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2nd

International Symposium on the Trade of Bear Parts

Edited by: D. Williamson and A.L. Gaski.



WWF

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ON THE
TRADE OF BEAR PARTS**

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March 21-23, 1997**

Douglas F. Williamson
and
Andrea L. Gaski, Editors

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INTRODUCTION

In 1992, at the conclusion of a first International Symposium on the Trade of Bear Parts for Medicinal Use, participants asked that a second symposium be convened to address issues not covered at the first and to present information on ongoing research and data collection. As a result, and because of growing public sentiment throughout the world and more intense concern by the expanding cadre of wildlife conservationists focusing on the bear trade, the TRAFFIC Network, in partnership with the symposium host, the Woodland Park Zoo, and the IUCN Bear Specialist Group, and in cooperation with the World Wildlife Fund, convened the Second International Symposium on the Trade of Bear Parts.

As with the first symposium, TRAFFIC invited expert speakers from wildlife management authorities, law enforcement agencies, and non-governmental organizations. The latter included those from the traditional Asian medicinal industry, animal welfare groups, research departments of universities, and national and international wildlife conservation organizations. Twenty-three invited speakers came to Seattle to speak about the complexities of the bear trade and give perspectives on this trade based on their own personal, professional, agency, or national experiences. More than 125 participants from 12 countries converged on Woodland Park Zoo to listen to and debate the information and findings of their papers.

Some of the 24 papers presented at the symposium and the discussion panel on the last day led to spirited discussions and will undoubtedly do the same for the readers and users of the symposium's proceedings. This is because, like a small but growing number of trades involving endangered species, the trade of bears and bear parts is extremely complex and international in its impact. It involves international humanitarian and animal welfare concerns, and pits them against sovereign governments that traditionally have focused on managing wildlife solely for the needs and use of national citizenries. Even though a small part of the trade in non-threatened bears may come from legally taken parts and begins as legal, most of the trade is largely underground and most, regardless of the legality of the source, is conducted in violation of national and international regulations and prohibitions.

None of the papers published herein provide a universally acceptable solution to the bear trade problem -- because of the nature of the trade, there may not be one. Some of the papers provide more questions than they provide answers --but many of these questions are those that need to be asked before solutions can be sought. All of the papers published here provide more explicit and up-to-date information and data than was available at the first symposium, expanding the international body of knowledge on this trade. The sum of all of these papers, we

hope, will create a greater understanding of the bear trade and its impacts. And this might, in conjunction with ongoing initiatives, provide the impetus for a cooperative international campaign, both governmental and non-governmental, of education, information exchange, law enforcement and management focused on eradicating the detrimental impacts of trade on endangered and threatened bears of the world.

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I. AN UPDATE ON THE STATUS OF BEARS

THE GLOBAL STATUS OF BEARS

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Abstract: There are eight species of bears occurring on four continents. Of the eight species, two occur in Europe, three in North America, one in South America, and six in Asia. At least 62 different countries worldwide have bear populations. The most widespread of the bear species is the brown bear which occurs in at least 38 countries in three continents. Most populations of brown bears, Asiatic black bears, sun bears, sloth bears, and spectacled bears are declining due to habitat loss and excessive human-caused mortality. Populations in some areas, primarily brown bear populations in certain areas of Europe and North America, are doing well in response to management initiatives that control mortality and assure habitat maintenance. However, the populations that are secure are the minority of worldwide populations. Several species, such as the sun bear and Asiatic black bear have almost no areas where populations are managed in any way. The least known of the world's bears is the sun bear. No studies of sun bear biology have been undertaken in the wild anywhere in its range. Field studies of sun bear food habits, habitat use, reproduction, density, and response to habitat disturbance such as timber harvest are the number one research need in bear biology today. Trade in bears and bear parts remains the major threat in Asia. The threat of trade is at least as great a danger to bear survival in Southeast Asia as is habitat loss. The future of bears in many areas will depend on integrating social information about the area with biological factors about the species into a management structure that has political support in the country. This is not a trivial task. The main limiting factor to successful conservation of most bear species is social acceptance of the management actions necessary to assure bear survival. The sun bear is an exception to this in that the lack of biological data is the limiting factor to sun bear conservation. The deep belief systems and economic incentives that drive the trade in bear parts for traditional medicine will continue to be an exceptional challenge to the survival of Asian bears. As the Asian bear populations continue to decline, there will be increasing pressure on bear populations in other areas of the world to meet this trade demand.

BEARS PRESENT STATUS AND CONSERVATION, AND BEAR FARMS OF CHINA

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Abstract: There are three species of bears in China, including the Asiatic black bear (*Selenarctos thibetanus*) with five subspecies (*S.t. thibetanus*, *S.t. laniger*, *S.t. mupinensis*, *S.t. formosanus*, and *S.t. ussuricus*); brown bear (*Ursus arctos*) with three subspecies (*U.a. issabellinus*, *U.a. pruinosus*, and *U.a. lasiotus*); and sun bear (*Helarctos malayanus*) with one subspecies (*H.m. malayanus*). Bear distribution regions have decreased significantly in the last hundred years. Asiatic black bear and brown bear are widely distributed in 18 provincial administrative regions of Northeast, Northwest, Southwest, and South China, but have gradually disappeared from North China in the last one hundred years, and from some areas in Northeast China in the most recent 10 years, and have fragmented in South China over the last 50 years. The sun bear is very rare and recorded at only a few locations in Yunnan and Tibet. A survey in 552 counties of 18 provincial administrative regions was organized by CNMA from 1991 to 1995, and showed that 61,700 bears ranged over 2,608,780 km² in China, including 46,530 Asiatic black bears, 14,790 brown bears, and 380 sun bears. Minshan Mt. of Gansu and Sichuan, Daxueshan Mt. of Sichuan, and Southeast Tibet had a higher population abundance of Asiatic black bear. Brown bears were mainly concentrated in Tibet, and also in Minshan Mt. of Gansu and Sichuan and Qilianshan Mt. of Gansu. Bears are not endangered in China, but are threatened in some areas and need to be protected. According to the China Wildlife Protection Law of 1989, bears are listed as Protected Wildlife of National Importance, and it is strictly forbidden to hunt or capture them. Any captive bear institutions need to register and get Range and Captive Breeding Permits from provincial wildlife administrative authorities and/or the Ministry of Forestry. More than 200 nature reserves in bear ranges serve as important bases for bear protection, and bear habitats are protected by the Law in China as well.

Bear farming began in China in 1984. There were 601 bear farms in 1992, and that number decreased to 481 in 1996, but captive bears increased from 6,632 (6,312 Asiatic black bears, 300 brown bears, and 9 sun bears) to 7,642 (7,370 Asiatic black bears, 263 brown bears and 9 sun bears). Almost all of the additional bears were Asiatic black and bred in captivity. A total of 1,176 cubs were born in captivity and 852 survived. On average 200 cubs were born and 140 survived each year in bear farms, and the survival rate is 73 percent since 1991. Last year, 182 cubs were born and 161 survived, and the survival rate is as high as 88.5 percent. Captive breeding of bears form over 11 percent of the captive population, and at the same time the mortality of captive bears is only two percent over the last six years. Captive bears in farms are able to maintain a self-sustained breeding population in China. Except for a few bears coming from zoos, most original bears on farms were collected from the wild before 1989 when the China Wildlife Protection Law was issued. On average fewer than 10,000 bears from the wild were introduced to bear farms in each year from 1984 to 1989, and that number counted only 1.6 percent of the wild population abundance, even this capture rate multiplied by three is still much lower than legal hunting pressure on the American black bear (*Ursus americanus*), which is 5.6 percent to 8 percent annually. The collection for bear farms seems to produce no significant negative pressure on wild bear populations. On the other hand, the Ministry of Forestry has a policy to control bear farms, no bear collection has been allowed since 1990 and no new bear farm has been approved since 1993.

Traditional Chinese medicines (TCM) are used not only in China but also in many other countries and communities. Bear gallbladders have been used as a component of TCM for hundreds of years. The dry bile powders produced from bear farms provide the alternative resource to bear gallbladders from the wild for TCM. The output of bile powders was 7,800 kg and the demand was 4,000 kg in China in 1996. The dry bile powders not only satisfy all of the needs of the Chinese market and produce some surplus, but also reduce the poaching pressure on wild bears for the gallbladder collection. The price of dry bile powder decreased from 1988 to 1996, and comes to 3,000 RMB yuans/kg (\$240 US/kg) at present. Sufficient dry bile powder with low prices prevents wild bears from suffering from hunting and poaching any more. As the results, wild bear population have recovered in some areas.

The new technique of opening fistula and draining bile without a tube in the belly has been mandated by the Ministry of Forestry since 1993 and is widely used in most bear farms, which has reduced impacts on bears' health and activity to a minimal level. Bear farms have been given instructions to improve their captive facilities and provide enough spaces both inside and outside for bears to exercise or play. National Criterion on Bear Bile Collection and Bear Farms is in the process of formulation. The torture of bears in bear farms has been minimized and will hopefully disappear soon.

TCM has a long history and will develop further, and bear gallbladder has been used as a compatibility of TCM for hundreds of years. China has a large market demand for bear bile. If it were not satisfied with dry bile powders from bear farms, this demand would attract poachers to kill wild bears, which would really endanger the survival of bears in China, and even of those in other countries. Anyone who discusses bear conservation and bear farms in China must face up to these. Moreover, the products of bear parts and derivatives are also consumed in other countries.

Bears are regarded as flag-species for wildlife conservation in many countries, especially in western countries. Bears in China are not as lucky as those in western countries -- instead of bears other carnivorous species, such as giant panda and tiger, are selected as the symbols of wildlife conservation. In mountainous regions of China, bears, especially the Asiatic black bear (*Selenarctos thibetanus*), are considered pests because they destroy crops in the season of harvests, and moreover the components in bear gall bladder have been used in Traditional Chinese Medicines (TCM) for thousands of years. Considered from the standpoint of biodiversity conservation, bears are the top species of the ecological pyramid and have important ecological, aesthetic and existent values. From the viewpoint of nature and ethics, bears need to be given protection, and especially in China, where agricultural exploitation encroaches seriously on wildlife habitat, bears must be protected. So in 1988 the Asiatic black bear and brown bear (*Ursus arctos*) were listed as a 2nd class species under special state protection and the sun bear (*Helarctos malayanus*) as a 1st class species under special state protection under the Wildlife Protection Law of China, although a strong objection was raised then. In order to respond to international conservation concerns, especially to CITES, the China Endangered Species of Wild Fauna and Flora, Import & Export Administrative Office (CNMA, CITES Management Authority of China) organized an investigation of the abundance of wild bears in their distribution regions and bears farms from 1991 to 1994, which covered 552 counties in 18 provincial administrative regions in China. During July, 1996, the Ministry of Forestry and CITES Management Authority of China held a Working Forum on Management of Bear Farms in Sichuan and some surveys were done by authors. These investigations gave the following results.

Bear species and distributions

Three species of bears are present in China. The Asiatic black bear, with five subspecies (*S. t. thibetanus*, *S. t. laniger*, *S. t. mupinensis*, *S. t. formosanus*, *S. t. ussuricus*), is widely distributed in the northeast, northwest, southwest and south parts of China and its distribution covers 14 provincial administrative regions. The investigation revealed that its distribution region has changed significantly, and the original continuous distribution range of Asiatic black bear is divided into two isolated large areas in the northeast and the southwest and tens of fragments in northwest, south and southeast parts of China. The brown bear, including three subspecies (*U. a. issabellinus*, *U. a. pruinosus*, *U. a. lasiotus*), occurs in nine provincial administrative regions located in northeast, northwest and southwest China, and has disappeared from north China in the last half century and from Song-Nen and Sanjiang Plains in northeast China in the last ten years. There are wide gaps in its distribution areas along railways in northeast China. The sun bear, with one subspecies (*H. m. malayanus*), is very rare and only recorded in a few locations in Yunnan and Tibet (Gao et al. 1987, Feng et al. 1989, Yin et al. 1993).

Bear abundance

A field survey was conducted in 552 counties of 18 provincial administrative regions of China from 1991 to 1994. Line transects, quadrat sampling and interviews with local people were used in the field survey in accordance with the habitat situations in each area. A line transect was used to census the abundance of brown bears, and the population sizes of Asiatic black bear was estimated from a quadrat sampling method.

A total of 9,846 transect lines and quadrates were sampled, covering 22,623 km². As many as 2,315 people were involved with interviewing and most of them used to be hunters or local residents. Up to 3,822 observations on individual bears, footprints, hibernacula, droppings and evidence of food collections were recorded in the field.

The total population of bears was estimated at 61,700 in a habitat range of 2,608,780 km². Among these were 46,530 Asiatic black bears, 14,790 brown bears, and 380 sun bears, respectively (Table 1, Page 17).

A total of 652,086 km² of habitat was surveyed with sampling areas of 8,561 km² for the Asiatic black bear in 14 provincial administrative regions. In the field surveys, 2,848 individual bears and many indirect evidences were observed and recorded. Population densities were not even, fluctuating from 3.8 to 95 heads/1,000 km² (the average population density is 71.4). The highest population abundance happened in the Minshan Mountains of Gansu where 15,600 bears were counted. The Daxueshan Mountains of Sichuan and Tibet provided good habitat for the

Asiatic black bears, and 20,000 individuals were estimated there. Populations of Asiatic black bear in Yunnan, Heilongjiang and Shaanxi were not abundant, and only 2,500 bears were estimated in each of those three provinces.

Field surveys for brown bear were conducted in nine provincial administrative regions of northeast, northwest and southwest China. Sampling intensity in 1,956,691 km² of available habitat was 14,062 km². A total of 974 individual brown bears and other additional indirect evidences were found and recorded. Population densities were estimated from 2.3 to 13.6 heads/1000 km² (the average density is 7.6). Population density is relatively higher in northeast and southwest China than that in the northwest. The population abundance in Tibet contributed the highest numbers of brown bears in China, with 8,450. The population of brown bears in the Qilianshan Mountains and Minshan Mountains of Gansu was 1,600, Qinghai 1,250, Daxinganling of Inner Mongolia 1,070, Heilongjiang 1,140, Xinjiang 760, and Liaoning 320.

Yunnan and Tibet in China are the north distribution border for sun bear in the world. According to interviews and field surveys, there are about 150-200 sun bears, inhabiting 5,460 km² of available habitat in Honghe and Dehong of Yunnan. Another 200 sun bears are distributed in Mangkang of Tibet, with a habitat of 4,200 km².

Bear farms

Farming bears began in 1984 when the technique on artificial bile drainage from live bears was introduced into China from North Korea. Bear farms developed quickly from 1985 to 1990, with most bears introduced from the wild in the period from 1985 - 1989, when the Wildlife Law of China was not yet promulgated. Meanwhile, research on captive breeding, drainage technique, facilities, management, and new prevention and treatment of disease were conducted in the bear farms as well. A total of 6,632 bears were kept in 601 bear farms by the end of 1992. Among them there were 6,312 Asiatic black bears, 300 brown bears, and 20 sun bears (Table 2, Page 18). An estimated 200 young bears were born in captivity each year after 1990, and Table 2 shows surviving cubs in captive breeding in 1992.

Captive bears and bear farms in Sichuan, Yunnan, and Jilin account for 74 percent and 65 percent of the total, respectively. These three provinces are the main regions to develop bear farms. The capacity of bear farms in China varies greatly. Bear farms which kept more than 50 individual bears numbered only 21 among the total of 601 bear farms in China. These 21 bear farms together raised 3,340 bears, which is more than 50 percent of the captive bear population. Six bear farms raised more than 150 bears each, four kept 100-150, and another 11 bear farms kept 50-99 bears in captivity each. About 90 percent of bear farms raised less than 15 bears each, and most of these were individual bear farms.

Sex ratios of Asiatic black bear and brown bear are 1:1.1 (1745:1920) and 1:1.25 (85:100), respectively, taken from samples from bear farms in five provinces. Captive Asiatic

black bears aged 4 to 20 accounted for up to 45 percent of the total population size, according to samples from Sichuan Province, and bears over 20 and under 4 years old formed 24 percent and 31 percent of the captive populations, respectively. These sex ratio and age structures were suitable for bear farms to maintain their self-sustained captive breeding populations without capturing bears from the wild. The captive breeding of Asiatic black bears has been increased by an average of 20 percent every year. About 210 cubs (120 litters) were born in captivity and 186 survived in 1995. The survival rate of captive breeding was as high as 88.5 percent (whenever cubs survive for six months they are considered as survivals).

The death of 89 bears resulting from postoperative infection of bile drainage operations was recorded in bear farms before 1993. Most of the deaths happened in small bear farms, which kept less than 50 bears. Now the postoperative infection is absolutely controlled by using new anti-infection drugs and new techniques.

Not all captive bears are used to produce bile in China. Among the captive population of 6,632 bears, only 2,907 individuals were used for draining bile in 1992, which represents 43.8 percent of captive bears. Asiatic black bears are believed to be the best candidates for bile production in the bear farms. Outputs of dry bile powder from each individual bear per year are 1,500 grams on average; the maximum output of one bear is as many as 7,000 grams, and the lowest is 500 grams. The output of dry bile powder in 1992 was 4,361 kg in China.

Table 3 (Page 19) shows the survey results on bear farms and bears in captivity in China in July 1996. There were 7,642 bears at 481 bear farms in 12 provincial administrative regions, and 7,370 of these are Asiatic black bears. The captive bear population had increased 15 percent compared with 1992, and almost all added bears were Asiatic black bears bred in captivity. A total of 1,176 cubs were born and 852 cubs have survived in bear farms since 1991. On average 200 cubs are born and 140 survive each year in captivity, a survival rate of 70 percent. These captive bred bears formed over 11 percent of the captive population. In 1996, 1,253 bears were used for breeding purpose and 3,927 individuals were used in bile drainage, a ratio of 1:3. The number of bear farms decreased from 601 in 1992 to 481 in 1996, and four provincial administrative regions, Inner Mongolia, Ningxia, Qinghai and Guizhou, are not on the list. According to the data, bears in bankrupted or banned bear farms are transferred to larger bear farms. The output of the dry bile powder in 1995 was 7,800 kg, only about 4,000 kg of which could be consumed in the same year in China. There is a great quantity of surplus dry bile powder now.

