and financial constraints and formal closure of bear farms in 2015 in/near Ha Long.

Raw bear bile and gall bladders

Seventeen (74%) bear farm owners were either observed selling or had employees that admitted to selling raw bear bile and five admitted to selling bear parts including gall bladders and bear paws and provided the prices (Table 8). Meanwhile, the bear farm survey in 2016 only recorded raw bear bile for sale. This decline in availability of other bear parts and products might be due to the fear of getting caught and punished (see Discussion on Enforcement).

Table 8. Price of gall bladders and bear paws of five farms in 2012

<i>Form</i>	<i>Unit</i>	<i>Price (USD)</i>
<i>Gall bladder (authentic)</i>	Whole	144.00 and 480.00
	By gramme	38.00
<i>Gall bladder (fake)</i>	By gramme	4.32
<i>Bear paw</i>	Single paw	480.00

Prices for raw bear bile sold at bear farms in 2012 ranged from USD0.96 – 14.00/cm³. Pricing appeared to be significantly influenced by customer nationality; bear farm owners in Ha Long charged Asian tourists, on average, USD12.00 per cm³ for raw bile, nearly five times that paid by local Vietnamese customers (USD2.45 per cm³). The majority of owners declined to provide estimated turnover rates of raw bile sold when questioned with the exception of seven farm owners: four gave sales figures of more than 100 vials of raw bear bile/month and the other three gave figures of 10-30 vials/month.

One bear farm owner openly admitted to selling fake bear gall bladders which were sourced from domestic pigs and sold for USD4.32/g, in comparison to USD38.00/g for an alleged genuine bear gall bladder. The bear farm owner stated that pig gall bladders were injected with raw bear bile to make the product appear genuine.

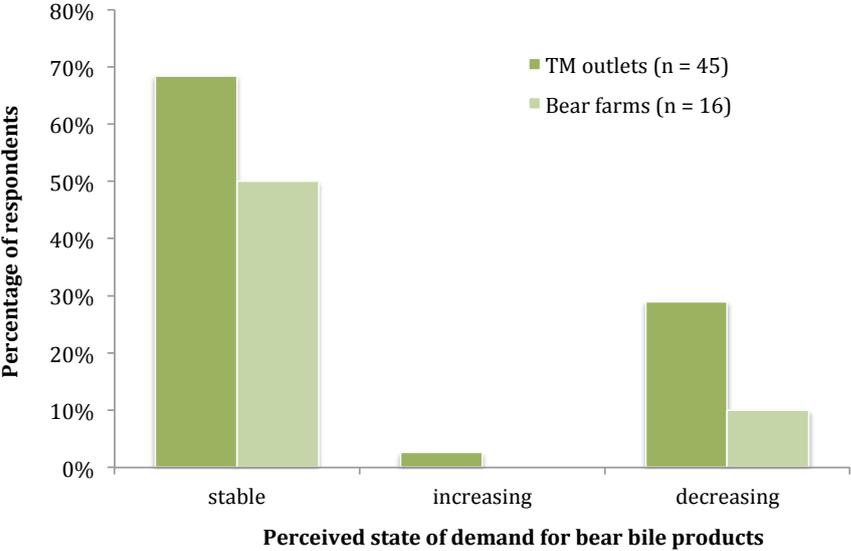
One bear farm owner stated that when an animal died on the farm, the owner would report to the FPD that the entire bear had been disposed of legally (i.e. either incinerated or buried) but, in reality, would sell the parts of the bear. Another bear farm owner confessed that whilst some of the bears at the farm were registered and microchipped as required by the Vietnamese Government, they had additional bears present which were unregistered and had no microchip. The farm owner explained that the unregistered bears would be killed and their parts sold to avoid any problems should authorities demand to inspect all bears on the farm searching for unregistered individuals.

Bear farm owners interviewed in 2016 were much less open about their operations and only shared information regarding the availability or lack thereof of raw bear bile for sale and price.

Demand

In 2012, 45 TM outlets (58%) and 16 bear farms (82%) were queried about trends in consumer demand for bear bile. Seven TM outlets and 10 bear farms either failed to acknowledge the question or declined to answer. Of those that did respond, 68% of TM outlets and 50% of bear farms considered the demand for bear bile products to be stable in the country (Figure 3). However, 11 TM retailers (29%) and one bear farm operator considered that demand was decreasing, suggesting a potential decline in trade for some dealers. Only one respondent (a TM outlet in Ha Noi) considered demand for bear bile to be increasing.

Figure 3. Perception of changes in consumer demand for bear bile products from TM outlets and bear farms in 2012



Law Enforcement

In 2012, 24 TM vendors were questioned about the level of law enforcement by the FPD and/or EP in Viet Nam. Seven vendors (29%) refused to give any information regarding law enforcement activity. Fourteen of the vendors (58%) stated that officials from FPD and/or EP never visited their store. Two TM vendors reasoned that FPD would not inspect their premises because there were no advertisements publicizing the sale of bear bile or other illegal wildlife on their shop front. Another stated that the FPD and/or EP never visited because the bear bile in his store was sourced from government-owned bear farms, and hence he considered it legal to trade these products. Only three TM retailers (13%) claimed that FPD and/or EP had visited their premises; two of which stated that they had been granted permission by the FPD to sell the raw bear bile, while one declared that the fear of repercussions from the FPD was the reason why he was only selling raw bear bile obtained from bear farms, which he considered (falsely) to be legal, rather than any other form, all of which he knew to be illegal.

Seventeen bear farm owners and/or employees (74%) were questioned about the level of enforcement by the FPD. One owner stated that the FPD had never visited the premises because their farm was a small household operation extracting bear bile for personal use only. Eight respondents (35% of the 23 operations surveyed), all representing larger bear farm operations, stated that FPD had visited their premises. Three respondents (13%) shared information about the frequency of these visits which varied from once a week, once a month, to once every 6 months. Three of the respondents also admitted to bribing FPD officials, with one admitting that this was done so that they would be allowed to sell bear parts from animals that had died or been killed.

DISCUSSION

The data compiled in this study, which recorded commercial trade in bear bile and gall bladders in all six cities surveyed, have shown that the illegal bear trade remains active and prevalent throughout Viet Nam, and that demand for bear bile products from Viet Nam persists due to both domestic and international consumer markets.

Trade in raw bear bile

The bear trade in TM outlets in Viet Nam mostly involved the retail of bile in a raw, unprocessed form, typically sold in vials of 1 cm³ quantities. The raw bear bile sold in outlets was predominantly sourced from bears farmed in Viet Nam (89% of outlets in 2012 and 58% of outlets in 2016) (see discussion on Product origin).