The protection and management of bears

Bears are protected rigorously in China and listed as Protected Wildlife of National Importance in the Wildlife Protection Law of China enforced in 1989, although there were some objections to protecting bears. According to the Law, any bears in the wild cannot be hunted, captured or killed. Special permission to hunt or capture bears must be granted by the Ministry

of Forestry for sun bear or by provincial wildlife administrations for the black or the brown and reported to the Ministry of Forestry. Hunting or capturing must be done only in certain locations and periods with limited bag limits, which is controlled with special hunting and catching licenses issued by the Ministry of Forestry or its authorized administrations. In order to protect wildlife habitat, China has set up 799 nature reserves, occupying 7.19 percent of the territory, and more than 200 of them are located in bear distribution ranges. These are the most important foundation for protecting bears. The Law also requires protection of the habitats of protected wildlife outside protected areas and improving or restoring destroyed habitats of protected wildlife. Bear populations have been restored and increased gradually in some areas in China.

The Law stipulates that any institutions wanting to breed or ranch bears or other protected wild animals must apply for the Permit of Breeding and Domesticating Protected Wild Animals and only qualified applicants can be ratified. Because establishment of bear farms was unchecked and the good and the bad were intermingled before 1993, the Ministry of Forestry issued "An Urgent Notice on Checking up and Rectifying the Bear Farms" in 1993. The Notice stipulates to ban and close bear farms which do not qualify under the Wildlife Protection Law of China and which maltreat or torture bears. In July of 1996, the Ministry of Forestry and CNMA held a Working Forum on Management of Bear Farms to sum up the management experience and spread advanced technique on farming bears and bile collection, and also to direct bear farms with inadequacies to improve their techniques and captive conditions within the specified time. After the Forum, the Ministry of Forestry issued "the Notice on Strengthening the Management and Administration of Bear Farms". Its purpose is to solidify the results of checking up on and rectifying bear farms and to strengthen the management and administration of bear farms further. The Notice asks the wildlife administrations at different levels to protect bears and administer bear farms strictly, to promote or force the improvement of captive conditions and techniques of bile collection, to ban torturing and injuring bears, to check up and rectify bear farms and ban and close the unqualified bear farms, to standardize the operation technique of bile drainage and bear breeding and ranching, to crack down on poaching bears and smuggling bear parts or products, and to ban advertising for bear products.

Discussion

Unlike the sun bear, brown bear and Asiatic black bear are widely distributed in China. At present they can still be found in 26.5 percent of the territory of China although their distribution regions have shrunk from historical levels in north China and east China (Gao et al. 1987, Sun et al. 1992), fragmented in middle and south China, and reduced in the northeast part of China in the last hundred years (Xu et al. 1992). In the northwest and southwest parts of China bears survive safely in their suitable and continuous habitats. With low human population density, the Qinghai-Xizang Plateau provides an available habitat for bears, as do the southwest mountainous regions of China, where the population density of the bears is still higher due to suitable habitat. Although bears have disappeared or are threatened in some areas due to high human population density and long exploitation history, China still has enough habitats left for

bears in other areas. The survival of bears has not been seriously affected in China. Of course China should consider measures to control the deterioration in some regions where bear habitats are being fragmented and the distribution ranges of bears reduced.

There was a guess of 20,000 on the population for Asiatic black bear in China (Watkins 1995). This number was based on the report of Ma (1994) and cited in many references. This estimate was made from an emotional guess rather than scientific information. The field survey establishes the fact that wild populations of bears in China are not as rare as someone's imagination. A total of 46,530 Asiatic black bears and 14,790 brown bears are considerable population sizes. Asiatic black bear and brown bears are not endangered in China but they were listed as protected wildlife species in the Wildlife Protection Law of China in 1989 and strictly protected by the Law in order to respond to concerns for international protection of bears. Until now there has been strong objection to the protection of Asiatic black bear in some mountainous regions in China. Under protection bear population increases have been noticed in recent years in southeast Tibet, Haixi and Yushu of Qinghai Province, and Fanjingshan, Maolan and Leigongshan of Guizhou Province.

The nature reserve system plays an important role for bear habitat protection. More than 200 of 799 nature reserves of China are located in the distribution regions of bears. The highest density of bears was recorded in nature reserves during the investigation from 1991 to 1994, in the following nature reserves: Fengcheng and Baishilazi in Liaoning Province, Changbaishan in Jilin Province, Liangshui, Fenglin and Jingbohu in Heilongjiang Province, Qilianshan in Gansu Province, and Arjinshan in Xinjiang. It can be said that bears are not endangered in China because their habitats, at least in nature reserves, are not destroyed seriously, although bears are threatened in some areas. Of course the reduction of distribution regions and habitat fragments should be considered by the wildlife protection administrations of China when management decisions are made.

Bears, especially Asiatic black bear, were traditional hunting game in mountainous regions of China, and in the past were considered as pests and killed for protecting crops first, and then for meat, skin and gall bladder. Bear hunting has been regulated since the 1950's in China, and poaching has happened now and then but not endangered bears' survival. One of the reasons is mainly that firearms are strictly controlled in China and hunting bears is very dangerous without guns. Even in the period from 1985 to 1989 when bears were captured from the wild to develop bear farms in many provinces of China, there was not significant pressure on wild populations. Since 1989 when the Wildlife Protection Law of China was promulgated, bears have been protected in China. The results of the investigation show that bear populations have recovered since 1990.

There is a very strong objection to farming bears to collect their bile in the international conservation field (Mills et al. 1992, IFAW 1994, Highley et al. 1994 and 1995, Servheen 1995 and Watkins 1995). Their main points are that farming bears in captivity leads to serious

pressure for the struggling existence of wild bears, that farm bears are tortured in cages all year long with steel tubes in the belly to satisfy human needs, that the life of these bears lasts only 4-5 years while bears living in the wild can live for up to 30 years, and that the production of bile from farm bears will stimulate market demand.

Doubtless development of bear farms might pressure wild populations but it must be considered how strong the pressure is. During 1984 to 1989, when bear farms developed fastest in China, except for a few bears from zoos more than 99 percent of the founding animals of bear farms were captured from the field. With careful analysis, less than 1,000 wild bears were sent to bear farms each year on average from 1984 to 1989, and accounted for only 1.6 percent of the present wild population. Even this capture rate, multiplied by three to compensate for the mortality of the captures, is still less than the hunting pressure on American black bear (*Ursus americanus*), which is as high as eight percent (Watkins 1995) or 5.6 percent (Rose 1995) in North America. The capture pressure on wild bears in China was very low and would not endanger the wild populations of bears.

It occurred in China that bears were tortured in some bear farms, especially in individual ones, in the early days of the development of bear farms with quite simple and crude captive conditions and installations, especially those with backward the technique of opening fistula with steel tubes in the belly to collect bile, which was cruel to bears. The administrations concerned and some researchers of bear farms noticed these problems as early as 1989, and began to direct demonstrational bear farms, promoted others to follow demonstrational bear farms to improve captive conditions and installations, and studied new techniques to collect bile. In 1993, the Ministry of Forestry issued "An Urgent Notice on Checking up and Rectifying Bear Farms", which claims to force use of a new technique of opening fistula and draining bile without tubes in the belly, to provide certain size of rooms inside and outside for captive bears to rest and play, to stop ranging bears only in the cages, and to ban draining bile all day with tubes in the belly or with iron cangue on bears. The advanced techniques of collecting bile and captive installations of demonstrational bear farms were spread and mandated through the Working Forum on Management of Bear Farms in 1996, and unqualified bear farms were fixed to achieve the standards in the allotted time. "The Notice on Strengthening the Management and Administration of Bear Farms" issued by the Ministry of Forestry in 1996 stipulated that the technique of opening fistula and draining bile without tubes in the belly must be used in all bear farms and that unqualified bear farms must improve their conditions within a limited time or be closed. The enforcement of these policies and stipulations in above government documents has forced bear farms to improve their conditions and techniques and avoided the maltreatment to bears. The problem of farm bears being maltreated has been basically solved in China.

Certainly one of the purposes of bear farms is commercial benefit from meeting the demand for TCM, but the fact should be realized that the existence of a captive bear population reduces poaching pressure on wild populations in China. TCM has occurred in China for thousands of years and is still an important health-care system today (Rosenthal 1981).

There is not only a great market for TCM in East Asia but also in Europe and North America (Dharmananda 1996). The demand for the compositions in bear gallbladder will continue with existence of these markets. Before the bear farms were developed, this demand produced great pressure on wild bears in some areas. For example, the TCM Company of Heilongjiang Province purchased 19 kg of wild bear gallbladders in 1984, which equals 633 bears' lives. Moreover, the actual requirements for bear gallbladders are 50 kg each year in Heilongjiang Province, and to meet the requirement 1,666 individuals of bear had been killed every year, which are as much as 50 percent of the total wild bears in the province. The requirement had forced the Asiatic black bear to the edge of extinction in some areas of Heilongjiang Province (Sun et al. 1992). Now China needs 4,000 kg bear bile powder each year. It can be imagined how many bears would be killed if the demand were met through wild bears and what it would mean for wild bears in China. The amount of bile powder that one bear can produce one year equals the output of 30 wild bear gallbladders, and equals protecting 300 wild bears if a captive bear could be used to collect bile for 10 years. The output of bear bile powder in China has absolutely satisfied the needs of China and there is quite an amount of surplus. Running bear farms can relieve wild bear population from poaching. Poaching will become unprofitable and very dangerous since cheap bear products can be bought in the legal markets. Poachers have not liked to take the risks of penalty and poaching bears has happened less. This can explain the reason why bear abundance is increasing and distribution ranges are restored in some provinces of China. In this respect, it can be said that bear farms have certain conservation value for bears although it is their side-product.

As bear farms provide enough product to markets, the price of the bile powders has decreased from as high as 20,000 RMB yuan (US\$2,400)/kg in 1988 to 3,000 RMB yuan (US\$360)/kg now. Some small bear farms withdrew from competition and were closed without colossal profits, and large bear farms have enlarged the breeding populations and improved the captive conditions for further development. The change is showed in Table 2. The number of bear farms decreases and bears in captive breeding increases. The Ministry of Forestry requires that any bear farms with potentialities of captive breeding must set up breeding populations and establish studbook systems. According to information from 53 bear farms in 1996, 60 percent of them had breeding populations, 43 percent had bred bear cubs successfully, 760 cubs were born and 585 cubs (including F_2) survived, and the survival rate was as high as 77 percent. Only 95 bears have died in 53 bear farms since 1992, which represented only two percent of the captive population, and at the same time bears born in captivity represented as high as 13 percent of the captive population. The data from all of bear farms show the same conclusion (Table 1 and 2). The number of bears in bear farms did not decrease but increased from 1992 to 1996 although no bears from the wild have been introduced to bear farms since 1990. The number of bears in captive breeding had represented 11 percent of total population in bear farms. Now the captive population in bear farms can maintain a self-sustained breeding population in China. The worry and prediction of some extreme conservationists that the production of the farm bear would stimulate the market demand has not happened.

It was reported that bear farms in China kept more than 10,000 bears (Chang et al. 1995, Guo 1995, Mills 1995, Watkins 1995 and Highley et al. 1995). This estimate was produced by Ma (1994). This figure cannot stand close scrutiny if we consider the benefits of bear farms and the supply of bile powder exceeding the demand. The number of bear farms decreases with the bankruptcy of or the ban of some small ones. The large bear farms still have some economic results with higher techniques and greater strength. The bear farms without proper techniques and strength have no gain, and are also restricted by the policy. The Ministry of Forestry has stipulated that no new bear farm has been allowed to open since 1993, and that existing bear farms must be checked up on again and some of them will be closed or banned so that farming bear is ensured to develop healthily. The trend of farming bear in China is for fewer but better. The products from bear farms, as a special goods, will be strictly controlled by the state and bear farms will not be allowed to develop unchecked.

TCM has a great and irreplaceable value for the health-care system of human-beings and is also a very important component of the cultural diversity of the world (Kaptchuk 1983, Reid 1993), which has long history and will develop further. Many regions in the world are rooted or affected by Chinese culture, including the TCM culture, and TCM is not only used in China but also in many other countries (Dharmananda 1996). This fact must be faced. The components in bear gallbladder have been used as a component of TCM for thousands of years (Nowell et al. 1992, Mills and Servheen 1991), and at present the function of bile powder cannot be replaced by livestock gallbladders or synthetic products (Mills 1995). The bear bile powders produced from bear farms provide alternative resources to bear gallbladders from the wild for TCM. China has a great market demand for the components in bear gallbladder and the world has a large market needing TCM. If it were not met with bear bile powders from bear farms, this demand would attract poachers to kill wild bears, which would really endanger the survival of bears in China, and even those in other countries. Anyone who discusses bear conservation and bear farms in China must face up to the facts mentioned above and consider them objectively, otherwise his conclusion must be extreme or one-sided.

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Table 1. The Investigation Results of Bears in China

Province	Investigation Period (month/year)	Investigation Method	Sampling Area (km ²)		Bears seen in wild (inds.)		Density (inds./km ²)		Habitat Area (km ²)		Population Number (inds.)		
			Bn. Bear	A.B. Bear	Bn. Bear	A.B. Bear	Bn. Bear	A.B. Bear	Bn. Bear	A.B. Bear	Bn. Bear	A.B. Bear	Sun Bear
Inner Mongolia	03/92--03/03	interview	545		10		0.0067		159956		1065		
Liaoning	12/91--12/93	interview	430		561		0.1360		2200		319		
Jilin	11/92--11/93	interview	116		2				9600		50		
		interview & belt trans.		157		9	0.0546		14000			764	
Heilongjiang	11/88--11/93	interview & belt trans.	436	410	61	122	0.0031	0.0072	366452	360972	1136	2599	
Shaanxi	08/92--08/94	interview & belt trans.		2136		348		0.1455		16108		2345	
Gansu	05/92--08/93	quadrant	512	1032	65	171	0.0421	0.6950	38026	22486	1608	15628	
Qinghai	04/92--07/93	interview	2338		110		0.0054		232700		1250		
Xinjiang	05/92--10/93	interview	870				0.00225		333000		755		
Anhui	10/92--06/93	interview		55		11	0.2000		225			39	
Jiangxi	06/93--06/94	interview		12			0.0390		3000			117	
Hubei	05/92--10/93	interview & belt trans.		43		14	0.1795		8602			1544	
Guangdong	09/92--10/94	interview & belt trans.		300					3000			95	
Guangxi	05/92--09/93	interview & belt trans.		567		17	0.0038		3000			214	
Sichuan	01/90--02/93	interview & belt trans.		833		1833	0.1200		56660			10080	
Guizhou	01/92--11/92	interview & belt trans.		126		14	0.1111		83281			412	
Yunnan	12/92--02/94	quadrant & belt trans.	92	195	45	230	0.0390	0.0920	3708		125	2650	175
Tibet	05/87--02/94	line trans.	8810	2678	120	89	0.0033	0.2016	9711	28758	8475	9991	200
							0.0658						
Hainan	03/92--12/92	interview & belt trans.		17			0.0289		805046	49553		50	
Total	05/87--10/94		14062	8561	974	2848	0.0076	0.0714	1956691	652086	14783	46528	
Grand Total			22623		3822		average	average	2608777		61686		

In table, trans = transects; Bn = Brown; A. B. = Asiatic Black; inds = individuals.

Table 2. Bear farms and bears in captivity in China by 1992

Province	Bear Farms	Bears in Captivity	Asiatic Black Bear Number	F.	M.	Brown Bear Number	F.	M.	Sun Bear Number	Death	Breeding (cubs/litters)	Bears milked bile
Sichuan	218	2149	2149	1038	1111					37	62/45	711
Yunnan	31	1614	1600						14			750
Jilin	140	1159	1069	482	587	84	34	50	6	13	9/8	870
Heilongjiang	60	401	295			106					21/10	137
Liaoning	24	334	264	116	148	70	36	34		33	8/4	268
Guangxi	11	121	121	74	47							
Inner Mongolia	13	26				26	13	13		1		5
Shaanxi	16	320	320									160
Ningxia	9	49	49	30	19					3		
Qinghai	1	5	1		1	4	2	2			2/1	
Xinjiang	1	10				10	5	5		1		3
Anhui	9	43	43	21	22					1	1/2	3
Guangdong	65	380	380									
Guizhou	3	21	21									
Total	601	6632	6312	1745	1920	300	85	100	20	89	103/70	2907

Table 3. Bear farms and bears in captivity in China in July 1996

Province	Bear Farms	Bears in Captivity	Asiatic Black Bear	Brown Bear	Sun Bear	Bears in Breeding	Born Cubs	Survived Cubs	Bears Milked Bile
Sichuan	207	2385	2385			270	427	316	1651
Yunnan	22	1603	1597		6	40	30	30	760
Jilin	140	1907	1820	84	3	600	380	290	700
Heilongjiang	54	621	515	106		140	210	127	223
Liaoning	24	334	264	70		60	8	6	274
Guangxi	4	118	118			51	40	18	28
Inner Mongolia	0								
Shaanxi	8	182	182			15	8	7	120
Ningxia	0								
Qinghai	0								
Xinjiang	1	3		3					
Anhui	2	14	14			2	4	2	7
Guangdong	13	200	200			50	36	25	134
Guizhou	0								
Beijing	2	225	225			25	33	31	10
Hunan	4	50	50						20
Total	481	7642	7370	263	9	1253	1176	852	3927

BEARS AT JEOPARDY IN PAKISTAN

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Abstract: Pakistan is situated at the convergence of three zoogeographical regions such as Palearctic, Ethiopian and Oriental regions. Therefore the fauna of the country is of the same origin. There are three species of bears found in Pakistan. These include Asiatic Black Bear (*Selenarctos thibetanus laniger*), Balochistan Black Bear (*Selenarctos thibetanus gedrosianus*) and Himalayan Brown Bear (*Ursus arctos isabellinus*) (ABB, BBB, and HBB, respectively). BBB is endemic to Pakistan. The status of all three species is endangered and needs active conservation efforts. BBB in particular is threatened with extinction and needs urgent studies. However, the most common of all is ABB, moreover it faces heterogeneous threats. The population of HBB is not more than 30 odd individuals, and is increasing due to recent governmental and non-governmental efforts in its area of distribution.