Based on the survey results in 2012, the value of raw bear bile sold in TM outlets has declined. Evidence of bear traders in Viet Nam targeting international consumers (so called “bear bile tourism”) and yielding potentially greater profits has been well documented in Ha Long (KBS, 2010; ENV, 2011) and was supported in this study.



Vials of raw bear bile for sale from four different TM outlets in Viet Nam, observed in 2012 and 2016.

Seventy-one percent of TM outlets surveyed in 2012 reported low (less than 10 vials per month) monthly sales of raw bear bile. Based on the average price for farmed bear bile (USD4.07/cm³), these turnover rates would yield a maximum of USD40.07/month for TM shops; it is highly unlikely that TM retailers in Viet Nam are making substantial profits from selling farmed bear bile. A possible explanation for this low turnover could be an overall low consumer demand for farm-origin bear bile in Viet Nam (see Vu Quyen Thi, 2010), or consumer preferences for wild-sourced bear bile. Findings have shown that consumers in China and Lao PDR prefer non-farmed bear bile (Dutton *et al.*, 2011; Davis *et al.*, 2016). Similarly, Vietnamese consumers reportedly believe that products from farmed animals are of lower quality than wild-caught ones (WCS, 2008; Drury, 2009; Shairp *et al.*, 2016). It is therefore plausible that wildlife consumers in Viet Nam also perceive farmed bear bile as an inferior product to that sourced from wild animals.

Although there is no specific data on turnover rates of raw bear bile in TM outlets for 2016, it should be noted that the average price for raw bile increased since the 2012 survey despite reported concerns about its quality. This might be linked to the fact that Ha Long City in particular and Quang Ninh Province in general, one of the areas which previously had the highest numbers of farmed bears in Viet Nam, officially became bear farm-free in 2015, reducing the supply of bear bile and gall bladders.

During both surveys, TM outlets surveyed in Ha Noi and Ho Chi Minh City reported relatively high sales of bear bile compared to outlets in the other cities surveyed. The relatively high turnover rates reported by TM shops in these two cities reflects greater levels of bear bile use by consumers in Ha Noi and Ho Chi Minh City (see Vu Quyen Thi, 2010). Ha Noi and Ho Chi Minh City are the two biggest cities with a population of at least twice as large as the next largest cities in Viet Nam (General Statistic Office of Viet Nam, 2014). In contrast to these markets, a relatively low turnover of bear bile sales was reported in Da Nang and Hue. Consumer attitude surveys conducted in Da Nang suggested a lower level of bear bile consumption (Vu Quyen Thi, 2010). Information on consumer attitudes of local residents appears to match with the data on bear bile sales in TM outlets reported in this study.

Trade in bear gall bladders

The results of the 2012 survey confirmed the lucrative nature of the trade in gall bladders, both whole and by the gramme. This was also observed in earlier trade surveys where gall bladder was one of the most valuable bear products available (Mills and Servheen, 1991, Mills *et al.*, 1995, Foley *et al.*, 2011). Similar to the findings in Foley *et al.*, (2011), a wide range of prices (from USD38.41 to USD960.15 for whole and from USD7.20 to USD67.21 per gramme) were quoted for bear gall bladder by retailers during the 2012 study. Lower quotes were likely for counterfeit gall bladders from other species. In contrast to raw bear bile the average price for whole gall bladders sold in TM outlets and bear farms in 2012 (USD598) had increased since 2010 (USD372; Foley *et al.*, 2011). This may indicate that the trade in bear gall bladders is more lucrative than trade in other bear products in Viet Nam during the period between 2010 and 2012.

However in 2016, the availability of gall bladder, both whole and by gramme, was only observed for sale in two (2.8%) of the TM outlets surveyed, compared to 12 (15%) of the surveyed TM outlets in 2012. It should be noted that neither outlet owner reported storing gall bladder in their shop. A possible explanation for this is the fear of getting caught and punished as awareness regarding the illegal trade in bear products has seemingly increased (see Interviewee perceptions of bear products). Another explanation could be that trade is moving online. The internet has been identified as an emerging platform for trade in wildlife products (Nguyen and Willemsen 2016; WCS 2012)



Gall bladders openly for sale in Ho Chi Minh City, Viet Nam in 2012. Some of these were alleged to be bear gall bladders.

© Daniel Wilcox / TRAFFIC

Trade in products containing bear bile

Other forms of bear bile products, including powder, pills, and flakes were available in only a small number of TM outlets in Viet Nam. This finding was similar to previous trade surveys in Viet Nam (Foley *et al.*, 2011); more processed product types containing bear derivatives constituted only a small proportion of the trade in Viet Nam. Bear bile flakes were one of the most expensive products recorded during the 2012 survey at USD48/g. In comparison, flakes typically sold for USD1.60 – 5.20/g in Malaysia (Lee *et al.*, 2015). It is uncertain whether the inflated price of flakes recorded in Viet Nam was due to the purported wild origin of the product, the purity of the product (i.e. a higher proportion of bear bile contained in the flakes), and/or the rarity of this product type in Viet Nam. In 2012, all three products types were encountered during the survey for sale in small quantities and a few TM outlets. In 2016, flakes and pills containing bear bile were not observed for sale in any of the TM outlets. Bear bile powder was still being offered by three TM outlets (4%) with an increase in price by 301% from 2012. This, once again, triggers the question whether the high price of this product type can be explained by its low availability.

The relatively low availability of processed bear products in Viet Nam contrasts significantly with the consumer markets in Malaysia (Krishnasamy and Shepherd, 2014; Lee *et al.*, 2015), Singapore, Thailand, Hong Kong SAR, Taiwan, and mainland China (Foley *et al.*, 2011), where manufactured pills and/or powder represent the dominant commodity in the bear trade. Considering the low availability of these processed bear products in Viet Nam, it is likely that these products are only opportunistically made available on the market in Viet Nam due to low consumer demand. Another reason for the low availability might be that processed bear products are mainly produced in China, where it is legal, whereas in Viet Nam it is illegal; bear farms are therefore unlikely to invest in making these products and instead rely on the trade in raw bear bile, gall bladder and bear body parts. Products containing bear bile are widely available in neighbouring China as well as other countries in Asia (Foley *et al.*, 2011), and illegal cross-border trade of these commodities into Viet Nam is occurring (Burgess *et al.*, 2014), confirming that Viet Nam plays a role in all three aspects of the illegal bear product trade: the supply, the trafficking and the consumption.

Trade in other bear parts

Relatively few outlets in Viet Nam (9% of surveyed outlets) had bear body parts (e.g. teeth, paws, claws) available for sale in 2012, with most vendors stating that they did not stock these because of the low consumer demand. In fact, in 2016 no bear body parts were observed for sale.

In 2012, bear paws were relatively expensive and said to be sourced illegally from bear farms in Viet Nam and wild populations in Lao PDR, Russia and Thailand. There was also evidence of illegal international trade with one bear farm owner admitting to selling bear paws to traders from China. Low consumer demand might be a possible reason for the lack of such products in the market in 2016. However, there is a known demand for paws in other countries, most notably China where the consumption of bear paws is considered a delicacy (Mills and Servheen, 1991). In addition, Viet Nam has been implicated in a number of international seizures of bear paws (Table 6: Burgess *et al.*, 2014), it is possible that trade in bear body parts has simply become more discreet than that of bear bile. The increased awareness of the illegality of the bear trade is the likely reason why few of the vendors surveyed in 2012 stocked or openly displayed bear body parts (which are much more visible and clearly of animal origin than vials of bile) but were willing to source these if an order was placed.



From left to right. Whole Asiatic Black Bear paws in rice wine, alleged bear claws, and an alleged bear canine tooth, all observed in Viet Nam during the 2012 investigation.

Product origin

Bear farms supplied most of the raw bear bile available in TM outlets, according to the retailers interviewed. Bear farms in Viet Nam are not typically the large-scale commercial enterprises seen in China. Nonetheless, these bear farms produce adequate bear bile to supply the local market in Viet Nam, with surplus bear bile products potentially smuggled into illegal international markets (Burgess *et al.*, 2014). Consignments of raw bear bile and bear bile products produced in Viet Nam have been seized in illegal cross-border trade (Burgess *et al.*, 2014). In 2009, Viet Nam was implicated in the seizure of 3,000 cm³ of raw bear bile, the largest seized consignment of raw bile recorded in Asia from 2010 to 2011 (Burgess *et al.*, 2014). Even within Viet Nam, the domestic trade of bear bile has a significant illegal cross-border component, with many bear products purchased by foreign visitors (primarily Korean tourists; see discussion on Bear bile farming) and then carried across international borders.

In 2012, raw bile claimed by vendors to be sourced from wild bears retained more value (USD8.80/cm³, similar to price quotes in 2005; Vu Quyen Thi, 2010), and fetched on average more than twice the price of farmed bear bile (USD4.07/cm³) in Viet Nam. The validity of wild origin is unverified and uncertain, especially considering the wide availability of farmed bile in the country.

Statements made by bear farm owners/employees that they sold gall bladders to TM outlets in Viet Nam and to Chinese traders, and of the farm-origin gall bladders reported by TM outlets, provides some indication that bear farm owners in the country are illegally supplying bear gall bladders to the market and promoting this illegal trade. The minimal levels of monitoring and law enforcement by relevant agencies, including FPD, are facilitating this illegal trade and enabling bear farm owners to engage in the relatively lucrative trade in gall bladders and other bear parts. This is a significant enforcement issue that needs addressing.

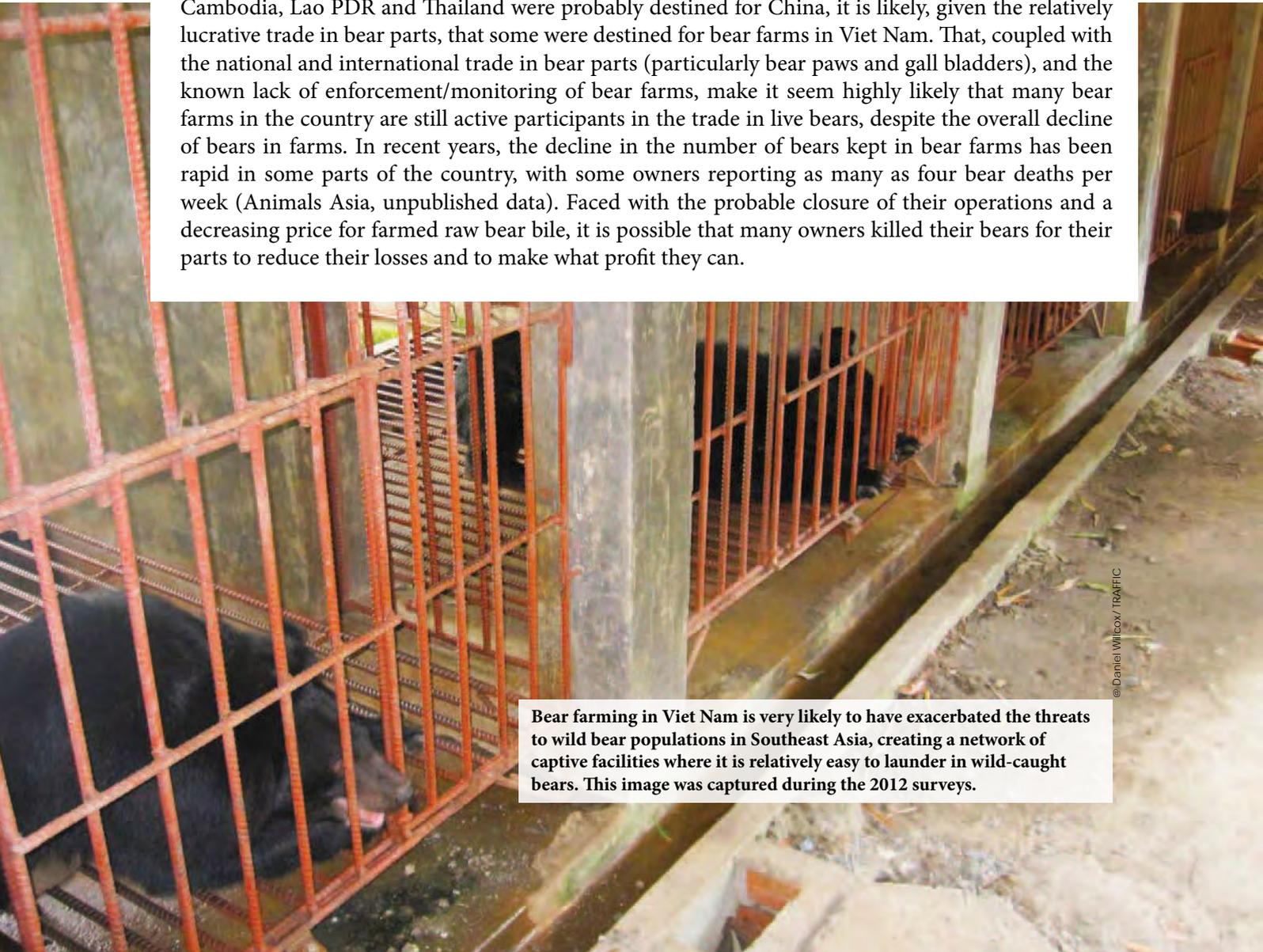
Viet Nam has been implicated as a significant country in the illegal cross-border trade of bear gall bladders and bear paws in Asia (Figure 1 and Table 6; Burgess *et al.* 2014). The sale of wild-sourced gall bladders reported by four TM outlets surveyed during this study is probably a small proportion of the entire trade in gall bladders in Viet Nam.