Bears have always remained a component of human life in this part of the world. They have traditionally been a source of sustenance for Qalanders (gypsies). For centuries the Himalayas had played a pivotal role for maintaining the balance of wild bears and human needs. Bears have been smuggled from uplands to lowlands for different purposes. The trade has become far-flung because of the construction of KaraKoram Highway and fast mechanization. From very poor to important peoples of the community are coupled with the bear business. The cubs are taken from the wild and trained in a special manner for dancing and dog fights. In Punjab and Sindh provinces, bear baiting fairs are arranged and a majority of rural dwellers attend these shows with enhanced enthusiasm. It brings prestige, satisfaction and source of income to very few people, while agony and humiliation for others. The study explains how Qalanders or gypsies have brought the bear species close to extinction in Pakistan. This balance has also been disturbed by other fellow human beings, by using the resources unwisely, which has, by and large, brought the original habitats and the bear species to a state of jeopardy.

Introduction:

Pakistan is situated at the convergence of three zoogeographical regions such as Palearctic, Ethiopian and Oriental regions. Therefore, the fauna of the country is of same origin. There are three species of bears found in Pakistan. These include Asiatic Black Bear (*Selenarctos thibetanus laniger*) -- hereafter ABB, Balochistan Black Bear (*Selenarctos thibetanus gedrosianus*) -- BBB and Himalayan Brown Bear (*Ursus arctos isabellinus*) -- HBB.

ABB was once found throughout the dry mountain steppe forests to the west of the river Indus and across the mountainous regions in the northern part of Pakistan. There may remain a small isolated population in Balochistan described as a subspecies listed in the IUCN red data book. This population, if it remains, lives in an arid and treeless area, an unusual habitat for the species. Here it feeds on insects, lizards, fruits of the Russian olive (*Elaeagnus hortensis*) and the starchy rhizomatus stems and fruit of the dwarf palm (*Nannorrhops ritchieana*) (Roberts, 1977). Capture of bears for use as performing animals is still quite common in Pakistan

(Servheen, 1990). Captive bears are thought to wrestle and dance for groups of gypsies who earn their sole living from the bears. Bears are still persecuted in Pakistan by sport hunters and by people protecting their crops. This persecution has increased dramatically since the 1940's due to the wide spread ownership of firearms by the local people. Such use of firearms has undoubtedly increased since 1978 due to the Afghanistan war and influx of automatic weapons and Afghan refugees into the northern mountainous range of the species (Roberts, 1977; Servheen, 1990). ABB occurs in the Gilgit Agency in the high forests of the Chilas, and in the Astore regions and northern mountains of west Pakistan, southward to the Murree hills. BBB occurs in Makran and Kharan in Balochistan (Mountfort and Poore, 1968).

The Astore area, including Deosai, called the Devasi Plateau, was considered as "The Sportsman's Paradise" and high dignitaries used to come to the area for hunting. Except for other big game animals and birds, there were red bears present in the area (Khan, 1962). The Himalayan Brown Bear has occurred in very small numbers, usually above the tree line, in the Gilgit Agency. The population locally is reported to be declining, but also occurs in Chitral, Baltistan and Kashmir (Mountfort and Poore 1968). The Brown Bear was reported to be uncommon in Pakistan in the few areas where it exists in the mountains of the northwest along the Chinese border (Roberts 1977). There are some indirect records of Brown Bear sightings in Khunjerab National Park (KNP). Surveys in 1991 discovered tracks and excavations of five animals in Khunjerab. They also occur in Shimshal (Ahmed 1993). Brown Bears have also been listed as expected to live in KNP (Blumstein 1993).

Bears had been ruthlessly hunted as pests wherever they occur because of their depredation of crops. Forest operations and modernization have led to the development of roads into the last strongholds of bears in Himalayan regions, hastening their decline. Capturing of young cubs had increased in frequency apart from the shooting of adults. Cubs are sold to certain nomadic gypsy tribes who train them to simulate dancing and wrestling, thereby providing a living (Roberts, 1977).

Materials and Methods:

A number of questionnaires were devised to gauge the opinion of different groups of people such as cubs traders, hunters, trainers, gypsies, dog owners, dignitaries, wildlife staff, audiences and local people. Subsequently, from 1992 - 1995 some formal and informal interviews were undertaken with a variety of concerned groups to get their frank and unbiased opinions. However, due to funding constraints the work could not be further continued.

Results and Discussion:

Bears have always remained a component of human life in this part of the world. They have traditionally been a source of sustenance for Qalanders (gypsies). The crux of the problem has been the poverty and ever increasing socioeconomic constraints. Most of the people living in the Himalayas depend solely upon the limited agricultural land and its output, so a direct conflict

Results and Discussion:

Bears have always remained a component of human life in this part of the world. They have traditionally been a source of sustenance for Qalanders (gypsies). The crux of the problem has been the poverty and ever increasing socioeconomic constraints. Most of the people living in the Himalayas depend solely upon the limited agricultural land and its output, so a direct conflict among man and wildlife emerges for their competition to survive on the available agricultural resource base. Locals believe that the bears are pests, and hence lose the support of the people who are supposed to be their native protectors. This has resulted in hatred and apathy for wildlife among local people.

For centuries the Himalayas had played a pivotal role in maintaining the balance of wild bears and human needs (Figure 1, Page 27). With the age of modernization and mechanization, the people started consuming the natural resources on a speedy and unsustainable basis to satisfy their urge to earn more comforts and luxury in life. So during the middle of the twentieth century, this urge has resulted in an epidemic as people started to consume their immediate natural resources for short-term needs at the cost of long-term consequences. Poverty and extreme illiteracy rates have added to this unwise utilization of natural resources. Forest clearing and logging in order to get married are still witnessed in the mountainous regions of Pakistan. It is very difficult to halt such activities without international cooperation and joint efforts of governmental and non-governmental organizations. The loss of natural habitat for bears, in particular, has forced the species to exploit the man-made resources, and hence become vulnerable to direct conflict with man. Therefore, with the help of local people, bear cubs have been smuggled from the uplands to the lowlands for different purposes (Figure 2, Page 28). This provides multiple benefits to the people; one, they get rid of a pest; two, they get money for it. This trade has become far-flung by the construction of KaraKoram Highway (KKH) and fast mechanization. Though it is against the rules and regulations of existing wildlife acts, due to the involvement of local people this illegal trade is still in practice.

Over 100 cubs of ABB were taken from the wild in 1992-93 to be trained for dancing and fighting by Qalanders. In this process of capturing cubs, a number of adults were also killed, resulting in the decline of the breeding and young populations of bears (Figure 3, Page 29). The BBB has already reached the brink of extinction, mainly due to over hunting, habitat loss and cubs trade. During the survey, only two records of surviving animals were witnessed from Sarona and Baktar hills of Ranji-Wadh, 58 Km south of Khuzdar (Farooq and Chaudhry, 1993). Almost two decades ago, it used to be a stronghold of BBB. During 1993, one female and two cubs were killed by a local chief and were left to rot at the site (Pers. Commun. Roberts, 1994). During the survey of 1993-94 and 1995, it was revealed that from 4-6 individuals of BBB are still surviving in "Kinju Ka Rakh" of the Khuzdar district. The team also witnessed a BBB at night (Chaudhry and Arshad, 1994). The area surveyed in the Murree hills was also a stronghold of ABB in the 1970s (Roberts, 1977), but now there are hardly any ABB left in the Murree hills and surrounding Galiats. The species has been totally wiped out through increased human activities,

habitat clearing, and hunting. This indicates that the species has been extinguished from the Punjab province. During the 1993-94 survey of NWFP province, it was concluded that a total population of 234 ABB (Table 1) are struggling to survive in the Himalayan region of Pakistan (Chaudhry and Arshad, 1994).

Table 1. Survey, by District, of Asiatic Black Bear Population, 1993-1994

Swat District	88
Dir District	94
Chitral District	02
Mansehra District	34
Kohistan District	16
Total	234

There are 25 individuals still surviving at Deosai Plains (Khan and Zakria, 1995). A pair or two may still remain in the Khunjerab National Park, the forested slopes of Nanga Parbat, Chitral, and in the Karakoram range east of Skardu. There are some recent reports of the presence of HBB in the Biafo glacier area of Northern Areas and Kashmir, thus indicating that more than 30 odd individuals are living in Pakistan. However, the status of Himalayan Brown bear in Pakistan is still vulnerable. There are local reports that seasonal migration of Gujjar nomads from lowlands to highlands has added to the decline of HBB through taking cubs for onward sale to Qalandars (gypsies) (Khan *et al.*, 1996).

Bears brought from the uplands to the lowlands of Pakistan are mostly trained for dancing by the gypsies and a few for bear baiting events. Bear baiting is a fight between a bear and one to three dogs. The bear is tethered by a five meter-long rope in the center of a large open space, around which the spectators (mostly rural dwellers) get seated. The sharp teeth and claws of the bears are also removed when they are captured as cubs. The fight continues for a fixed period of three minutes. If within these three minutes the dogs can get hold of the bear's snout and bring the bear to the ground on its back, the dogs win. If the bear is not flat on its back in three minutes, it is declared the winner. The owner of the bear and dog can retrieve his animal before three minutes, in which case he loses the wrestling match. In one day, a bear may fight three times but it must rest for at least ten minutes before each fight. Only bull terrier/gull terrier dogs are used in bear baiting. They are specially trained for the purpose on dummies or donkeys (Chaudhry and Arshad, 1994). During the 1992-93 survey, it was revealed that 80 significant bear/dog events were carried out in different parts of Pakistan (Figure 4, Page 30). Further investigation found that 1800 HBB and ABB were in captivity with gypsies. These animals were mostly used as dancing bears, except for 300 specially trained fighting bears. During the year, from the NWFP and Northern Areas a total of 100 cubs were taken from the wild and subsequently sold to middlemen. The middlemen sold the cubs to dealers in Peshawar, Gilgit, Lahore and Karachi. Qalandars purchase these cubs either directly from dealers or, mostly, through middlemen in the Indus Plains (Figure 2). Lahore is the main center for training of these

cubs (Farooq and Chaudhry, 1993). Bear baiting is mainly supervised by the local influential feudal landlords, and the gypsies are normally found as their “Kamis”, a traditional low caste follower.

During the subsequent survey of 1993-94 it was revealed that the governmental law enforcement authorities have mobilized, and eventually handled the issue to some extent and, if such concrete measures may further be continued, it will be quite possible to completely end the dog/bear fights in Pakistan. There are some very few events still in practice, but the number of events and audience are considered low. In some districts the local management authorities took very serious action against the issue and such events are totally banned in these areas.

Threats:

- Bears are only notable species of the wild whose status is vulnerable to the fast growing human population in Pakistan.
- Low literacy rate, lack of awareness, poverty and conflict between man and wildlife are the core socioeconomic reasons for such trade.
- The conservation status of the Northern Areas and Kashmir are rather weak due to lack of funding and management infrastructure.
- Enhanced modern mechanical means of mobilization are potential long-term threats to the integrity of bears and their habitats.

Recommendations:

- A practical program should be implemented to enhance the population of bears. The goal of this program should be first to develop a National Action Plan (NAP) for bears. A program for environmental education featuring the bear species and their importance to man should be designed. This program can be presented to rural and city dwellers in the potential areas, as well as in local schools. By educating people about the importance of saving the bear population, other species that depend on the same habitats can also be protected.
- There is a need to develop close liaison with all stakeholders involved in bear trade and business in order to achieve long-term sustainable protection of bear habitats and their resources. They should be educated and involved in planning, monitoring and implementation of the NAP for bears.
- There is a need to study in detail the feeding ecology, food preference and habitat carrying capacity, as the bears seem to be restricted to some island zones and may be transported to some other potential habitats where they could minimize the conflict with man.
- Controlled ecotourism facilities may be enhanced in bear areas. Local people should be trained as guides and allowed to use ecotourism as a potential and sustainable source of their sustenance.

- Awareness and incentives for plantation of local trees and introduction of modern agriculture may be launched. This may help in reducing fuel wood requirements and may help income generation.
- Energy efficient and locally tested stove systems may be introduced in community areas. This may help in reduction of pressure on fuel wood.
- Other development incentives such as employment may be offered to local people for their socioeconomic upliftment.
- Finite mechanization may be allowed on conventional trails of the area.
- Since captured bears cannot be released in the wild, as they are tamed, and Pakistan has few number of zoos with very limited resources to feed them, it is suggested that these bears may be exported to other countries for zoos with the help of international and national agencies. Earnings from this export of existing captured bears may be used in the form of a fund for providing incentives to gypsies and some other relevant people.

Conclusion:

In order to conserve the bear habitats and species in Pakistan, who are in a state of extreme jeopardy, the acquiescence of local people may be regarded as a last tool and a survey may be launched to have the NAP for bears without further waste of time.

Acknowledgment:

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Figure 1 Bear Habitat in Pakistan



Figure 2

Bear Markets



Figure 3

Cub Capture Area



Figure 4

Areas of Bear Baiting Events

STATUS OF BLACK BEARS IN THE SOUTHEASTERN UNITED STATES

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Abstract: Due to extensive land clearing for agriculture and other human developments the historic range of black bears (*Ursus americanus*) in the southeastern United States has decreased by approximately 80 percent. The current range is restricted to two physiographic provinces: Mountain and Coastal Plain. The Piedmont physiographic region, which divides the Coastal Plain from the Mountain regions, currently does not support resident bear populations. The species is primarily relegated to public lands in the Mountains whereas >70 percent of the species range in the Coastal Plain consists of private, mostly industrial, forest land. Occupied habitats range from spruce-fir/northern hardwood sites to pine flatwoods, and hardwood, Titi, and pocosin swamps. Some coastal populations are fragmented and connected by rather tenuous river corridors. Status of populations within the region range from very healthy and expanding to precarious and near extirpation. Intense interest in the welfare of the species has spawned a variety of actions to both curb losses and reintroduce populations into suitable but unoccupied habitats. Healthy populations often require some form of regulation including hunting and nuisance control, whereas vulnerable populations generally require more controlled access. All populations need large blocks of forested habitat, portions of which have thick understory escape cover and abundant berry and nut crops supplemented, in some instances, by agricultural crops such as corn and wheat. Designated or defacto sanctuaries have contributed to the survival of the species in this region. Accompanied with controlled access, most forest management practices appear to be compatible with healthy bear populations as long as a good food base is promoted along with adequate escape cover. Because black bears use their habitat on a landscape scale, future management strategies will require regional and multiagency/organization cooperation. This management scenario must also be accompanied by a commitment to long-term monitoring and research.

Key Words: Black bear, Coastal Plain, Mountains, southeastern U.S.A., status, *Ursus americanus*

Black bears occupied most of the North American continent except for northern Canada and the southwestern deserts (Hall 1981) (Fig. 1, Page 42). The current range covers only 62 percent of the historic range (Pelton and van Manen 1994) (Fig. 2, Page 43). Most of this habitat loss has occurred in the eastern and midwestern parts of North America with total extirpation in some states. The species is currently found in portions of 39 states and all 11 Canadian

provinces (Pelton et al. 1997). It is estimated that >500,000 black bears presently occur within that range and most states and provinces report stable to increasing populations (Pelton et al. 1997). Of the eight bear species in the world, black bears are the most numerous (Servheen 1990).

Black bears still occupy approximately 20 percent of the historic range in the southeastern United States (Fig. 3, Page 44). Extensive land clearing for agriculture contributed to the largest losses of habitat. Historically, black bears first disappeared from the Piedmont region. The relatively flat and fertile soils of this region were conducive to being easily cleared and cultivated for cotton and other crops beginning in the late 1700's (Gray 1958). Bears disappeared quickly in the face of tremendous human developments associated with the agricultural revolution. The Ridge and Valley province was not far behind in terms of clearing for agriculture and disappearance of bears. Although forests have returned to much of the Piedmont and Ridge and Valley provinces, small fragmented forests in association with high human populations have prevented the return of this species to these two provinces in the Southeast. Consequently, for over 100 years black bears have been restricted to the Coastal Plain and Mountain physiographic provinces and separated by their absence from the Piedmont region of the Southeast (Fig. 3). Both the Coastal Plain and Mountain regions presented substantial hurdles to early settlers in terms of settlement and development; the mountains and swamps continue to offer refugia for bears.

The region is occupied by three subspecies, *U. a. floridanus* in Florida and Alabama, *U. a. luteolus* in Louisiana, eastern Texas, and Mississippi, and *U. a. americanus* throughout the rest of the region. *U. a. luteolus* is listed as a threatened subspecies under the Endangered Species Act (ESA), whereas *U. a. floridanus* is currently under consideration for such listing. The taxonomic status of these subspecies is currently under evaluation by the U.S. Fish and Wildlife Service.

Based on a 1993 survey we conducted among all states and provinces with American black bears (Pelton et al. 1997), 10 southeastern states reported increasing populations, whereas two states reported stable populations (Alabama and Florida) (Table 1, Page 38). The black bear population estimates for individual states ranged from <50 in Alabama to approximately 3,000-3,500 in Virginia and 3,500 in West Virginia. The total population in the Southeast was estimated between 18,950 and 21,400 bears (Table 1).

Current Status

Mountains. Black bears occur in three major blocks of forested habitat in this region of the Southeast. The Allegheny and Blue Ridge Mountains (Virginia and West Virginia), the southern Appalachian mountains (Georgia, North Carolina, South Carolina, Tennessee), and the Ouachita and Ozark Mountains (Arkansas). Most of the occupied habitat is in public ownership

in the form of national forests (Monongahela, George Washington, Jefferson, Cherokee, Pisgah, Nantahala, Chattahoochee, and Sumter) and two national parks (Shenandoah and Great Smoky Mountains) (Fig. 3). These mountain habitats range from northern hardwoods to mixed pine-hardwoods and cove hardwoods with a variety of oak species (*Quercus* spp.) as the predominant overstory and important fall food source. Blueberries (*Vaccinium* spp.) and huckleberries (*Gaylussacia* spp.) in the understory make up a substantial portion of the bears' summer diet. The unpredictable nature of the fall hard mast crops results in significant population responses. Years of scarce hard mast result in increased movements and mortality and decreased natality (Eiler et al. 1989, Pelton 1989). The large blocks of public land create a relatively stable future for the species in the mountain region. It appears that bear populations in the mountains have gradually increased over the past 20-30 years in response to natural (i.e., maturing hardwood forests) and anthropocentric (i.e., creation of official bear sanctuaries, better hunter compliance, and more scientific harvest season settings) factors. Because of the relative stability of the Mountain region, the species will likely continue to thrive, notwithstanding major perturbations such as gypsy moth (*Lymantria dispar*) defoliation of oak forests or increased human developments and activities within and adjacent to occupied habitat. Illegal hunting has been part of the mountain culture since the first settlers arrived. Obviously, the true extent of such activities has never clearly been documented. There will likely always be "hot spots" where a few poachers have a local impact on the bear population. However, particularly since "Operation Smoky" (an undercover law enforcement operation aimed at bear poachers and illegal trade in bear parts) in 1988, the pervasive nature of these illegal activities appears to have subsided with a higher percentage of the total bear kill coming from legal hunts.

Coastal Plain. This region encompasses the Southeast Atlantic coast from the Dismal Swamp of Virginia to the Everglades in Florida, the Gulf coast to east Texas, and the Mississippi river (Fig. 3). Unlike in the Mountain province, Coastal Plain bear habitat is much more fragmented into smaller forested blocks. Some populations in this region are small and relatively disjunct. For example, the Tensas river basin in northeast Louisiana is approximately 60,000 ha and contains approximately 100 bears (Weaver and Pelton 1994). More than 70 percent of the bear habitat in the Coastal Plain region is in private ownership, mostly as industrial forest land (Wooding et al. 1994), and many of these forests are adjacent to more stable, protected core areas of public lands such as Dismal Swamp National Wildlife Refuge (Virginia), Alligator River National Wildlife Refuge (North Carolina), Osceola, Ocala and Apalachicola National Forests (Florida), Tensas River National Wildlife Refuge (Louisiana), and White River National Wildlife Refuge (Arkansas). Habitats range from bottomland hardwoods, Titi and pocosin swamps, bays, and stream drainages through pine flatwoods. These diverse riparian habitats are rich in crops of berries and nuts and have long growing seasons. Understory cover is particularly thick and almost impenetrable on a year-round basis. Thus, a small (1-5 ha) swamp thicket can effectively serve as a defacto refuge for bears. Some of the linkages between forested habitats are narrow stream courses and are tenuous connections that will require attention in the immediate future if their integrity is to be preserved.

During this century, much of the Coastal Plain has been cleared for agriculture and occupied bear range has decreased accordingly. Coincidental with the agricultural interests has been commercial forest interest. The forest industry has tended to offset some of the effects of rapid deforestation for agriculture and, in some areas, has reversed this trend. However, agriculture continues to dominate this region. Crops such as corn, wheat, and, to a lesser extent, soybeans complement adjacent forested habitats and benefit bears by providing abundant food sources from spring (wheat) to late summer (corn). Under such conditions densities of bears can be high and individual "corn/wheat fed bears" can exceed 250 kg.

Harvest and Mortality

Seven southeastern states currently have hunting seasons (Table 2, page 39); all are fall seasons beginning as early as 19 September (Georgia) and lasting as late as 2 January (Arkansas). These seven states harvested an average of 1,894 bears per year from 1988-1992 with mean annual harvest rates ranging from six in South Carolina to 730 in North Carolina (Table 3, page 40). The average annual harvest has continued to increase since these statistics were gathered in 1993. This increasing harvest trend likely is a reflection of the increasing bear populations discussed previously.

There is no indication that illegal hunting has increased in the Southeast in recent years. In fact, there seem to be a general feeling among wildlife managers that there has been a higher level of compliance among hunters. Nor has there been any indication that the international trade in bear parts has caused greater mortality or diminished populations in this region. Our 1993 survey indicated that the legal black bear harvest in the Southeast represents only 8-10 percent of the population estimate, which is well within the maximum sustainable harvest rate.

Another major form of mortality in the Southeast is roadkills. Based on a survey from 1993, approximately 170 bears are killed annually by vehicles (Pelton et al. 1997) (Table 4, Page 41). With increasing densities of both human and bear populations, this form of mortality likely will increase.

Repatriations

Between 1958 and 1968, 254 black bears were repatriated from Minnesota and Manitoba, Canada to the Ouachita and Ozark National Forests in the Interior Highlands of Arkansas (Smith et al. 1991). Black bears were extirpated from this 15,670-km² area at the turn of the 20th century. More than 2,500 bears are now estimated to occupy an expanding range that spills over into eastern Oklahoma and southern Missouri (Smith et al. 1991). This repatriation may be one of the most successful restocking efforts of a large carnivore in the world (Smith et al. 1991).

More recently, a systematic effort was made to repatriate black bears into the Big South Fork National River and Recreation Area in the Cumberland mountains of Kentucky and Tennessee. A habitat suitability index model was first developed to determine the potential limiting factors in the area (van Manen and Pelton 1997). Subsequently, six selected adult female bears, previously radio-collared in Great Smoky Mountains National Park, were captured and moved from their winter den sites to new winter dens in the Big South Fork area in 1996. Six other adult females were captured and moved during summer, after being kept in acclimation pens for two weeks. Preliminary results of these experimental releases are encouraging (J. Clark, pers. commun.). This repatriation represents the first systematic effort to restore the species to unoccupied habitats.

These successes of repatriation are encouraging a fresh look at other potential repatriation sites in the Southeast. Wooding et al. (1994) identified 32,000 km² of potential range in the Coastal Plain alone, with approximately 50 percent in eastern Texas. Although no resident populations currently exists in the Piedmont region, there are increasing number of reports of bear observations on the fringes of the region. These observations likely represent individuals dispersing up riparian areas from coastal populations and down similar corridors from the mountains. Several Piedmont sites currently are under consideration for repatriation. Generally, forested areas in excess of 40,000-50,000 ha are prime candidates for future attempts at reestablishing black bears.

Sanctuaries

Throughout the range in the Southeast, survival of black bear populations seems strongly linked to the presence of sanctuaries, either designated or defacto. Such zones of protection range in size from 100's of km² to only a few hectares. They consist of sites that are: (1) inaccessible (topographic relief or vegetative features); (2) officially designated (e.g., Great Smoky Mountains National Park, designated bear sanctuaries); or (3) limited access (e.g., posted private property, gated industrial forest lands). Designation of >400,000 ha (\approx 17 percent of occupied bear habitat) of sanctuaries in the southern Appalachian mountains in the early 1970's is attributed as a major cause of the increase in the bear population since that time. The thick understory cover provided by the small fragmented habitats in the Coastal Plain juxtaposed with agricultural crops has allowed bears to survive in remarkably small habitat islands and use narrow bands of cover along riparian areas (Anderson 1997).

Conclusions

The future of the black bear in the Southeast generally is optimistic. There are active efforts at repatriation and numerous sites are currently under consideration. The Piedmont region may soon support resident populations of black bears once again linking Coastal and Mountain

populations. Appropriate management of national forest and refuge lands (e.g., long rotations of oaks, perpetuation of diverse nut and berry crops, and controlled access in the form of designated or defacto refugia) will ensure a future for the species on public lands. Populations in the Coastal Plains are more vulnerable because of the greater degree of fragmentation of the habitat and the greater proportion of land in private ownership. Shifts in the wrong direction in the agricultural or forestry markets can have a detrimental impact on the species in this region (e.g., conversion of corn and wheat to cotton, development of forest lands for real estate). Successful management of black bears in the Coastal Plain region will require a proactive and cooperative approach among a wide array of stakeholders in the private and public sector. A good example of such an approach is the Black Bear Conservation Committee; the main goal of this organization is conservation of the Louisiana black bear by facilitating cooperation among stakeholders.

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Table 1. Population statistics of American black bears in the southeastern United States, based on 1993 survey responses. Modified from Pelton et al. (1997).

State	Population Estimate	Population Trend
Alabama	<50	Stable
Arkansas	2,200	Slightly increasing
Florida	1,000 - 2,000	Stable
Georgia	1,700	Slightly increasing
Kentucky	<200	Increasing
Louisiana	200 - 400	Slightly increasing
Mississippi	<50	Slightly increasing
North Carolina	6,100	Increasing
South Carolina	200	Slightly increasing
Tennessee	750 - 1,500	Increasing
Virginia	3,000 - 3,500	Slightly increasing
West Virginia	3,500	Increasing
Total	18,950 - 21,400	

Table 2. American black bear harvest seasons and regulations in the southeastern United States (1992), based on 1993 survey results. Modified from Pelton et al. (1997).

State	Season(s)	Special Regulations
Arkansas	6 Nov. - 31 Dec. 25 Dec.-2 Jan. 6 - 9 Nov. 13 - 21 Nov.	Archery/crossbow Muzzleloader Gun Gun
Georgia	14 Nov. - 6 Dec. Last weekend Sept. & 1 st 2 weekends Oct. 15 Dec. 19 Sept. - 23 Oct.	Nine counties in north Georgia; hunting with dogs or baits prohibited Five counties in south Georgia; dogs allowed; hunting with baits prohibited Ocmulgee Wildlife Management Area; hunting with dogs or baits prohibited Archery hunting allowed on nine wildlife management areas; additional bear hunting allowed with firearms on nine north Georgia wildlife management areas during 2, 4-day deer hunts
North Carolina	9 Nov. - 1 Jan.	Five seasons in different parts of the state that range in length from six days to the entire interval; firearms (including handguns), archery, dogs, and still hunting allowed; dogs prohibited
South Carolina	3 rd week Oct. (6 days) 4 th week Oct. (6 days)	Still hunting Dogs allowed
Tennessee	12 Oct. - 16 Oct. 2 Dec. - 15 Dec.	Dogs allowed Dogs allowed
Virginia	9 Oct. - 6 Nov. 29 Nov. - 1 Jan. 22 Nov. - 1 Jan. 29 Nov. - 1 Jan.	Archery Archery Gun season without dogs Gun season with dogs
West Virginia	6 Oct. - 20 Nov. 6 Dec. - 31 Dec.	Bow hunting; dogs prohibited Gun hunting; dogs permitted in 11 counties, but prohibited in five others

Table 3. Legal status and harvest statistics of American black bears in the southeastern United States, based on 1993 survey responses. Modified from Pelton et al. (1997).

State	Legal Status	1988-1992 Harvest Mean
Alabama	Game ¹	-
Arkansas	Game	42
Florida ²	Threatened (State)	44
Georgia	Game	103
Kentucky	Protected	-
Louisiana	Threatened	-
Mississippi	Endangered (State)	-
North Carolina	Game	730
South Carolina	Game	6
Tennessee	Game	84
Virginia	Game	480
West Virginia	Game	405
Total		1,894

¹No legal hunting season.

²Florida State legislature ended legal harvest of black bears in 1994.

Table 4. Estimated roadkill mortality of American black bears in the southeastern United States, based on 1993 survey responses. Modified from Pelton et al. (1997).

State	Mean No. Roadkills/Year
Alabama	1
Arkansas	1
Florida	35
Georgia	-
Kentucky	1
Louisiana	<6
Mississippi	1
North Carolina	64
South Carolina	1
Tennessee	5
Virginia	30
West Virginia	26
Total	≈ 170



Fig. 1. Historic distribution of the American black bear (*Ursus americanus*) in North America. Modified from Hall (1981).



Fig. 2. Current distribution of the American black bear (*Ursus americanus*) in North America. From Pelton and van Manen (1994).

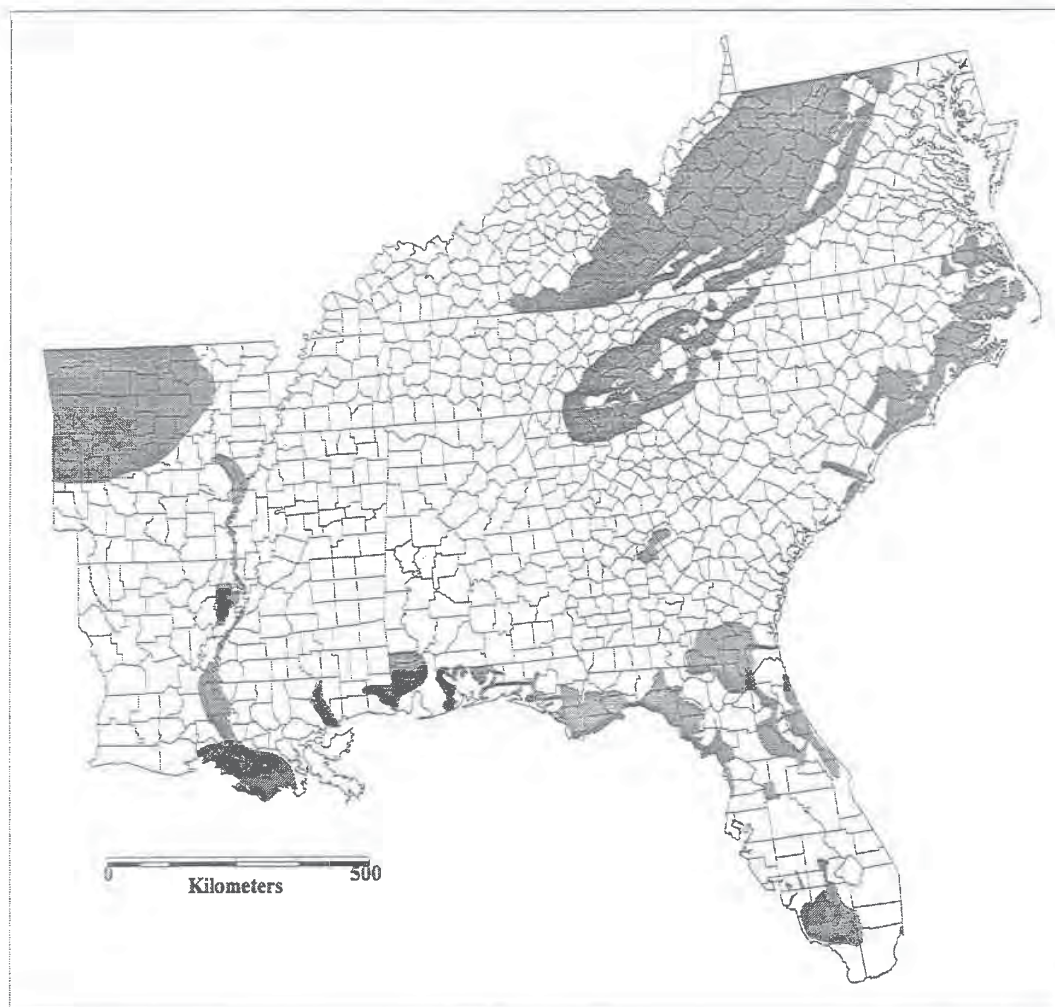


Fig. 3. Current distribution of the American black bear (*Ursus americanus*) in the southeastern United States. Based on 1993 survey responses.

II. KEYNOTE ADDRESS

HUMAN VALUES OF NATURE, THE WILDLIFE TRADE, AND BEARS

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Abstract: This presentation will focus on the motivational basis for the wildlife trade, in general, and of bears, in particular. Nine fundamental values, or presumptions of the worth of wildlife and bears, will be emphasized and described as variously important reasons why people consume other creatures. Each value is viewed as the expression of a biologically based urge to affiliate with natural diversity developed during the long course of human evolution. Each of these values is regarded as possessing adaptive significance, which continue to be important aspects of human perception and use of wildlife today.

These values are, nonetheless, viewed as “weak” biological tendencies, highly influenced and shaped by learning, culture, and experience. Each value has the potential for functional and dysfunctional expression among individuals and societies. Sustainable wildlife trade depends on the balanced and reasonable expression of each of the values. The diversity of these values suggests protecting wildlife and bears can also emerge from a perception of these creatures as more valuable alive than dead.

Two examples are offered to illustrate the importance of variations and shifts in wildlife values. The significance of differences among groups, and its implications for the wildlife and bear trade, are related to value contrasts among age, education, and cultural groups. The importance of fundamental shifts in valuing wildlife more alive than dead is reflected in dramatic changes in the perception and use of whales. The challenge of protecting and sustainably managing wildlife and bears is, therefore, regarded as depending as much on cultivating a more benign expression of our biological tendencies to value nature as on developing more forceful regulations or achieving better biological understandings.