Bear bile farming

Whilst the trade in farmed raw bear bile sold in TM outlets appears to have a low turnover that may not support the bear farming industry in Viet Nam (see discussion on Trade in raw bear bile), there is a mismatch between supply and demand based on available turnover data from bear farms. Most bear farm owners that commented on the turnover of bear products from their business reported selling more than 100 vials of raw bear bile per month, which is twice the number of bear bile vials sold in most TM outlets surveyed. Despite the increased opportunity to sell more bear bile directly from the bear farm premises, it appears that the bear farming industry is in an overall state of decline; the numbers of bears in captivity is decreasing and unprompted statements from two farm owners on the unprofitability of the farmed bear bile industry during this research.

Exceptions for the reduction in market include the “bear bile tourism” industry formerly centred on Ha Long Bay, Quang Ninh province, where farms charge significantly more for their raw bear bile and whose operations are probably profitable. When this industry was at its peak hundreds of Asian tourists would visit bear farms in Ha Long and purchase bear bile and other products/parts illegally (ENV, 2011). Following several years of lobbying and advocacy work by NGOs with the provincial authorities, as well as awareness campaigns, these bear farms have now been shut down and the bears are being transferred to rescue facilities. Although there has yet to be any sign of “bear bile tourism” expanding to other areas and provinces in Viet Nam, existing bear farms should be closely monitored to avoid this sort of commercial tourist activity.

There is still an active trade in live bears entering Viet Nam, with Viet Nam implicated in the seizure of at least 152 live bears from 2010 to 2011 (Burgess *et al.*, 2014). Whilst some of these live bears from Cambodia, Lao PDR and Thailand were probably destined for China, it is likely, given the relatively lucrative trade in bear parts, that some were destined for bear farms in Viet Nam. That, coupled with the national and international trade in bear parts (particularly bear paws and gall bladders), and the known lack of enforcement/monitoring of bear farms, make it seem highly likely that many bear farms in the country are still active participants in the trade in live bears, despite the overall decline of bears in farms. In recent years, the decline in the number of bears kept in bear farms has been rapid in some parts of the country, with some owners reporting as many as four bear deaths per week (Animals Asia, unpublished data). Faced with the probable closure of their operations and a decreasing price for farmed raw bear bile, it is possible that many owners killed their bears for their parts to reduce their losses and to make what profit they can.



Bear farming in Viet Nam is very likely to have exacerbated the threats to wild bear populations in Southeast Asia, creating a network of captive facilities where it is relatively easy to launder in wild-caught bears. This image was captured during the 2012 surveys.



Asiatic Black Bears in bear farms in Viet Nam, seen during 2012 investigation.

Consumer preference

About one in five (17/78) TM dealers surveyed in 2012 suggested that bile sourced from bear farms in Viet Nam was of poor quality. A shifting consumer preference for non-farmed bear bile was recorded among users in China and Lao PDR (Dutton *et al.*, 2011; Davis *et al.*, 2016) and similar findings have been observed in Viet Nam where consumers reportedly believe that products from farmed animals are of lower quality than wild-caught ones (WCS, 2008; Drury, 2009; Shairp *et al.*, 2016).

These potential consumer preferences were reflected in the product prices recorded in this study; the highest quotes obtained for raw bear bile, gall bladder, and bear paws were all associated with claims by dealers that these products were sourced from wild bears. The restricted availability of genuine wild products, the act of laundering of wild bears, and/or consumer preferences for non-farmed wildlife have potentially increased the value of these illegally sourced bear products/parts. If consumers are willing to pay more for wild-origin products, then incentives to acquire and trade in wild bears will persist, regardless of how many bear farms there are, or of the advertised quality of a farmed bear product/part.

It is near impossible for consumers to distinguish between farmed and wild-caught bear bile or between authentic bear and counterfeit products, and it seems likely that price is the main (and possibly the only) distinguishing criteria used by consumers (Dutton *et al.*, 2011). Ultimately, in an economy where wild-sourced products are more highly valued by those who consume them, then wildlife farming is unlikely to satisfy demand for wild animals and may in fact stimulate greater demand for wild-sourced products. The information obtained in this study clearly indicates that farmed substitutes of bear bile do not entirely satisfy consumers in Viet Nam and there is a persistent market for wild-caught bears.

Law Enforcement

Both surveys found that bear bile products in TM outlets were mostly kept off-display, which contrasts with observations made in 2010 when retailers openly displayed raw bear bile (Foley *et al.*, 2011). This change in seller attitude may indicate that TM outlets now conceal bear bile products for fear of detection and penalties, including criminal prosecution, and that efforts to raise awareness about the illegality of selling bear bile products have been successful in the interim. This was the same with bear farms where most farm owners, whether or not they were selling bear bile, denied access to the survey team into facilities where the bears were held when re-visited in 2016. Additionally, although six of the nine farms surveyed offered bear bile for sale, this was not directly advertised (i.e. there was only a signboard in the front of each bear farm with a name and telephone number).

However, in 2012, the majority of TM vendors asserted that there was little or no enforcement action from Forest Protection Department (FPD) and/or Environmental Police (EP), with 58% of respondents stating that their premises were never visited by enforcement agencies.

The wide availability of bear bile and bear parts in both TM outlets and bear farms is a clear violation of Viet Nam's wildlife protection laws. The reported source of gall bladders and bear paws from wild bear populations in Lao PDR, Russia, and Thailand, and bear bile powder from China and DPR Korea is in violation of CITES to which Viet Nam has been Party since 1994. Improving enforcement in order to combat the illegal international trade of bear bile and gall bladders in Viet Nam is critical.