I would like to focus this presentation on what could be called a basic first principle -- an issue of some concern to most, perhaps all of us, but one which, in my estimation is rarely considered in much detail or depth. This issue is simply why do people consume and participate in the commercial trade in wildlife, in general, and bears, more specifically? A simple answer, of course, is economics and profits. But, economics is not the reason why people consume wildlife, but merely the result of their consumptive interests and desires. The more fundamental question is what motivates people to use, consumptively or non-consumptively, wild living creatures.

The obvious response is because wild creatures are valued by people – they represent some element of presumed worth, benefit, or importance to diverse individuals, groups, and societies. But, this again begs the question, avoiding the need to be more specific about just what presumed values or benefits wildlife possesses which motivates people to want to possess or consume them. We get closer to an answer when we begin to examine the reasons why certain creatures, like some species of bears, are exploited beyond their capacity to replace themselves and, consequently, move toward an imperiled future. The famous German zoologist, Hediger,

many years ago, suggested one extremely important reason why people overconsume certain wildlife: "An animal species is threatened with extinction," he remarked, "whenever parts of its body are endowed with supposed curative or other benevolent powers." The plight of many bear species today, especially in Asia, somberly affirms Hediger's observation, despite nearly a century since his time of expanded regulatory and scientific wildlife management.

Hediger's rule, as it has sometimes been called, focuses on one class of values or motivations regarding why people consume wildlife, in general, and bears, more specifically. What I would like for the balance of this talk is to offer nine basic reasons why people are motivated to consume and trade in wildlife. Moreover, I will contend these consumptive urges are buried deep within us all, representing fundamental human needs to connect with natural diversity perhaps as compelling today as in our distant past.

The concept of "biophilia" is invoked to describe these presumably inherent human tendencies to affiliate with other life and lifelike processes. Biophilia is interpreted, however, as a "weak" biological tendency to impute worth and importance to the natural world reflected in the nine basic values. Each biophilic value represents a class of motivations why people consume and trade in wildlife and bears. Viewing these values as weak biological tendencies underscores how much each is mediated, influenced, and shaped by learning and experience. As I will describe toward the end of the presentation, factors such as age, education, and culture greatly influence the importance and expression of each of these values. This malleability will be related to achieving the goals of sustainable use and protection of wildlife and bears. The important point, for the moment, is that the nine biophilic values are viewed as products of, what can be called, "biocultural evolution" – i.e., inborn tendencies greatly shaped, influenced and altered by learning and experience. Let us briefly consider each value, their presumed adaptive significance in human evolution and development, and their possible relation to the trade in wildlife and bears.

Utilitarian. The direct use of natural diversity can be linked to many aspects of food, medicine, clothing, decorative, and other material production. A powerful illustration of this continuing relevance of wildlife today is the finding that "global fish production [mostly from the wild] exceeds that of cattle, sheep, poultry, or eggs...as the largest source of either wild or domestic animal protein for the world's...human populations." Wild plants and animals are also widely reported to be involved in the discovery and eventual production of an estimated $\frac{1}{4}$ to $\frac{1}{2}$ of all medical pharmaceuticals today. Wildlife are also utilized in many industrial products, as well as in the maintenance and enhancement of the productivity, health, and vigor of many domesticated species. Indeed, it is suggested that people materially benefit from some 100,000 different wild species. Moreover, this utilitarian dependence from the wild is like to expand in the future, spurred by a number of factors. First, many new species are being discovered as a consequence of expanding explorations in largely unknown areas like the tropics and deep oceans, along with the related development of innovative biological collecting and prospecting techniques. Secondly, governments, companies, and nongovernmental organizations are

devoting increasing resources to identifying potentially beneficial species. Finally, rapidly expanding knowledge in molecular biology, genetics, and bioengineering will greatly expand our ability to exploit the biochemical and physical properties of many wild species.

Also, indicative of the material value of wildlife, healthy ecological functioning is often critical in agricultural production, waste decomposition, pollution control, soil formation, and a variety of other basic life support functions. For example, an estimated 1/3 of the world's food production depends on the reproductive assistance of wild species.

Bears have been both blessed and cursed by the recognition of their utilitarian value. The presumed material benefits of bears have long endowed them with the kind of curative and benevolent powers noted by Hediger. Chinese Medicine has used parts of bears for an incredible 5000+ years, the most well-known, of course, being the use of gall bladder bile for at least two millennia. The presumed benevolent benefits of bear bile has been confirmed by Western science, and reflected in the synthesis of UDCA in the 1950's, now widely used, especially in the far east.

The value of wildlife and bears to people, however, reaches far beyond the material. These other values are also variously involved in the wildlife and bear trade, sometimes focusing on products derived from dead animals and plants, other times in the commerce in live organisms. Let us explore some of these other values.

Aesthetics. Few experiences in life exert as much impact on people as the physical attraction of nature. People vary, of course, in their aesthetic preferences for nature, yet we discern a consistency and predictability in aesthetic reactions to certain elements of natural diversity under widely varying cultural, geographical, and historical circumstances. The human tendency to value nature aesthetically can be linked to five areas of potential adaptive and evolutionary advantage: a sense of harmony and striving after an ideal, perceptions of order and organization, feelings of permanence and security, a sense of mystery and discovery, and physical healing and restoration. Time and relevance to the topic at hand precludes us from considering all these factors and, thus, we will briefly touch on only a few.

Perceiving beauty in nature can engender a sense of harmony and balance. Certain elements of natural diversity offer a model of perfection in form. We discern unity and symmetry in the brilliance of a colorful butterfly, the flowering of a rose, or the grandeur of a bear at the height of its breeding prowess. Each suggests a glimpse of perfection in a world where frailty, shortcoming, and chaos often seem normative. These images inspire and instruct. Natural beauty hints at perfection when we witness a species or landscape in its idealized form. We often seek to incorporate these expressions of symmetry and beauty into our lives, feeling better for having witnessed them, and more proficient when occasionally able to adapt these attributes into our existence. The aesthetics of nature can function as a monumental design model. In glimpsing the prototype, we perceive the potential for excellence and refinement in

our own lives. By discerning beauty and harmony in nature, we advance the understanding of how certain patterns of line, space, texture, light, contrast, movement, prospect, and color can be employed to produce analogous results in the human experience. The ideal provides a template for action – a model, through mimicry and ingenuity, for achieving a more rewarding existence.

Aesthetic appreciation also provokes a sense of wonder and mystery – and, in doing so, enhances our capacity for exploration, creativity, and discovery. Part of nature's aesthetic appeal lies in its extraordinary diversity: the most "information-rich" environment we will likely ever encounter. Aesthetic variety offers endless opportunities for exercising imagination, for encountering new and challenging situations, for pushing the edge of creativity. Our aesthetic response to nature developed in part because it fostered our potential for creativity and discovery.

These and other aesthetic qualities constitute a major motivational basis for people's interest in consuming wildlife. People are motivated to trade in plants and animals not just for their material and practical values, but also because they wish to cherish and identify with their perceived beauty and attractiveness. This aesthetic attraction flourishes today, serving as the basis for an extraordinary commerce in decorative and representational products. Indeed, in our increasingly urban and technological society, the experience of nature through art, photography, video, visiting zoological parks and botanical gardens, and other indirect means has emerged as perhaps our most common device for experiencing the aesthetic appeal of wildlife and natural diversity. Bears continue to be among our most powerful aesthetic expressions of the wild. Few creatures – as measured by numbers of photographs, art pieces, magazine articles, films, books, and visitor behavior – receive as much aesthetic attention as the great bear.

Scientific. Natural diversity also represents a powerful scientific attraction to humans. This wildlife value may sometimes seem like the brilliant afterglow of modern knowledge and technology, but considerable data suggests it represents an ancient disposition buried deep within the human species and a likely characteristic of all people. As a species, we appear to need to know and understand our world with authority – a place where, independent of culture and history, intellectual capacity can be nurtured and developed through its varied connections with the natural world.

A scientific perspective of natural diversity has conferred various benefits of likely significance in human evolution and development including: intellectual growth and development; the pursuit of empirical knowledge which, over time and simply by chance, eventually yields some degree of practical benefit; and, an attitude of respect for nature and life, dissuading us from heedlessly destroying elements of the natural world.

Nature's extraordinary diversity offers a nearly limitless stage for building knowledge and sharpening mental acuity. Intellectual growth requires critical thinking skills, problem-solving abilities, and an analytical capacity. A scientific perspective encourages precise observation and empirical study necessitating care, patience, and impartial inquiry. The

psychologist Benjamin Bloom identified a universal taxonomy of critical thinking skills including knowledge, comprehension, application, analysis, synthesis, and evaluation. Natural diversity offers a challenging and readily accessible means for developing these intellectual capacities. These cognitive and critical thinking skills can develop in other learning contexts. Yet, nature offers a convenient, ever stimulating, and nearly unlimited stage for nurturing the process of building, refining, and honing intellectual skills, especially for the young and inquiring mind.

In addition to building intellectual capacity, a scientific perspective fosters empirical knowledge of the natural world. From an adaptive viewpoint, this understanding, over time and purely by chance, often yields tangible benefits. Astute observation of even a fraction of life's extraordinary variety almost always leads to the recognition of how some creature or natural process can potentially produce gains to individuals and society.

A scientific fascination also tends to engender respect and a desire for nature's perpetuation. The more we know about the processes of life, the more we are inclined to appreciate and maintain them. By probing the mysteries of creation, we expand the realization of how much we can learn from the natural world. Only fools deliberately compromise processes they do not sufficiently understand or discern might some day prove worthwhile.

The wildlife trade has sometimes been motivated by a scientific impulse, even some times leading to extremely harmful consequences. The Guadeloupe fur seal, for example, was rendered extinct on five separate occasions, a number of these disappearances hastened by scientists who following the animal's "rediscovery" hastily harvested the remaining creatures for museum collections before the species disappeared again. We need to recognize that any value of nature – the utilitarian, aesthetic, or scientific – can be manifest in exaggerated and ultimately dysfunctional ways.

A scientific value, however, usually generates respect, appreciation, and a desire to see a species healthy perpetuation in the wild. In the case of the bear, fascination and respect are often fostered by a better comprehension of this animal's many wondrous physical and behavioral qualities. Why and how do bears sleep for so many months? Why doesn't this produce muscle or bone loss or cardiovascular breakdown? How can brown bears become impregnated during the early summer months but delay implantation and birth until the colder months? How can a solitary male find and secure a mate in the vastness of its mountain wilderness? How can enormous creatures like grizzlies sometimes subsist on a diet of tiny moths? The answers to these and other questions inform and captivate, leading people to ever more probing inquiries and deeper appreciation of life. Eventually the answers can even produce practical benefits. Deciphering the puzzle to the bear's diet, physiology, and sleeping habits, for example, could potentially create knowledge useful in treating human cardiovascular disease.

Symbolic. The natural world also offers people an invaluable source for promoting and facilitating communication and thought. Humans often employ natural diversity as the raw material for developing and expediting the exchange of information and understanding among and between generations of our kind. We accomplish this through language, story, symbol, myth, fantasy, and other communicative devices which convey meaning by way of metaphor, analogy, and abstraction. The importance of natural diversity to facilitate human communication is especially prominent in three areas: language acquisition, psycho-social development, and everyday communication and thought.

The use of nature as symbol has and continues to be instrumental in language acquisition, especially among the very young. Language relies heavily on the capacity to sort objects into progressively more refined categories and classifications. This learning requires an extraordinary number of distinctions that organize meaning. For the growing child, the capacity to classify and categorize depends on clear boundaries separating distinct objects. Where do young people encounter numerous, conveniently available, emotionally salient, and unquestionably distinguishable objects for learning and practicing the act of classification? When we look about us with the eyes of the very young child, the natural world, particularly its living creatures, offers an obvious and powerful source of this variability. Animals particularly provide a magic well of emotionally compelling images for nurturing the ability to order, sort and, most of all, name so integral to language development.

Symbolizing and fantasizing nature also helps the young adolescent to confront basic issues of human identity and selfhood. Natural diversity, especially animals, figures prominently in the myths, fairy tales, and fantasies of the maturing child. Symbolizing nature enables children, as well as cultures, to confront fundamental dilemmas of individual and group existence -- authority and independence, order and chaos, good and evil, love and sexuality, parochialism and worldliness -- in a tolerable yet instructive manner. This occurs in children's stories and fairy tales, in legends and myths, in cultural totems and social taboos, in fantasy and dream. In these and other forms, nature as symbol is used to confront and sometimes resolve basic issues of human maturation and selfhood. These images allow us to encounter ourselves through a glass darkly -- e.g., we employ "anthropomorphism" to help render more bearable and captivating the challenging questions of desire, need, and conflict.

Symbolizing nature also assists in more mundane and everyday communication and thought. People frequently employ the imagery of the natural world in the language of the street, in the metaphors of the marketplace, in oratory and debate. Symbolizing nature renders normal communication and discourse more vivid and persuasive. This imagery can sometimes be trivial and trite, occasionally eloquent and moving. Its pervasiveness suggests a universal and indispensable role. The natural world provides a substrate for symbolic creation, analogous to the way wild genetic diversity offers a biochemical template for laboratory discoveries. In each case, nature confers the clay from which we mold and fabricate solutions to life's varied challenges.

This symbolic value has been a powerful motivational basis for the commerce in wildlife. People often collect live and dead parts of animals and plants because of their symbolic significance – e.g., seashells, feathers, eggs, flowers, body parts, and so on. Aldo Leopold offered a somewhat positive interpretation of this desire suggesting it “attests that its owner has been somewhere and done something – that he [or she] has exercised skill, persistence, or discrimination in the age-old feat of...reducing-to-possession.” In our highly image and print-oriented society, this symbolic interest is frequently more representational than literal. We covet the depiction of other creatures in photographs, videos, and other symbolic representations of the wild, and this has emerged as a large and growing industry.

The bear’s symbolic value is especially striking. Few creatures appear more frequently in various images and representations. This may stem from how much the bear reminds us of ourselves – capable of standing erect, looking forward, a disk-like face, its eclectic diet, and even imperious attitude at the zenith of its world. The bear figures prominently in our symbolic culture and collective myths, remaining the most cherished image among children and one of our most revered icons of childhood.

Naturalistic. Natural diversity functions as an unrivaled context for engaging the human spirit of curiosity, imagination, and discovery. We take pleasure in encountering and immersing ourselves in wild nature – particularly when it elicits feelings and rhythms seemingly timeless. Humans have always mined intellectual and emotional ore from direct contact with nature’s rich matrix of shapes and forms, above all its conspicuous and emotionally charged plants, animals, and landscapes. Four adaptive benefits stem from this direct experience of natural diversity: enhanced physical fitness and vitality, expanded curiosity and imagination, increased confidence and self-esteem, and greater calm and peace of mind. We will touch only briefly on a couple of these.

The desire for direct contact and intimate experience of nature often originates in the simple pleasure taken in physically extending and mentally exerting ourselves. Humans require activity and arousal as a condition of physical and mental health. Our increasingly sedentary existence challenges us to find ways to maintain this condition. Today, we often employ artificial means for this purpose, yet these contrivances rarely elicit the stimulation, spontaneity, and convenience afforded by the outdoors. Rarely do they provide the pleasures and benefits of direct contact with a physically challenging, aesthetically pleasing, and emotionally charged life or landscape in the wild.

Intimate contact with nature also stimulates our curiosity and imagination. Heightened awareness prompts a sense of adventure and a penchant for exploration. Immersing ourselves in natural settings produces a heightened awareness and vitality. The gray rocks take on a more vivid texture, the amorphous vegetation comes alive with meaning, the stillness of the landscape becomes replaced by a symphony of sounds and sensations. In engaging this spirit of curiosity,

we invite creativity and intellectual development. The inquisitive mind becomes immersed in detail. The more we engage the intricacies of natural diversity, the more we encounter its unlimited potential for eliciting wonder and the urge to discover.

This naturalistic interest is prominently encountered in a wide variety of outdoor recreational activities, but also as a motivational dimension of the wildlife trade. A naturalistic value has been an aspect of why some people visit zoos, aquariums, and wild animal parks, and has contributed to the trade in rare, exotic, and charismatic wildlife, including bears. Non-consumptive uses of wildlife, such as ecotourism and backcountry hiking and camping, are also frequently stimulated by strong naturalistic interests, and bears both benefit and occasionally suffer from this degree of attention.

Humanistic. This value underscores our emotional affinity for nature, particularly for other creatures. This perspective emphasizes emotional bonding and companionship with natural diversity, especially for certain animals and occasionally for plants and even landscapes. The orbit of human fellowship is extended to incorporate nonhuman life. Other creatures – especially the so-called “companion animals” – become sources of deep affection, even a sense of kinship. This connection has and continues to be a vital force in human psychological development. Three adaptive benefits particularly stand out: emotional sustenance and security, sociability and affiliation, and physical healing and mental restoration.

Close relationships with other creatures fosters emotional maturation and well-being. This significance often derives from the capacity of certain creatures to give and receive affection, as well as to form intimate bonds of attachment with us. Isolation and aloneness constitute heavy burdens for a largely social species like the human animal. With rare exceptions, we hunger for intimacy and connection. The companionship of other creatures and even landscapes can provide a profound source of relationship and a means for expressing and sometimes receiving affection.

The human species has been extraordinarily successful despite a relative lack of speed, strength, stamina, stealth, or other physical attributes possessed by many creatures. What we possess in unusual abundance are the capacities for cooperation and social inventiveness. Bonding and affiliation have been especially critical in developing these abilities. We cultivate relationships, assume responsibility for the well-being of others, count on and gratefully receive their commitment and caring response. Our family and friends represent the primary means for developing these social capacities. Yet, caring and being cared for by other creatures and, more generally, nature has always provided a highly salient means for expressing affection, companionship and connection.

These intimate bonds can also foster feelings of security and self-esteem. These benefits accrue under normal circumstances, but are especially pronounced in times of acute crisis and disorder. The caring response of another creature and the vitality of natural diversity can be

restorative. Our sense of vulnerability is displaced by the reassuring warmth of others and the image of life-sustaining process.

A humanistic perspective has been most visible as a motivational source of the wildlife trade in the desire to own pet animals. This impact has been well documented in the case of certain parrots, tropical fish, crocodilians, primates, turtles, even large exotic cats, and others. Its effect on bears, especially in modern times, is probably limited, although owning bears as companion animals has a rich and varied history and still occurs in areas of the world today. The bear certainly remains an object of deep bonding and affection for many people, and this emotional identification has been a major factor in the controversy regarding how this animal should be managed and protected.

Dominionistic. We hone our mental and physical attributes through occasionally subduing and mastering nature. We covet kinship and affection in our lives, but we also strive to outcompete, outwit, and overcome challenge and adversity. The natural world has always provided an unrivaled context for developing these more competitive traits in the human species. We no longer rely on besting or overcoming prey, eluding menacing predators, or surviving in the wild. Yet, the physical and mental strengths derived from being challenged in nature remains an important pathway for developing competitive fitness and adaptive capacity, especially among young people. We value natural diversity from this perspective as an arena of contest and control. We nurture our capacities for ingenuity, perseverance, strength, and prowess in seeking to overcome challenge and adversity. Three adaptive advantages especially derive from this value of nature: physical strength and mental prowess, self-reliance and independence, and a sense of adventure and the heroic.

People develop physical strength and feelings of competence through testing themselves in nature. Bodily fitness and mental skills accrue from challenge and competition in the outdoors. Moreover, cleverness and technique typically translate into a more efficient expression of strength. Pursuing another creature well depends on more than power and perseverance. Together, the body and mind generate an enhanced physical grace and mental dexterity.

A sense of personal autonomy and independence can be nurtured and developed through coping in nature. By demonstrating self-sufficiency and the capacity to function effectively in challenging circumstances, people emerge surer and more certain of themselves. An adventurous and inquisitive spirit is fostered through confronting nature. Exploration and discovery have been integral to the success of our species. By pushing our limits, we learn to adapt to unfamiliar and uncertain circumstances. We confront in wild nature the chance for dealing with the unexpected and coping with the seldom and rarely encountered. By contesting wild nature, we cultivate the inclination to explore and take risks, to defy danger, to face adversity, to express courage and an heroic ideal.

The importance of the dominionistic value as a motivational basis for the wildlife trade was likely greater in the past than currently. Yet, this perspective represents a dimension of the growing interest in certain adventure outdoor programs and ecotourism, which frequently results in an interest in collecting wildlife curios and other decorative objects associated with these activities. The bear as a powerful animal elicits a deep-seating urge in many people to want to identify with its presumed strengths and prowess. People accomplish this goal by besting the creature in the wild or by physically possessing one or another of its attributes – a body part, a pelt, even sometimes a photograph. The continued interest in sport and trophy hunting or even photographing bears may be partially motivated by a dominionistic attitude. Even the bear's presumed curative powers may be associated with the idea of assimilating its strength and powers through ingestion.

Moralistic. The natural world possesses an extraordinary degree of diversity and complexity. The number of scientifically described species alone is some 1.7 million species, although studies in the tropics, oceans, and elsewhere suggest the actual number may be 10 - 100 million, possibly more. Moreover, 99 percent of all species that ever existed are now extinct, and any single creature offers a nearly endless source of detail and discovery.

Despite this extraordinary variability, an equally astonishing degree of underlying similarity unites much of life on earth. Most living matter shares a number of basic affinities: common molecular and genetic structures, similar cellular characteristics, analogous circulatory and reproductive features, parallel bodily parts. A remarkable web of relationship connects a beetle on the forest floor, a fish in the ocean, a bird on high, an elephant on the savanna, a human in the modern metropolis.

A seeming unity binds much of life on earth. Although this connection can be rationalized by the language of science, its realization appears to be quite ancient, suggesting a universal perspective. This perception of an underlying relationship in nature is likely a cornerstone of many religious beliefs. A sense of fundamental meaning and order emerges transcending the distinctiveness and separation of the single person, culture, and moment in time. From an adaptive viewpoint, this moralistic view can engender a sense of kinship and loyalty, personal confidence and security, and an inclination to conserve and protect nature.

Shared belief in an underlying meaning and harmony to life offers a powerful basis for group loyalty and commitment. These convictions provide a foundation of collective morality which give order, definition, and shape to our existence. We take intellectual and emotional comfort and spiritual sustenance in our commonality and interdependence. We achieve cohesion and common commitment through the mutual recognition and celebration of life's underlying connection. As individuals, we reap personal faith and confidence in viewing life as possessing meaning, order, and purpose. This conviction imbues in us a calming assurance that at the core of existence lies a fundamental logic, harmony, perhaps even goodness. We derive faith and

optimism in discerning a unity which transcends our single and vulnerable selves, mustering the will to persevere in the face of crisis and setback.

We are also sustained by the inclination to conserve and protect nature, as well as treat other creatures with kindness and compassion. Social orders have long maintained their resource base by establishing shared ethical standards, not just by enacting restrictive laws and enforcing formal governance. Too often, we rely on regulation and enforcement as the only means for protecting nature, underestimating the human inclination to act prudently and conservatively when motivated by shared moral belief. The desire to protect nature derives as much from ethical principles as from any calculated materialism.

This moral and spiritual affinity for nature can, however, encourage excessive wildlife consumption and trade. The “curative and benevolent powers” cited by Hediger as a major reason for excessive wildlife exploitation often focuses on creatures viewed as possessing magical or spiritual qualities. The trade in feathers, ivory, bones, skins, and other animal parts has sometimes reflected these moralistic associations. Bears have long been connected with such presumed sacred powers and qualities. Shepard and Sanders, for example, note: “Bear myths and rituals [have] centered on the theme of renewal, whether...the reincarnation of the soul, the symbolic replenishment of human food, the passage of initiation, or the renewal of clan power in its heraldic image and brave deeds.” People sometimes use images and stories to conjure up these magical and transformational qualities, but also occasionally employ animal and plant parts, including those of bears, to connect with and capture these presumed powers.

Negativistic. Finally, nature represents a powerful source of human fears and anxieties. Certain species and landscapes provoke aversive reactions even when people are slightly provoked and under widely varying circumstances. Moreover, once aroused, these acute and antagonistic responses can often be difficult to erase. Although these tendencies of aversion and avoidance can sometimes assume irrational proportions, they frequently remain beneficial and functional aspects of human behavior. Three adaptive benefits can be associated with the human tendency to avoid and fear aspects of nature -- safety and survival, evasion and defense, and even awe and respect.

Most of us easily recognize how avoiding injury, harm, and death in nature can be a basic characteristic of all organisms. People developed a tendency to respond aversively to certain plants, animals, and natural features which, over the long course of human evolution, often proved threatening. When rationally manifest, advantages accrue from isolating and even eliminating these menacing aspects of natural diversity. We continue to remain vulnerable to many known and unknown dangers in nature and, lacking this appreciation, we tend to construct flimsy structures in places where they do not belong or remain naïve about our continuing vulnerability in an uncertain and unpredictable world.

Our fears and anxieties can also serve as a rich and varied source of human myth and imagination. Lacking the capacity to frighten and intimidate, various creatures and landscapes emerge as symbolically ill-equipped to function in either our negative or positive representations. We should also not presume our apprehensions about nature always inspire contempt and destructive tendencies. Some of nature's most feared elements can provoke awe and wonder, even respect and reverence. Deference can arise as much from recognizing the power of nature to defeat us as from appreciating its nurturing qualities. The dictionary defines awe as "an emotion of mingled reverence, dread, and wonder...respect, tinged with fear." Nature stripped of its power and fearsome elements becomes a source of superficial amusement and condescension. Wildlife subdued and utterly mastered inspire little appreciation and respect. Awe and fear may be as essential in cultivating an ethic for nature as deep affection.

One would suppose fear and aversion to be an unlikely reason why people consume and trade in wildlife. Yet, we often manifest a fascination for the things we fear most, as the extensive trade in snakes, crocodilians, spiders, and other fearsome creatures suggests. Bears fascinate people because they inspire considerable anxiety and aversion. National park visitors have a far greater likelihood of being killed by a car than by a bear in Yellowstone or Glacier National Parks, yet the stories of grizzly attacks continue to be a staple among most visitors, and even a frequent source of pride among hikers who successfully navigate the backcountry. Our aversion of large predators reflects a deep atavistic fear of being killed or eaten by another creature. Our fears make such creatures an especially poignant source of fascination and projection. Images of bears have long figured in the collective myths and individualized fantasies of many people. The fascination which accompanies these fears and anxieties can often stimulate our consumptive desires.

Mitigating the Wildlife and Bear Trade

As suggested at the outset, these values are viewed as "weak" biological tendencies highly influenced and shaped by experience, learning, and culture. Each value consequently has the potential for both functional and dysfunctional, exaggerated and atrophied, expression among individuals and groups, including societies. Sustainable wildlife trade depends on a balanced and reasonable expression of all of the values. Protecting wildlife and bears can also emerge from a perception of these creatures as more worthwhile alive than dead. For the remainder of this presentation, I would like to discuss how this value variation can suggest differing strategies for mitigating the potentially harmful impacts of the wildlife trade.

Sustainable wildlife and bear exploitation depends on an attitude of gratitude and appreciation for the bounty nature provides to people. The first step in promoting this point of view is to recognize that wildlife values can vary considerably across society, and to promote a reasonable and balanced expression of these values among various groups. Wildlife value differences as influenced by age, education, and culture within the industrial superpowers of the

United States, Germany, and Japan illustrate these differences and their potential significance. These findings were obtained through a series of analogous studies conducted during the 1980's.

In all three countries, the least sympathetic wildlife attitudes generally occurred among elderly and lower socioeconomic groups, especially less educated persons. In contrast, as the results of Tables 1 and 2 indicate, young adults and college educated Americans, Japanese, and Germans revealed considerably greater appreciation, interest, and affection for wildlife and nature. These findings suggest that targeting wildlife trade and bear protection programs at these latter groups could potentially elicit substantial public support.

On the other hand, these results more discouragingly reveal a relative lack in Japan, even among younger and better educated respondents, of pronounced moralistic or ecologicistic values. In contrast to better educated and younger Americans and Germans, comparable Japanese groups did not express strong ethical or ecological sentiments in favor of protecting wild plants, animals, or their habitats. Moreover, in Japan as a whole, as revealed in Table 3, these two values were the least frequently manifest, in striking contrast to the United States and especially Germany.

These results and a review of relevant literature suggest Japanese and, more generally, Eastern attitudes of interest, appreciation, and affection for nature largely derive from aesthetic, humanistic, dominionistic, and naturalistic values and related satisfactions. Nature is viewed as providing its greatest nonconsumptive benefits when experienced under highly controlled and often contrived and artificial circumstances. This restricted admiration is mainly emotional and aesthetic rather than analytical or ethical. One Japanese respondent described it as a "love of semi-nature, largely domesticated and tamed; a desire to use the materials of semi-nature to express human feelings; a motivation to touch nature but from a controlled and safe distance." As the Japanese scholar Yuriki Saito explained: "Nature is not...respected for its own sake, but because it allows one to escape...This appreciation of nature not only implies an anthropocentric attitude...but also suggests an ineffectiveness in generating an ethically desirable justification for protecting nature."

These findings intimate the difficulty in Japan and, in all likelihood, many Eastern nations, of generating strong ethical or ecological support for mitigating the wildlife and bear trade. The problem, of course, is the center of the bear trade, particularly for medicinal purposes, is East Asia, especially among nations with a long history of Chinese medicine, such as Korea, China, and Japan. Even among groups favorably disposed to wildlife – e.g., young adults and the college educated – these findings suggest a formidable task of cultivating support in these countries for sustainably utilizing and protecting wildlife.

On the other hand, strong humanistic, aesthetic, and naturalistic attitudes toward large and charismatic species in Japan, the United States, and Germany suggests another strategy for generating support for protecting bears. This approach emphasizes values which focus on the benefits derived from live rather than dead bears, especially satisfactions connected to the

existence and recreational benefits of this animal. This may seem like an even more difficult task than promoting sustainable wildlife utilization, but the recent experience of the great whales suggests otherwise.

Long before effective international management of whales was achieved, a powerful socioeconomic and political constituency emerged strongly opposed to harvesting these creatures. In time, this group was instrumental in not just developing better methodologies for controlling and regulating the exploitation of whales, but in helping to move public opinion from the consumptive to the non-consumptive use of whales. This change was greatly facilitated by a dramatic shift in public attitudes toward whales from largely utilitarian, negativistic, and dominionistic values to more humanistic, moralistic, scientific, and naturalistic perspectives. People became more aware of the "singing" of humpback whales, the "talking" of dolphins, and the "kindness" of killer whales, than of the meat and oil products derived from the "greatest fishery the world has ever known." Moreover, in just fifty years, a whalewatching industry developed which generates today nearly one-half billion dollars in annual revenues and involves more than three million participants worldwide. All this occurred in the face of a largely reluctant international whale management regime, products like sperm whale oil considered by many to be the world's finest lubricant, and a large commercial trade strongly endorsed by powerful nations such as Japan and Russia.

Promoting public interest in the non-consumptive and vicarious (e.g., film, television, books) use of bears could accomplish as much as more traditional prohibitive and punitive regulatory approaches. Controlling the wildlife and bear trade through CITES and various national laws is important, but sometimes we invest too much faith in this strategy alone. Under the best of circumstances, devising effective monitoring and enforcement of international commerce is extraordinarily difficult, especially when large financial incentives exist to behave otherwise. Under the worst of circumstances – and, historically, this has often been as normative as exceptional -- vested economic interests capture or insidiously undermine regulatory bodies.

Influencing and changing patterns of public use and perception is an extraordinarily challenging and difficult undertaking. Profound transformations in the utilization and treatment of whales, elephants, and wolves demonstrate, however, that affecting people's interests and motivations can prove far more feasible than often supposed. Controlling the commerce in wildlife means affecting consumer behavior, which ultimately means affecting motivations and consequently values.

This presentation has hopefully offered some insight regarding people's basic reasons for consuming wildlife, and the relevance of understanding human values in controlling the wildlife and bear trade. What do the various wildlife values described suggest about why we should act responsibly toward natural diversity? Collectively, they argue that respect for nature and, more specifically, bears is fundamentally in our long-term self-interest. All expressions of biophilia reflect utility conferred by the natural world on people and society whether the benefits be bodily

comfort, empirical understanding, recreational enjoyment, emotional solace, creative capacity, symbolic significance, and more. Each value reflects on how we reap physical and mental reward from a matrix of connections with the diversity of life. An appreciation of bears, and the attempt to render its trade more sustainable or eliminate it altogether, must be based on cultivating all our affinities for nature. The bear's preservation offers more to the human spirit and body than just the saving of another species. Its restoration offers us the chance to mend our tattered relations with the living and natural world.

III. PERSPECTIVES AND COMPLEXITIES OF TRADE

AN UPDATE ON THE BEAR TRADE

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Abstract: Intended to provide a global context for the papers within this panel, this paper presents brief data and informational vignettes focusing on some of the more important features of the trade that are either conservation or law enforcement concerns or common misconceptions of some of the public and conservationists. These data and information come primarily from official governmental statistics or from market research of the TRAFFIC Network. This paper also highlights new governmental efforts in Asia and North America to regulate or prohibit the trade and TRAFFIC Network recommendations to improve or modify these systems.

As the first in a panel of papers that look at various types of trade from the perspectives of conservation, management, animal welfare, economics, and utilization, this paper was compiled and written to provide a more global context for these presentations. However, international trade data from CITES annual reports are not very reliable or indicative when it comes to the trade of some of the more valuable and illegal bear parts -- mainly galls and paws. As a result, a review of that data would have ended up as a recitation of the trade of bear hunting trophies from North America and the occasional seizures or confiscation of bear medicinals. Bear hunting is generally not considered to be of great concern because it is considered by most to be non-detrimental. Governmental seizures and confiscates are not really indicative of the illegal trade because the trade itself is difficult to detect and interdict, and enforcement is often lacking or lax. As a result, most official international data do not provide us with a good idea of the global trade.

As an alternative, this paper presents brief trade data and information vignettes focusing on some of the more important features of the trade, especially those that cause our concerns about the trade or result in misconceptions that some of the public and some conservationists currently hold. The information presented here comes primarily from official governmental statistics or from market research of the TRAFFIC Network.

GALLBLADDER PRICES

At a recent public meeting in Washington, D.C., one of the speakers said, with great authority, that the price of a bear gallbladder was US\$64,000 in Korea. This was said, presumably, to illustrate the great economic incentive for poachers to illegally take and trade in bear parts. The figure has been widely quoted by press, past and present, and misinformed

conservationists to illustrate the seriousness of the trade and the great North American poaching incentive. The illegal trade and its impact on endangered bear populations is indeed serious but both the public and governmental officials need reliable and current market data to evaluate real and potential trade impacts to bear populations.

Whatever its origins,¹ it is not an appropriate figure to use when talking about illegal trade activity or poaching here in the United States or Canada. No one here is going to get that much money for a gallbladder unless they know a rich person in Korea who is not terribly savvy about the street value of galls in North America.

As suggested above, governmental officials and conservationists need to have accurate and up-to-date information and data on the trade so that they can continue to make informed decisions, and the use of extreme examples as a basis for information, such as the US\$64,000 price quoted, could potentially be detrimental to law enforcement efforts to stop the trade. For example, some dealers working within jurisdictions that allow the trade in bear parts have indicated to TRAFFIC that high prices reported by the press and elsewhere raise expectations among suppliers of galls, who expect to receive these prices upon sale. One official working in a jurisdiction that allows legal trade suggested to TRAFFIC that such high prices increase the probability of poaching because people who might poach for other reasons may increase their activity in anticipation of high profits.