CONCLUSION

The commercial market for bear bile and bear parts is a significant threat to wild populations of Asian bear species. As a source, consumer and transit country Viet Nam plays a significant role in the trade dynamic for the globally-threatened Sun Bear and Asiatic Black Bear. Trade data, perceptions of consumer demand and preferences, and the declining number of bears in captivity indicate that bear bile farming is in decline as an industry in the country. However, the trade in wild-sourced parts and products in Viet Nam appears to be lucrative and presents an ongoing threat to bear populations across Asia. Furthermore, with the increased awareness of retailers to the illegality of the trade, it is likely that trade in bear products is being driven underground. Nevertheless, this trade dynamic strongly suggests that bear farming has not helped decrease the hunting pressures on wild populations.

This is yet another example of farmed wildlife failing to satisfy consumer demand and not being a like-for-like substitution (e.g. Kirkpatrick and Emerton, 2010). Bear farming in Viet Nam has only exacerbated the threats to wild bear populations in Southeast Asia, creating a network of captive facilities through which it is relatively easy to launder wild-caught bears, sometimes with the alleged complicity of the authorities mandated to monitor and enforce against this illegal activity. With the apparently limited demand for farmed raw bear bile in Viet Nam, bear farmers may turn to the trade in bear parts (e.g. paws and bones) and whole gall bladders, as these are considerably more profitable. In support of the evidence collected during this investigation, the Vietnamese media are reporting that bears in farms are being deliberately neglected or killed off, and their body parts then sold on (e.g. vietnamnet.vn, 2015). Bear farms, as well as facilitating the trade in live wild bears, are now also acting as a source for the illegal trade in bear parts. With 1,000+ bears still in captivity in bile farms in Viet Nam, this is a significant wildlife trade issue and is an urgent threat that needs addressing. Improved monitoring of bear farms, as well as the prompt confiscation of live bears from owners found to be breaking the law, needs to be urgently implemented. Stricter and more publicised supervision of the disposal of bears that die on bear farms is needed to prevent bear parts entering the trade.

Viet Nam has a crucial role to play in limiting the illegal cross-border trade from countries in the region that still have relatively healthy wild bear populations, although it is likely to be too late for Viet Nam's bear populations. A genuine commitment to law enforcement along its borders as well as better monitoring and enforcement of existing bear farms and TM outlets in the country is crucial if Viet Nam is to halt the negative impacts of the country's role in the illegal bear trade. Additionally the closure of all bear farm facilities in the country, and the amendment of opaque laws that support wildlife farming are required. In parallel, high-level government support for reducing consumer demand for bear bile products and bear parts through targeted behaviour change campaigns is a critical element of an overall bear conservation strategy.

RECOMMENDATIONS

The Vietnamese Government is making progress in addressing the illegal trade of bear products and reducing the number of bears held in farms, however further work is required to end these practices overall. At the time of writing this report the Viet Nam Administration of Forestry and Animals Asia were drafting an MOU which outlined a “Road Map” to end all bear farming in Viet Nam by 2020. The following items should be considered for inclusion in the Road Map and actioned by the Viet Nam Government and NGO partners:

This Road Map should provide a plan of action to close the gaps in the **legal and policy frameworks** as they exist at the moment:

- As a signatory to CITES, Viet Nam has an obligation to implement CITES Resolution Conf. 10.8 (Rev. CoP14) on the Conservation of and trade in bears (CITES, 2007). Key recommendations in the Resolution call for the improvement of legislation and enforcement to control the illegal export and import of bear parts and derivatives.
- The Ministry of Health and the Administration of Traditional Medicine Management should provide leadership and issue a directive abolishing the use of bears, their parts and derivatives as well as other endangered species in traditional medicine in Viet Nam. All references to bear products and other endangered species in the Vietnamese government authorized Traditional Medicine Pharmacopeia need to be deleted in accordance with national/international laws and regulations.
- Viet Nam’s bear keeping regulation (Decision No. 95 QD/2008/BNN-KL: Table 1) should be amended to include the welfare of bears that are kept in bear farms. If bear farm owners can no longer afford to keep their animals because of the declining market for raw bear bile, then these animals should be transferred to rescue centres as soon as possible and the welfare of the animals in the interim monitored closely. This is to avoid the situation where owners allow their bears to die through neglect, and then illegally sell off the parts.
- Other countries within the ranges of Asiatic Black Bear and Sun Bear are currently expanding or establishing bear farms (e.g. Lao PDR; Livingstone and Shepherd, 2014). Some of these wildlife farming initiatives have the support of national governments and are written into the policy/strategy documents of government departments mandated to conserve wildlife. Both non-governmental and governmental stakeholders, who are engaged in developing national policies and legislation, should recognize that wildlife farming in Asia does not support conservation in the region and should be actively discouraging its implementation. As a key player in ASEAN, Viet Nam has a clear role to dissuade other countries in the region from adopting bear farming as a conservation strategy, by disseminating information and publishing reports on the ongoing efforts to diminish the illegal trade in country.

The Road Map also needs to have further direction on **law enforcement and monitoring**:

- Monitoring of bear farms should be strengthened and improved to ensure that these farms are adhering to regulations, and to deter them from laundering live bears and from selling the parts of their current captive stock. This is in line with recommendations made under resolution WCC-2012-Rec-139-EN at the 2012 IUCN World Conservation Congress (IUCN, 2012).

- The Forest Protection Department of Viet Nam and most provincial authorities lack the capacity or resources to monitor bear farms using microchip scanners, which were introduced in 2006 (e.g. vietnamnet.vn, 2015). The same applies to most potential third party monitors (e.g. local civil society). A relatively inexpensive technique to monitor bear numbers in captivity could be to record individual markings, particularly the chest patterns. This technique has been used to monitor Asiatic Black Bear populations (Higashide *et al.*, 2012; 2013).
- Ministry of Health and the Administration of Traditional Medicine Management need to monitor their constituencies for the use of bear bile and products of other endangered species in Traditional medicines.

Government should work further with NGO partners to **reduce the demand for bear products** in Viet Nam through raising awareness and behaviour change efforts:

- Further advocacy with the Ministry of Health and the Administration of Traditional Medicine Management need to take place for integration of the 32 herbal alternatives to bear bile that have been endorsed by Viet Nam's Traditional Medicine Association, into the Vietnamese TM practices nationwide.
- Traditional Medicine practitioners need to be actively targeted and provided with the booklet of alternatives and information on the illegality of prescribing and use of bear products and other endangered species in traditional medicine practices.
- Existing awareness-raising campaigns should be strengthened and involve behaviour change strategies to target bear bile and bear product users and engage the public in responsible and legal purchasing of TM products.