In North America, prices paid to hunters vary considerably, presumably due to supply, proximity to major markets, and the legality and illegality of the trade itself. As you see from this tabulation of North American prices in 1994 and 1995 (Table 1), prices range from \$20 to \$1,000 for a gall. States and provinces where trade was legal during the time period of these prices are underlined. [Most of these prices were obtained from participants of the last bear symposium (Rose and Gaski, 1995).]

Not surprisingly, most of the lowest prices received are from jurisdictions that allow or allowed the trade, and the highest prices from those that do not allow trade or are in close proximity to major markets or illegal trade routes. Prices paid to middlemen and retail prices are much harder to obtain due to the underground nature of the trade in North America. There are only two middleman prices in Table 1 -- \$400 and \$800. But interestingly, the retail prices in this table are very close in value. Unfortunately, most of these prices are not identified to species but presumably are primarily those of American black bear (*Ursus americanus*), since brown bear galls (*U. arctos*) have a higher value in the marketplace because of their greater value in the medicinal trade.

¹ According to symposium participant and TRAFFIC East Asia Director, Judy Mills, this figure was taken a report she co-wrote in 1992 (Mills and Servheen, 1992). This price was for a gallbladder from one of the last wild bears known to occur in Korea at that time.

Table 1. GALLBLADDER PRICES IN NORTH AMERICA FOR SOME U.S. STATES AND CANADIAN PROVINCES IN 1994-1995, US\$/Gall or US\$/gram

<u>Market Stage, US\$/Gall or US\$/gram</u>				
<u>Jurisdiction</u>	<u>Year</u>	<u>Hunter</u>	<u>Mid-Man</u>	<u>Retail</u>
<u>Idaho</u>	1994	\$20-\$25	-	-
<u>Colorado</u>	1994	\$40-\$120	-	-
<u>Maine</u>	1995	\$45-\$50 ²	-	-
<u>Arizona</u>	1994	\$50-\$250 ²	-	-
<u>Saskatchewan</u>	1994	\$80-\$100	-	-
		\$7-\$8/g		
<u>Washington</u>	1994	\$100-\$150 ²	-	-
<u>British Columbia</u>	1994	\$150-\$250	\$800	\$1,200
		\$7-\$9/g	-	-
<u>Manitoba</u>	1994	\$8-\$15/g	-	-
<u>California</u>	1994	\$180-\$200	\$400	\$1,200-\$2,000
<u>Alaska</u>	1994	\$250-\$1,000 ¹	-	-
		\$40/oz-\$40/g		
	1995	-	-	\$1,000-\$1,800
<u>Price Range</u>	1994-95	\$20-\$250	\$800	\$1,000-\$2,000
	1994-95	\$45-\$250 ²		
	1994-95	\$250-\$1,000 ¹		

Source: Mills et al, 1995; Rose and Gaski, 1995; TRAFFIC USA

Notes: Underlined States/provinces allowed trade in price year

(1) brown bear gall specifically

(2) wet gall or wet weight

It is interesting to compare the prices paid to the North American hunter to retail prices in several Asian markets where the galls were or are legally sold. Table 2 is based upon the market research of TRAFFIC East Asia (Mills et al, 1995). Hong Kong and Macao are significant trading centers in Asia, and Korea is, of course, a major consumer of bear gallbladders. As noted in Table 2, the retail price of galls from Canada and the United States range from \$5 to \$100. The hunter prices of Table 1, recalculated into prices per gram, range from \$1.30 to \$68 a gram if North American galls are 15 grams on average.²

² The paper presented at the symposium originally used an average weight of 30 grams but, according to Guy Winterton, Ontario Department of Natural Resources, the average weight of North American black bear galls is closer to 15 grams, so these values were recalculated.

Table 2. BEAR GALLBLADDER BILE RETAIL PRICES IN ASIA, 1994-1995

<u>Asian Market Where Offered for Sale, US\$/gram</u>			
<u>Origin</u>	<u>Hong Kong</u>	<u>Macao</u>	<u>Korea</u>
Australia	-	\$21/g	-
China	\$17-\$35/g	\$1-\$69/g	\$10-\$167/g
Europe	-	\$52/g	-
Hong Kong	-	-	\$63/g
India	-	\$27/g	-
Nepal	-	\$7/g	\$50/g
Russia	\$45/g	-	\$23-\$167/g
Unknown	\$21/g	\$5-\$14/g	\$.13/g
USA	-	\$5/g	\$33-\$100/g
Zoo	-	-	\$500/g

Source: Mills et al, 1995

AUTHENTICITY OF THE TRADE

When comparing prices paid for galls, North American galls do not appear to be worth as much as galls originating elsewhere. In Table 2, the most valuable of all galls is the gallbladder of a zoo bear. Why is that? The answer is that the seller probably has documents that would authenticate that the gall is real bear -- possibly the gall was obtained directly from a zoo or other facility with captive-held bears. As the traders and consumers of these parts knew a long time ago, and as we conservationists have found in the last few years, generally through law enforcement cases, the galls that receive the highest prices are those verifiable as bear.

The global market for bear gall is filled with non-bear bear gallbladders. It is uncertain why this is so. Some would suggest that the demand is so high that the market needs to supplement its real bear gallbladder supply with other animal or fake galls particularly in Asia where there are fewer and fewer bears to supply the market. One dealer told TRAFFIC that foreign dealers began buying pig and cow gallbladders in North American slaughter houses more than a decade ago in order to increase the supply and therefore the demand for galls. For whatever reason, the trade of bear gallbladders consists largely of non-bear gallbladders.

Table 3 is a compilation of a variety of forensics analyses on bear gallbladders. For the purposes of this paper, these analyses were sorted according to whether they came from legal and illegal markets. The illegal galls were tested by the Clark A. Bavin National Fish and Wildlife

Forensics Laboratory in Ashland, Oregon, and were the result of a number of law enforcement investigations and seizures by the Canadian, U.S. and a number of Asian governments (Lau et al, 1994). Additional forensics work was done by the state of California's forensics laboratory (California Department of Fish and Game, 1992). The legal galls were obtained by the Taiwan medicinal industry in one analysis (Mills et al, 1995) and purchased by WWF Hong Kong (Lau et al, 1994) from legal sources in the other. Information obtained by TRAFFIC on U.S. wildlife forensics work in a recent analysis of five manufactured bear medicines revealed that only two of the medicines contained bear bile. Based on all of this scientific data, it appears that the illegal trade of gallbladders in most countries or regions is comprised mostly of non-bear bear gallbladders.

For reasons not totally clear, Canada is the exception to this general finding, as illustrated in Table 3. The high percentage of genuine bear gallbladders in Taiwan may be due to the fact that the Taiwan medicinal industry defines three types of bear gallbladders – “real” bear gallbladders, “non-bear” bear gallbladders, and farmed bear bile. Yet even in Taiwan, where there is a category for “non-bear” bear gallbladders, galls believed by the practitioners themselves to be in the “real” bear gallbladder category are not actually bear. Only a little less than two-thirds (63 percent) of the “real” bear galls were real.

Table 3. AUTHENTICITY OF BEAR GALLBLADDERS PURCHASED FROM THE LEGAL MARKET OR SEIZED FROM ILLEGAL TRADE, AS CONFIRMED BY OFFICIAL FORENSICS ANALYSES

Illegal Market	Sample Determined To Be Bear	Size of Sample
Asia+	2 %	(n=143)
California, USA	10 %	(n= ?)
Canada	74 %	(n=489)
United States	49 %	(n=871)
Legal Market		
Hong Kong	35 %	(n=81)
Taiwan	63 %	(n=24)

Source: Mills et al, 1995; McCracken et al, 1995; Lau et al 1994; California Department of Fish and Game, 1992

Notes: + Seized in Hong Kong, India, Malaysia, Taiwan

VOLUME OF THE TRADE

Given that much of the trade is in non-bear gallbladders, do we know how many real galls are in the trade? The answer is unfortunately NO. We don't know because the trade has been, for the most part, an underground or what could be called a "pocket" trade. One of the most valuable parts -- the gall -- fits easily into a pocket, backpack, automobile glove compartment, or hand luggage, and is not detectable except by a few trained dogs. As a result, most trade bypasses governmental regulation and inspection, and/or does not occur in official governmental statistics.

TRAFFIC interviewed traders in several eastern jurisdictions where the trade is still legal to get an idea of the extent of the legal trade in the United States. According to one trader's evaluation of the trade in the state of Maine where trade is legal, for every 10 bears taken by hunters, six of their galls enter the trade. However, only about half of those six galls -- or three galls -- are marketable. Many of the galls that are brought to the dealer are not of market quality. The trader speculated that these unmarketable galls are either from bears: that have recently eaten and began to or fully digested their food -- bile assists in such digestion, whose health or physiology results in poor or low quality bile salts, or with access to a lower quality or poor food supply. In addition, the trader advised TRAFFIC that the price of galls changes due to the supply and market demand. For example, the dealer indicated that prices in 1994 were twice those of 1995 because of these factors. In addition, the galls of eastern bears are small, presumably because eastern black bears are generally smaller than western bears.

PRICES OF OTHER PARTS

What about the prices of other bear parts? Certainly gallbladders are valuable but so are some of the other parts -- most notably bear paws -- which are considered to be a health food and delicacy in some Asian cultures and, as a result, are in demand. TRAFFIC again went to a state that allows the trade in bear parts to get "official" data on the trade -- the state of West Virginia in the mid-Atlantic region of the United States. West Virginia holds an annual sealed-bid auction where anyone may bid for bear parts that are the property of the state (from state-killed bears taken as nuisances or agricultural pests, road kills, and those seized or forfeited to the state).

Table 4 shows the prices obtained for four types of parts beyond gallbladders -- raw skins with or without skulls, skulls, feet or paws, and whole carcasses. The total price for skins, feet, and skulls together is shown in the fourth column. Based upon these prices, a bear in West Virginia is worth about \$250 or so wholesale, without the gall. The galls are not auctioned by the state because state officials do not want to possibly increase demand. A trader in West Virginia advised TRAFFIC that a gall goes for about the same price as that in Maine, about \$45-\$50.

TABLE 4. PRICES OF STATE-AUCTIONED¹ BEAR PARTS IN WEST VIRGINIA IN 1991-1995

AUCTIONED PARTS PRICES, US\$					
Auction Year	<u>Skins</u>	<u>Skulls</u>	<u>Feet</u>	<u>Total Of Three</u>	<u>Carcass</u>
1991	\$15-\$450 ²	\$21	\$10-\$15	\$46-263	-
1992	\$26-\$202	\$15	\$5-\$11	\$46-\$238	\$27
1993	\$22-\$100	\$15	\$10	\$47-125	\$250
1994	\$21-\$127	\$54	\$28-\$60	\$85-\$241	-
1995	\$45-\$125	\$10-\$13	\$10	\$65-\$148	\$200

Source: West Virginia Department of Natural Resources

Notes: (1) sealed auction bid of parts (except) galls of state kills/road kills

(2) wealthy bidder placed high bid

POACHING

Much has been said about poaching and illegal trade, and there has been a mistaken impression by the public that the two are one and the same. The public's perception seems to be that bear poaching is the result of illegal trade pressure, or that illegal trade is the end result of poaching. While these two activities are closely related, they are not necessarily dependent upon each other.

According to a report from the Canadian Wildlife Federation in 1992 documenting poaching and illegal commercialization of wildlife in Canada (Gregorich, 1992), "poaching is when any animal or plant has been taken by an action or omission that contravenes the acts and regulations made to conserve those animal or plants." Gregorich identified two types of poaching which, for the purposes of this discussion, have been split into three types.

As noted in Figure 1, the first type of poaching is for personal use or family use -- where the poacher is ignorant of the law and possibly tradition makes it socially acceptable to poach. The second is where there is poaching which involves the taking for personal gratification. Here

the poacher is fully aware that he is taking the animal illegally. He often uses sophisticated means to evade being caught and his taking also either exceeds limits or gives him the thrill of illegal activity. In some instances, this makes him a hero in some subcultures because he defies governmental regulations or, in other cases, he will do anything to get that trophy.

The third type of poaching is taking for commercial purposes, and it probably the most detrimental in general because it has the greatest impact in terms of numbers of animals taken and is the most difficult to stop. This type of poaching is often where there is: the taking of threatened or endangered species; the poacher kills very large numbers of these species; and he targets them for special products such as galls or paws. He may also operate alone or be part of a poaching ring.

Figure 1. TYPES OF POACHING IN NORTH AMERICA

√ **TAKING FOR OWN USE OR FAMILY/FRIENDS**

- Ignorance of the law
- Established tradition makes it socially acceptable

√ **TAKING FOR PERSONAL GRATIFICATION**

- Fully aware
- Sophisticated methods to evade apprehension
- Taking
 - Exceeds limits
 - Thrill of illegal activity
 - Heroes in some sub-cultures
 - Anti-government
 - Do Anything to get the record trophy

√ **TAKING FOR COMMERCIAL PURPOSES**

- Take endangered or threatened wildlife
- Kills large numbers
- Targets for special products
- Operates Alone or in Poaching Rings

Source: Adapted from Gregorich, L.J., 1992

It is primarily the third poaching type that results in illegal trade. The second might result in illegal trade as an added benefit to the poacher -- in this case the poacher, for example, was going to kill the animal anyway but decided to add to the thrill or increase his anti-governmental efforts by adding illegal trade to his other illegal activities. But illustrated by this discussion, poaching does not equal illegal trade, and in some cases illegal trade is NOT the result of poaching.

"PATCHWORK" OF U.S. LAWS

As some speakers will tell us later, illegal bear trade in North America may involve the trade of legally taken bear parts because 40,000 bears are annually killed by hunters but only a small fraction of those parts are allowed to enter the trade due to state and provincial laws. Poaching and illegal trade are a law enforcement problem here in North America because of the nature of the trade itself and also because there exists what we have called a "patchwork" of laws and regulations. Illegal trade crosses many jurisdictional borders but because of widely varying state laws it is sometimes difficult to prosecute.

TRAFFIC USA has conducted a preliminary review of the legislation of the 50 U.S. states to try to find out what makes up this patchwork, and found the following.³ At a basic level, states can be categorized as either prohibiting sale of some or all parts, allowing the sale of some or all parts, or having no regulations (see Figure 2). Within those categories are a number of variations. For example, regarding the sale of gallbladders, 29 states -- 58 percent-- have laws or regulations that prohibit the sale of galls within their jurisdiction. Of those states, six ban sale of gallbladders specifically by statute, even if trade in some other bear parts may be legal. Six others prohibit the sale because bears are listed as endangered, threatened, or protected under state or federal law. A further six states have laws that ban trade in all bear parts, without exception. Ten states prohibit the sale of galls because that activity is NOT SPECIFICALLY allowed under wildlife statutes. And one state does not allow the sale of galls within the state, but does allow parts of legally taken bears to be sold out-of-state.

Of the other 21 states -- 42 percent of the total -- eight states with bear populations do not allow sale of bear parts taken within their jurisdiction, but have laws that allow the sale of parts from bears taken legally in other states. Three other states without bear populations also allow for the sale of bear parts taken legally in other states. Five states have laws that specifically allow for sale of bear parts, including galls, that have been checked in and registered with wildlife authorities.

³At the time of the proceedings printing, a draft report of all 50 states is being sent for review and comment by TRAFFIC USA the states. The reviewed report will be published at a later date.

Finally and most interestingly, the five further states --10 percent of the total -- effectively have no laws that would regulate trade in bear parts. Of those, only one has a bear population. The others, for example Iowa, have not had bears for a long time and undoubtedly do not feel there is any threat or probable need to have such regulations. However, a state like Hawaii, with a large Asian population and as a gateway to the Pacific Rim, needs to put some regulations into place to assist bear range states with their controls.

Figure 2. BEAR TRADE LEGISLATIVE "PATCHWORK" OF U.S. STATE LAWS

PROHIBITING SALE WITHIN JURISDICTION (29 states)

- ✓ Threatened/Endangered/Protected species (6 states)¹
- ✓ Specific to galls/internal organs (6 states)
- ✓ Specific to all parts (6 states)
- ✓ Banned because not specifically legal (8 states)
- ✓ Allows sale of legally taken parts only outside of jurisdiction (1 state)

ALLOWING SALE (16 states)

- ✓ Specific to galls/parts taken in-state (5 states)
- ✓ If legally taken out-of-state (11 states)

NO REGS (5 states)

- ✓ Nothing on trade (5 states)

1. The Louisiana black bear subspecies (*U. americanus luteolus*) is listed as threatened under the Endangered Species Act. The state of Louisiana, however, permits the sale of parts of non-threatened bears taken in other states, and so is not included in this category but rather as allowing sale of legally taken bears out-of-state.

Source: Williamson, D., 1997

ASIAN GOVERNMENTAL REGULATIONS

Since the last symposium, a number of governments have strengthened their laws or regulations to close loopholes for illegal trade.

Hong Kong - Hong Kong, for example, has strictly regulated the trade, requiring tight controls on the import of bear galls by requiring testing to authenticate the galls before they can legally enter trade. The presentation later by Mr. Tsang, a Traditional Chinese Medicine (TCM) dealer from Hong Kong, will talk about the positive effects this regulation has had on the gall trade within Hong Kong. However, Hong Kong does not have regulations on the domestic bear trade -- laws currently in place on bear trade are on foreign commerce and the marking and sale of those legally imported parts. On 1 July 1997, Hong Kong will become part of the Peoples' Republic of China (PRC), and TRAFFIC is concerned that it has no domestic laws to regulate trade from other provinces of China, particularly the trade in manufactured medicines not included in Hong Kong legislation.