The Road Map should have a clear direction on action for closing of **bear farms**:

- Phasing out and closing down the bear farms is in line with recommendations 2a and 2b made under resolution WCC-2012-Rec-139-EN at the 2012 IUCN World Conservation Congress (IUCN, 2012). There are currently not enough appropriate captive/rescue facilities in the country that could support the 1,000+ bears that remain in bile farms, and it is highly unlikely that these bears would survive if immediately released into the wild. To facilitate the immediate phasing out of bear farming in Viet Nam, the government should establish a sound veterinary triage process of bears which are healthy and candidates for rehabilitation, increase support of existing rescue facilities (e.g. Vietnam Bear Sanctuary, Tam Dao National Park), and consider the transfer of bears to international zoos or sanctuaries where there are the skills and resources to rehabilitate and provide long term care for bears.
- Provincial governments in Viet Nam should commit to prohibiting new bear farms in their provinces or to allowing new bears to be laundered into existing facilities. Bear farms that have voluntarily transferred or had their bears confiscated by enforcement agencies should be regularly monitored to ensure that the cages are not re-used, and the cages should be broken down and sold for scrap. As long as these captive facilities remain extant there is significant potential that wild bears will continue be laundered in and that the illegal trade, particularly in parts and live animals, will continue.

REFERENCES

- Amaral, J. D., Viana, R. J., Ramalho, R. M., Steer, C. J. and Rodrigues, C. M. (2009). Bile Acids: Regulation of Apoptosis by Ursodeoxycholic Acid. *Journal of Lipid Research*, 50:1721–1734.
- Animals Asia (2014). *What is bear farming?* Animals Asia, Hong Kong. Online at: <https://www.animalsasia.org/intl/our-work/end-bear-bile-farming/what-is-bear-bile-farming/overview.html> Viewed on: 4 November 2014.
- Anon. (2005). *Finding herbal alternatives to bear bile*. World Society for the Protection of Animals, UK.
- Anon. (2007). *From cage to consumer: The global trade in bear parts from China to Asia and beyond*. World Society for the Protection of Animals, UK.
- Bell, D. J., Robertson, S. I., and Hunter, P. R. (2004). Animal origins of SARS coronavirus: possible links with the international trade in small carnivores. *Philosophical Transactions of the Royal Society of London*, 359, 1107–1114.
- Bekoff, M. (2009). Bear tapping: A bile business. *New Scientist*. 4 May.
- Bennett, E. L. (2015). Legal ivory trade in a corrupt world and its impact on African elephant populations. *Conservation Biology*, 29: 54–60.
- Brickle, N. W., Nguyen Cu, Ha Quy Quynh, Nguyen Thai Tu Cuong and Hoang Van San (1998). *The Status and Distribution of Green Peafowl Pavo muticus in Dak Lak Province, Vietnam*. BirdLife International – Vietnam Programme, Hanoi, Vietnam.
- Brook, S. M., Scott, C., Boag, P., Long, B., Ley, R. E., Reischer, G.H., Williams, A. C., Mahood, S. P., Tran Minh Hien, Polet, G., Cox, N. and Bach Thanh Hai (2012). Integrated and novel survey methods for rhinoceros populations confirm the extinction of Rhinoceros *Sondaicus annamiticus* from Vietnam. *Biological Conservation*, 155:59–67.
- Burgess, E. A., Stoner, S. S. and Foley, K. E. (2014). *Brought to Bear: An Analysis of Seizures across Asia (2000–2011)*. TRAFFIC, Petaling Jaya, Selangor, Malaysia.
- Bush, E. R., Baker, S. E. and Macdonald, D. W. (2014). Global Trade in Exotic Pets 2006–2012. *Conservation Biology*, 28: 663–676.
- Calvari, M. (2008). *Where have the cuddly teddy bears gone? The shocking practice of bear farming*. The Dark Phantom Review. Online at: <http://thedarkphantom.wordpress.com/2008/06/26/where-have-the-teddy-bears-gone-the-cruel-practice-of-bear-farming/>. Viewed on: 28 June 2015.
- CEPF (2012). Ecosystem profile: Indo-burma biodiversity hotspot. 2011 update.
- CITES (1997). *CITES 10th meeting of the Conference of the Parties Conservation of and Trade in Bears*. Conf. 10.8 (Rev. CoP 14). Online at: <http://cites.org/eng/res/10/10-08R14.php>. Viewed on: 16 August 2015.
- CITES (2007). *Resolution Conf. 10.8 (Rev. CoP14) on the conservation and trade in bears*. Online at: <https://cites.org/sites/default/files/eng/res/all/10/E10-08R14.pdf>. Viewed on: 16 August 2015.
- Communist Party of Vietnam Online Newspaper (2016). *Dua y hoc co truyen cua Viet Nam phat trien xung tam voi tai nang san co* (Unofficial translation: Vietnamese traditional medicine targets sufficient development as per its potential). Online at: <http://dangcongsan.vn/preview/newid/389712.html>. Viewed on: 10 April 2016.
- Compton, J. and Le Hai Quang (1998). *Borderline: An assessment of the wildlife trade in Vietnam*. Hanoi, Vietnam: WWF Indochina Programme.
- Davis, E. O., O'Connor, D., Crudge, B., Carignan, A., Glikman, J. A., Browne-Nuñez, C. and Hunt, M. (2016). Understanding public perceptions and motivations around bear part use: A study in northern Laos of attitudes of Chinese tourists and Lao PDR nationals. *Biological Conservation*, 203 (2016) 282–289.
- Do Tat Loi (2004). *Vietnamese medicinal plants and herbal remedies*. Medical Publishing House.
- Donovan, D. (2004). *Cultural Underpinnings of the Wildlife Trade in Southeast Asia*. In: Knight, J. (Ed), *Wildlife in Asia: Cultural Perspectives*. Routledge Curzon, London, UK and New York, USA.

- Drury, R. (2009). Identifying and Understanding Consumers of Wild Animal Products in Hanoi, Vietnam: Implications for Conservation Management. PhD Thesis, University College, London, UK.
- Drury, R. (2011). Hungry for success: Urban consumer demand for wild animal products in Vietnam. *Conservation Society*, 9:247-57.
- Dutton, A. J., Hepburn, C. and MacDonald, D. W. (2011). A stated preference investigation into the Chinese demand for farmed vs. wild bear bile. *PLoS ONE*, 6(7): e21243.
- Ellis, R. (2005). *Tiger Bone and Rhino Horn: The Destruction of Wildlife for Traditional Chinese Medicine*. Island Press Publishing, Washington D.C., USA.
- ENV (2011). *Bear farm owners in Quang Ninh ignore law and continue serving Korean tourists*. Wildlife Crime Bulletin, February 2011.
- ENV (2015). *Latest statistics on the number of captive bears in Vietnam*. Online at: <http://envietnam.org/index.php/topic/env-activities/698-latest-statistics-on-the-number-of-captive-bears-in-vietnam>. Viewed on: 16 August 2015.
- Feng, Y., Siu, K., Wang, N., Ming Ng, K., Wah Tsao, S., Nagamatsu, T. and Tong, Y. (2009). Bear Bile: dilemma of traditional medicinal use and animal protection. *Journal of Ethnobiology and Ethnomedicine*, 5(2).
- Foley, K. E., Stengel, C.J. and Shepherd, C.R. (2011). *Pills, Powders, Vials and Flakes: the bear bile trade in Asia*. TRAFFIC Southeast Asia, Petaling Jaya, Selangor, Malaysia.
- Fredriksson, G., Steinmetz, R., Wong, S. and Garshelis, D.L. (IUCN SSC Bear Specialist Group) (2008). *Helarctos malayanus*. The IUCN Red List of Threatened Species 2008: e.T9760A13014055. Online at: <http://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T9760A13014055.en>. Viewed on: 5 May 2016.
- Gao X. M. (Ed.) (2002). *Chinese Materia Medica. Xiongdan*. Chinese Medicine Publisher. Beijing, China. 160–161.
- Garshelis, D. (2006). *Assessing the Status of the World's Bears — What Can We Tell from the Trade in Bear Parts?* In: Williamson, D. (Ed.), Proceedings of the 4th Symposium on the Trade in Bear Parts. TRAFFIC East Asia. Nagano, Japan.
- Garshelis, D. L. and Steinmetz, R. (IUCN SSC Bear Specialist Group). 2008. *Ursus thibetanus*. The IUCN Red List of Threatened Species 2008: e.T22824A9391633. Online at: <http://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T22824A9391633.en>. Viewed on: 5 May 2016.
- General Statistics Office of Viet Nam (2014). *Area, population, and population density by province*. Online at: https://www.gso.gov.vn/default_en.aspx?tabid=774 Viewed on: 12 May 2016.
- Higashide, D., Mirua, S. and Miguchi, H. (2012). Are chest marks unique to Asiatic Black Bear individuals? *Journal of Zoology*, 288: 199–206.
- Higashide, D., Miura, S. and Miguchi, H. (2013). Evaluation of Camera-Trap Designs for Photographing Chest Marks of the Free-Ranging Asiatic Black Bear, *Ursus thibetanus*. *Mammal Study*, 38, 1, 35.
- Islam, A., Muzaffar, S., Aziz, M. A., Kabir, M., Uddin, M., Chakma, S., Chowdhury, S., Rashid, M. A., Chowdhury, G.W., Mohsanin, S., Jahan, I., Saif, S., Hossain, M.B., Chakma, D. and Kamruzzaman, M. (2010). *Baseline Survey of Bears in Bangladesh 2008 – 2010*. Wildlife Trust of Bangladesh.
- IUCN (2012). *Resolutions and Recommendations: World Conservation Congress*. Gland, Switzerland: IUCN.
- Jeng, W.S. and Cheng-Low, T.H. (1992). Bear Bile Resources: Past and Future. *Yu Lan Chinese Medicine Bulletin*, 14: 27 – 30.
- Judy Xua and Yue Yang (2008). *Traditional Chinese medicine in the Chinese health care system*. Health Policy Volume 90, Issues 2–3, May 2009, Pages 133–139.
- KBS (2010). *Smart Customer Report number 156 broadcasted on 15 October 2010*. Online at: http://www.kbs.co.kr/1tv/sisa/1004/view/old_view/1678275_100977.html Viewed on: 12 May 2016.
- Kikuchi, R. (2012). Captive Bears in Human–Animal Welfare Conflict: A Case Study of Bile Extraction on Asia's Bear Farms. *Journal of Agricultural and Environmental Ethics*, 25:55–77. doi 10.1007/s10806-010-9290-2.
- Krishnasamy, K. and Shepherd, C. R. (2014). A Review of the Sun Bear Trade in Sarawak, Malaysia. *TRAFFIC Bulletin*, 26(1): 37-40.

- Kirkpatrick, R. C. and Emerton, L. (2010). Killing Tigers to Save Them: Fallacies of the Farming Argument. *Conservation Biology*, 24(3): 655-9.
- Lee, Y. J. (1999). *The Use of Bear Bile as Medicine Versus Tonic*. In: Douglas, F. W. and Marcus, J. P. (Eds), Proceedings of the Third International Symposium on the Trade in Bear Parts. 122–126.
- Le Trong Trai, Le Van Cham, Bui Dac Tuyen, Tran Hieu Minh, Tran Quang Ngoc, Nguyen Van Sang, Monastyrskii, A. L. and Eames, J. C. (1999). *A Feasibility Study for the Establishment of Xuan Lien Nature Reserve, Thanh Hoa Province, Vietnam*. BirdLife International Viet Nam Programme, Hanoi.
- Lee, S. L., Burgess, E.A., and Chng, S.C.L. (2015). *Hard to bear: An assessment of trade in bear bile and gall bladder in Malaysia*. TRAFFIC. Petaling Jaya, Selangor, Malaysia.
- Li, J. (2004). China's Bear Farming and Long Term Solutions. *Journal of Applied Animal Welfare Science*, 7(1): 71-81.
- Li, Y. W., Zhu, X. Y., But, P. P. and Yeung, H. W. (1995). Ethnopharmacology of bear gall bladder: I. *Journal of Ethnopharmacology*, 47:27–31.
- Livingstone, E. and Shepherd, C. R. (2014). Bear Farms in Lao PDR Expand Illegally and Fail to Conserve Wild Bears. *Oryx*, 1-9. doi:10.1017/S0030605314000477.
- Loeffler, K., Robinson, J. and Cochrane, G. (2007). *Compromised health and welfare of bears in China's bear bile farming industry, with special reference to the free-dripping bile extraction technique*. Animals Asia Foundation, UK.
- Maas, B. (2000). *The veterinary, behavioural and welfare implications of bear farming in Asia*. World Society for the Protection of Animals. London, UK. Online at: <http://wildpro.twycrosszoo.org/000ADOBES/Bears/D263WSPABearFarmingAsiaMaas.pdf>. Viewed on: 6 July 2012.
- Macartney, J. (2006). Siphoning bear bile for medicine is painless, says China. *The Times* (UK). Online at <http://www.timesonline.co.uk/tol/news/world/asia/article1081920.ece>. Viewed on: 13 January 2016.
- Meijaard, E. (2004). Craniometric differences among Malayan sun bears (*Ursus malayanus*); Evolutionary and taxonomic implications. *Raffles Bulletin of Zoology*, 52:665–672.
- Mills, J., Chan, S. and Ishihara, A. (1995). *The Bear Facts: The East Asian Market for Bear Gall Bladder*. A TRAFFIC Network Report. TRAFFIC East Asia.
- Mills, J. and Servheen, C. (1991). *The Asian Trade in Bears and Bear Parts*. World Wildlife Fund, USA.
- Nijman, V. (2010). An overview of international wildlife trade from Southeast Asia. *Biodiversity and Conservation*, 19: 9758.
- Nguyen, M. and Willemsen, M. (2016). A rapid assessment of e-commerce wildlife trade in Viet Nam. *TRAFFIC Bulletin* 28(2):17–19.
- Nguyen, X. D. (2007). *Bear Parts Trade in Viet Nam and Measures for its Control*. In: Williamson, D. (2007) 4th International Symposium on the Trade in Bear Parts. TRAFFIC East Asia, Japan.
- Phillips, T. and Wilson, P. (2002). *The Bear Bile Business: The Global Trade in Bear Products from China to Asia and Beyond*. World Society for the Protection of Animals. London, UK.
- Pong, S., Lo, Y. W. and Ho, K. C. (1999). *Herbal Alternatives to Bear Bile*. In: Williamson, D.F. and Phipps, M.J. (Eds), Proceedings of the Third International Symposium on the Trade in Bear Parts. TRAFFIC East Asia, Seoul, Republic of Korea.
- Richards, N. and Wang, Z. (2006). A Bitter Pill. *Journal of Chinese Medicine* 82: 49–51.
- Roberts, A. M. and Perry, N. (2000). Throwing Caution to the Wind: The Global Bear Parts Trade. *Animal Law*, 6:129-150.
- Robertson, S. (2007). The status and conservation of small carnivores in Vietnam. PhD Thesis. University of East Anglia, England.
- Robinson, J. G., Cochrane, G. and Loeffler, K. (2006). *Discussions Regarding the Impacts of Bear Bile Farming on Wild Bears in China and Vietnam*. Animals Asia Foundation, Hong Kong, China.
- Rubin, R. A., Kowalski, T. E., Khandelwal, M. and Malet, P. F. (1994). Ursodiol for Hepatobiliary Disorders. *Annals of Internal Medicine*, 121:207–218.
- Scotson, L. (comps) (2008). *Wild Bear Population Status in Cat Tien National Park, Vietnam*. Free the Bears.

- SFNC (2000). *Pu Mat: A Biodiversity Survey of a Vietnamese Protected Area*. Grieser Johns, A. (Ed.). SFNC Project, Vinh, Vietnam.
- Shairp, R., Veríssimo, D., Fraser, I., Challender, D. and MacMillan, D. (2016). Understanding Urban Demand for Wild Meat in Vietnam: Implications for Conservation Actions. *PLoS ONE*, 11(1): e0134787. doi:10.1371/journal.pone.0134787
- Sodhi, N. S., Koh, L. P., Brook, B. W. and Ng, P. K. L. (2004). Southeast Asian Biodiversity: An Impending Disaster. *Trends in Ecology and Evolution*, 19: 654–660.
- Swan, S. R. and O'Reilly, S. M. G. (Eds.) (2004). *Van Ban: A Priority Site for Conservation in the Hoang Lien Mountains. Community-based Conservation in the Hoang Lien Mountains: Technical Report No. 1. Fauna & Flora International Viet Nam Programme, Hanoi.*
- Watkins, V. (2002). *Historical Perspective to the Bear Trade*. In: Phillips, T. and Wilson, P. (Comps). *The Bear Bile Business: The Global Trade in Bear Products from China to Asia and Beyond*. World Society for the Protection of Animals, London, UK.
- Wertz, R. R. (2011). *Traditional Chinese Medicine*. Online at: <http://www.ibiblio.org/chineseculture/contents/heal/p-heal-c01s01.html>. Viewed on: 25 April 2012.
- WCS (2008). *Commercial Wildlife Farms in Vietnam: A Problem or Solution for Conservation?* Wildlife Conservation Society (WCS). Hanoi, Vietnam.
- Williams, J. E. (1993). The Treatment of Liver Patterns. Modern and Traditional Principles and Methodologies with Corresponding Formulas. *Journal of Chinese Medicine*, 43: 14–21.
- Wiseman, N. and Ellis, A. (1996). *Fundamentals of Chinese Medicine*. Paradigm Publications, Massachusetts, USA.
- WSPA (2005). *Finding Herbal Alternatives to Bear Bile*. WSPA Report. Seattle.
- WWF (2013). *Ecosystems in the Greater Mekong: Past Trends, Current Status, Possible Futures*. Online at: http://wwf.panda.org/wwf_news/?208456/Ecosystems-in-the-Greater-Mekong-past-trends-cud%20rrent-status-possible-futures. Viewed on: 16 August 2015.
- WWF (2014). *Endangered Black Bear Caught on Camera*. Online at: http://wwf.panda.org/wwf_news/?226590/Endangered-Asiatic-black-bear-caught-on-camera. Viewed on: 16 August 2015.
- Venkataraman, B. (Comps) (2007). *A Matter of Attitude: The Consumption of Wildlife Products in Ha Noi, Viet Nam*. TRAFFIC Southeast Asia, Greater Mekong Programme, Ha Noi, Viet Nam.
- Vietnamnet.vn (2015). *Bears Killed as Bear Bile Price Drops*. Online at: <http://english.vietnamnet.vn/fms/society/132520/bears-killed-as-bear-bile-price-drops.html> Viewed on: 8 August 2015.
- Vu Quyen Thi (2010). *An Analysis of Attitudes and Bear Bile Use in Vietnam*. Education for Nature – Vietnam (ENV), Hanoi.
- Vu Quyen Thi (2012). *An Analysis of Attitudes and Bear Bile Use in Vietnam*. Education for Nature – Vietnam (ENV), Hanoi.

TRAFFIC, the wildlife trade monitoring network, is the leading non-governmental organization working globally on trade in wild animals and plants in the context of both biodiversity conservation and sustainable development.

For further information contact:
TRAFFIC
Southeast Asia Regional Office
Unit 3-2, 1st Floor
Jalan SS23/11, Taman SEA
47400 Petaling Jaya
Selangor, Malaysia

Telephone: (603) 7880 3940
Fax : (603) 7882 0171
Website: www.traffic.org

*UK Registered Charity No. 1076722,
Registered Limited Company No. 3785518.*