As we know from discussions at the last symposium, many of these manufactured medicines contain farmed bear bile. Hong Kong law currently prohibits the sale of manufactured medicines of other protected species, such as rhinos, so such a regulation already has precedent in Hong Kong Laws. TRAFFIC recommends that the Hong Kong government take immediate steps to add manufactured bear medicines to the law before the July 1 changeover occurs, closing a possible loophole that might be created by lack of regulation on bear bile medicines coming into Hong Kong from China.

China - As we heard from Dr. Fan's presentation yesterday and the subsequent discussions with you, the audience, the production of bear bile in Chinese farms is of great international concern. Jill Robinson from IFAW will talk about the animal welfare concerns of these farms and provide you information on the trade in bile from them, so this paper will not preempt that presentation and discussion. Yet bear farms continue to be of concern for international trade as well, because the excess bile produced on those farms is appearing with great frequency in other countries. One of the many concerns of conservationists has been that these farms would increase demand, and the appearance of bear bile in international trade suggests that this is indeed a valid concern. For example, bear bile is being brought into the United States through its western ports, and also through Midwestern and eastern ports. Along with tightening other regulations and increasing law enforcement efforts on bear farms, China clearly must strengthen its regulations and controls to stop the excess bile from entering the international marketplace, a considerable new headache for law enforcement officials throughout the world.

Korea - Korea is the primary consuming country of bear galls and other parts, as official customs statistics illustrate. People of Korean origin have been implicated or caught in illegal bear trade activity throughout the world. Here in the U.S., Korean-Americans continue with this part of their culture and use bear parts. Based upon U.S. law enforcement cases, Korean-Americans also use their ties to their homeland and engage in illegal trade by sending bear parts, perhaps legally obtained, to Korea. There is no denying that Koreans have a "devotion" -- as Judy Mills, TRAFFIC East Asia director, has coined -- to bear parts (Mills, 1995). The Korean

government has begun to recognize this devotion and the impacts that this has had on law enforcement efforts throughout the world.

According to TRAFFIC East Asia, the Korean government has made a significant effort since the last symposium and has worked with the Hong Kong government to eventually try to emulate Hong Kong's efforts to regulate the trade through verification and marking of the galls. Korea has dropped its reservation, as promised, on CITES Appendix II bears that it took upon its accession to CITES. However, as with many governments, the Korean government hesitates to severely penalize its citizens for engaging in illegal bear trade. Perhaps a good part of the problem stems from poor communication between the government and its citizens on the legality or illegality of such trade -- public outreach efforts are urgently needed in many countries, but most particularly in Korea. But the strongest deterrent to illegal activity is the penalization of that activity and the Korean government must make illegal trade both unprofitable and a financial and social hardship by seizing contraband and making examples of the big commercial traders.

Taiwan - Of all the Asian nations identified as major consumers and traders of bear parts, Taiwan has made the most significant efforts to stop the illegal trade. One of the most interesting aspects of Taiwan's bear gallbladder trade is that, as noted previously, practitioners use three types of galls: real bear gallbladders, "non-bear" bear gallbladder, and farmed bile. However, based upon a survey of TCM practitioners in Taiwan by the industry itself, many practitioners still believe that bear gallbladder is the best product and can often not be substituted with the same efficacy. The results of a survey by a TCM association of practitioners suggest this to be true, as noted below in Table 5. [These percentages do not add up to 100 percent, by the way, because multiple answers could be given.] Almost a third of those surveyed indicated that there is no replacement for bear gallbladders. On a positive note, about 19 percent indicated that it could be replaced, so all is not lost.

Table 5. PERCEIVED EFFICACY, AMONG TAIWAN MEDICINAL PRACTITIONERS, FOR USE OF NON-BEAR GALLBLADDERS AS AN ALTERNATIVE FOR BEAR GALLBLADDERS

<u>Opinion on Efficacy</u>	<u>Support of Opinion</u>
Can Replace	19 %
Has Less Effect	30 %
Cannot Replace	31 %
No Comment	>1 %

Source: Mills et al, 1995

Practitioners have been using “non-bear” bear gallbladder for years but many consumers are unaware of this fact. Because these substitutes are already a part of Taiwan practitioners’ use of galls, Taiwan has a unique opportunity to get that information out to TCM consumers to make them aware that they have been using substitutes for a long time.

U.S. GOVERNMENTAL REGULATIONS

Here in the United States, it is clear that a more centralized effort on the trade needs to be undertaken, based upon the recent increase of illegal importation, not exportation, of bear parts. Something is happening within the United States in regard to the bear trade -- either the internal domestic market is increasing, the U.S. is becoming a significant re-exporting country for bear parts in the world, or there are other explanations. The U.S. Fish and Wildlife Service, the federal agency in charge of wildlife law enforcement and management, is doing much to stop and penalize the illegal bear trade but much of this effort is local or regional rather than national. As a result, these efforts lack great impact because of lack of a national effort. The federal government needs to prioritize the bear trade and push it higher on its list of both domestic and international conservation priorities because it may impact vulnerable local bear populations, increase the burden on regional law enforcement officials, and divert local or regional law enforcement efforts from other high priority wildlife.

TRAFFIC suggests that there be a greater sharing of law enforcement activity and intelligence within the federal government which should also work much more closely with state and Canadian officials. TRAFFIC also suggests that the federal government should start to focus some of its public outreach efforts on the illegal bear trade and begin to document the U.S.'s role in the illegal trade. TRAFFIC further suggests that the U.S. look northward to examine what the Canadian provincial authorities have done in forming a consultative group of governmental and non-governmental experts to review the situation in that country. Guy Winterton of the Ontario Department of Natural Resources will talk about that later.

NGO COOPERATIVE EFFORTS

Finally, as an NGO working on this issue for a number of years, TRAFFIC urges all the NGOs present at this meeting, and also those that are not, to step up public outreach and education efforts in all countries about the impacts of illegal bear trade. We have a unique opportunity to support governmental efforts to educate the public about the illegal trade. And we can fill in the gaps in public educational efforts where the government has been unable to provide necessary information. We conservation NGOs need to work more closely with the “other” NGOs -- that is industry or “user” NGOs. We will hear about many ongoing public outreach efforts when Nathalie Chalifour of WWF Canada speaks on Sunday. Pete Knights of the Investigative Network will also tell you about their Asian public outreach effort.

In conclusion, all of the NGOs present appear to have at least one common goal -- to stop illegal bear trade. Whether that goal is based upon our utilitarian values, as Dr. Kellert talked about in his keynote address, or our moralistic values, or our symbolic values or whatever value we hold for bears, we should continue to communicate and share information to achieve this common goal. Thank you.

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Abstract: Undercover investigations in North American Chinatowns revealed widespread over-the-counter availability of alleged bear parts, not only from North American bears, but also from Russia and Asia. Findings were passed on to local authorities and some jurisdictions were able to follow up with successful enforcement operations. Many were unable to due to weak legislation or lack of resources. Undercover investigations involving bear gall traders in Quebec revealed the unregulated and unmonitored nature of the trade there, a number of legal loopholes and the reasons why so little trade is recorded. Research in South Korea revealed some North American galls for sale, but an increasing dominance of Russian galls in the market. Research in Southeast Asia revealed ongoing trade in Appendix I listed bears. The evidence indicates that South Korea is the number one market for bear parts and is currently the weakest consuming country with regard to laws, enforcement, and public awareness. A number of conclusions on improved legislation, enforcement, international cooperation, and public awareness are made in a brief synopsis of current initiatives in North America and through CITES that could have major effects on reducing the trade in bear parts.

The full report "*From Forest to Pharmacy: The Global Underground Trade in Bear Parts*" by the Investigative Network and the Humane Society of the United States is not included here. Questions regarding the report should be referred to the Investigative Network or the Humane Society of the United States.

WESTWARD EXPANSION OF THE BEAR TRADE FROM SOUTHEAST AND EAST ASIA INTO THE ASIATIC AND EUROPEAN RANGE OF THE BROWN BEAR

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Abstract: Bear species of East and Southeast Asia have already been severely depleted by the international trade in bear parts, owing to the proximity of the traditional markets for these items. As these species have become depleted, however, chains of supply and demand have crossed regional and even continental boundaries, and led to the unsustainable exploitation of other bear species and populations. One of the trade's most insidious and least documented developments has been its expansion north and westward across the Asian continent and, more recently, into Europe. This has been into the range of the brown bear (*Ursus arctos*). The species has featured increasingly often in international trade and is now one of the bear species most affected by it.

At the turn of the last decade, a number of political, economic, and geographic factors conspired to greatly increase the level of bear poaching and wildlife trade throughout the Russian Far East. Bear gall bladders, from both the brown bear and the Asiatic black bear (*Ursus thibetanus*), proved to be particularly easy to smuggle across international borders, be it by land, air, or sea. It is only more recently that the true effect of this trade on bear populations has been detected. In some locations, scientists have reported population declines of between 30 and 50 percent. In the early 1990s, political and economic change in Mongolia also led to an increase in bear poaching and trade in that country. In one remote northern region, close to the Russian border, local nomadic communities have perceived a significant decrease in bear populations as a result.

There is evidence to suggest that some trade in bear parts from the Russian Far East has been via traders and markets in Moscow. This has greatly increased the number of international markets that can be reached by the trade, including North America and Europe. It has also stimulated a degree of bear poaching and trade in European Russia, where adverts offering to buy or sell galls have appeared in daily newspapers. Scientists working in the Russian Arctic have also reported serious levels of poaching of polar bear (*Ursus maritimus*). Perhaps the most worrying development, however, has been the recent emergence of trade in bear products in Europe, where brown bear populations are at their most threatened. Poaching and trade have been reported in the Slovak Republic, Romania, Poland, Albania, Greece, Spain, and Sweden. Skins have also been illegally imported into Germany, Belgium, the Czech Republic, and the United Kingdom.

Demand for bear products for use in medicines has been detected in Asian communities residing in a number of European countries, including the Netherlands, Belgium, Sweden, and the United Kingdom. In each of these countries, bear products have been found offered for sale in contravention of the European Union's implementation and enforcement regulations for CITES. Poaching for skins is reported to be widespread in Turkey, but it is also likely that galls are being exported to the Russian and former Russian Caucasus, where black market prices for these items experienced a ten fold increase in value with a 7-10 year period.

The trade threat to Asiatic and European populations of brown bear is significant. Although some populations with the range are relatively healthy, others are small, fragmented, and declining. Furthermore, continued habitat loss and insularization of brown bear populations makes them particularly susceptible to over-exploitation. The decline of east and southeast Asian bear populations and the consequent expansion of the trade on an international scale mirrors the trends previously observed for rhinos and tigers. Brown bears may suffer the same fate as these species unless measures are taken urgently to eliminate their over-exploitation in international trade.

JAPANESE ATTITUDES TOWARDS BEARS AND USE OF BEAR GALL: A Preliminary Questionnaire of Bear Park Visitors

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Abstract: A three-month survey was conducted in 1996 on the attitudes of Japanese visitors to the Brown Bear Museum to determine the use of bear gallbladders and document attitudes on the existence of bears in the wild. Data were analyzed according to sex, age, occupation, and location of home. The survey consisted of 300 individuals (133 females, 190 males, 38 not reported to sex) with ages ranging from eight years to over 80 years.

The results found that 8.7 percent of the people surveyed have used gallbladders, 13 percent of the people want to use the gallbladders, and 8.6 percent were uncertain. Twenty percent of the people think to need gallbladder and 10.8 percent were uncertain. 78.4 percent of the people surveyed support the existence of bears in the wild, 19.3 percent of the people want to exterminate bears in the wild, and 2.3 percent of the people were uncertain. 34 percent of the people who want to use gallbladder, 80.7 percent of the people who think to need gallbladder, and 84 percent of the people who want exterminate wild bears were under 20 years old. This suggests that school education in Japan on bear conservation is urgently needed.

Introduction

Until the 19th century, Japan's northernmost island, Hokkaido, was inhabited by native Ainu people who lived in ecological harmony with wildlife populations and honored the native brown bear (*Ursus arctos*) as mountain gods. To the Ainu, the bear was a source of food, a subject of folklore, and a visitor from the world of the deities (Inukai and Kadosaki 1989). The Ainu did not actively use bear gall. However, after Japanese colonization, Ainu began to sell bear gall to the colonial government to generate income.

Colonization by Japanese from the southern islands began in the years following the Meiji Restoration in 1868. The pioneers brought with them the tradition of using bear gall for various medicinal purposes. By 1870, the bear gall market was under the control of the Hokkaido Colonization Office. In 1877, the native brown bear was designated a pest and bounties were instituted; bounties were in effect until 1888 and again from 1963 to 1980. Spring pest control hunts were also conducted from 1966 to 1990.

The prefecture government's stance towards bears changed significantly in 1989, when the prefecture governor communicated to the Assembly that the brown bear was a symbol of Hokkaido's natural environment and that rather than exterminate it, it should be conserved. This policy change was followed by cancellation of the spring bear hunt in 1990 and initiation of bear research by the Hokkaido Institute of Environmental Science (Maeda 1993).

While government policy toward native bears has obviously changed over time in Japan, both native and imported bear gall is still in use in Japan (Mills and Servheen 1991) and human attitudes toward bears are often negative (Mizuno *et al.* 1984).

The role of public attitudes in wildlife conservation is well recognized in North America, where "human dimensions of wildlife" research has expanded dramatically in the last two decades (Kellert 1980; Manfred 1989). Similar research is limited in Japan, though several studies examining public attitudes toward bears have been conducted (Ogawa 1977; Mizuno *et al.* 1984; Maita and Hazumi 1990). However, we are not aware of any studies examining public attitudes toward use of bear gall.

This paper describes a preliminary questionnaire examining public attitudes towards bear gall use and acceptance of wild bears that was completed by visitors at the Brown Bear Museum at Noboribetsu Bear Park in southern Hokkaido.

Methods

The study sample was comprised of Brown Bear Museum visitors. A nationally-famous site located within Shikotsu-Toya National Park, Noboribetsu Bear Park and Museum receives visitors of various age groups, occupations, and places of residence. Questionnaires were completed from November, 1996 to January, 1997. A total of 300 questionnaires were completed; respondent age and gender classes, occupations, and prefectures of residence are detailed in Figure I.

The questionnaire asked four closed-ended questions: 1) Have you ever used bear gall?; 2) Do you wish to use bear gall in the future?; 3) Do you support the public use of bear gall?; and, 4) Do you think that we need wild bears in Japan?

Results and Discussion

Figure II displays responses to the following four questions subdivided into respondent age, gender, employment, and place of residence.

1. Use of bear gall

8.7 percent (n=26) of respondents had used bear gall. More males (11.5 percent; $p<0.05$) than females (6.2 percent) had used gall. Use of bear gall was highest among self-employed respondents and lowest among forest workers and farmers. Use of bear gall was higher among respondents over age 30 than among younger age groups.

2. Desire to use bear gall

14.5 percent of respondents wished to use bear gall. Responses were similar between males and females and among differing occupations. It was interesting, however, that all government employees (n=19) and farmers and forest workers (n=5) answered "no" to this question, while responses from teachers were more variable. Another interesting outcome was that respondents from the Kinki region answered "yes" to this question at a rate double that of residents of Hokkaido (40 percent versus 17 percent). This response may relate to the continuing high level of use of traditional Chinese medicine in the Kinki region.

3. Public use of bear gall

Twenty-six percent of respondents held the belief that there was a public need for use of bear gall. This rate was about 10 percent higher than the rate of desired self-use. Male and female responses were similar. Unexpectedly, the rate of "yes" responses was higher for younger age classes (10-30 years old) than for older age classes. The rate of "yes" responses was higher than the rate of "no" responses in residents of both Hokkaido and Kinki.

4. Value of wild bears

More than 78 percent of respondents placed value on wild bears in Japan; response rates are similar in males and females. The high negative response rate among students (26 percent) was unexpected, as were the negative attitudes demonstrated by respondents aged 30 or less. Respondents from the Kinki region seemed to place more value on bears than respondents from Hokkaido, Chubu, or Kanto (4 percent versus 19 percent, 18 percent, and 16 percent holding negative views, respectively). This response, along with strongly positive response to question 2, may demonstrate a relationship between use of bear gall and value of bears.

Conclusion

While only 8.7 percent of respondents had used bear gall, nearly twice as many (14.5 percent) desired to use gall in the future and almost three times as many (25.9 percent) believed that use of bear gall was a public need. However, 75 percent of respondents who had previously used bear gall neither wished to use it in the future or considered it a public necessity. These results suggest that respondents based their answers on broad public opinion rather than on personal experience and fact-based knowledge.

An unexpected finding of this questionnaire was the high demand for bear gall use and low value placed on wild bears by youth aged 20 and less (34 percent wished to use gall, 60.7 percent held societal need for bear gall use, and 65 percent did not view wild bears as necessary in Japan). These attitudes point out the need for educational programs for schoolchildren that provide factual information on bears and bear conservation, and the influence of bear gall use on wild bear populations. Such efforts might be focused on regions such as Kinki where use is high.

This questionnaire was limited to those bear park visitors who took the extra time to answer the questions. Even though the study sample included respondents from various regions, different age groups, and various occupations, we cannot assume that it was representative of the Japanese general public. Visitors to bear parks might already demonstrate certain biases toward wild bears or the use of bear gall. However, this preliminary questionnaire did demonstrate some interesting trends that warrant further research.

We believe that Japanese bear parks have roles in improving animal welfare and in promoting public education. As a part of this public education function, we would like to continue this type of study. In Japan, human dimensions of wildlife research is a completely new field. More rigorous, randomized studies should be designed with the help of social scientists.

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Figure I: Respondent Socio-demographic Characteristics (N=300)

Sex	N
Female	133
Male	109
Unknown	58

Age	N
0-10	35
10-20	90
20-30	114
30-40	34
40-50	9
50-60	12
60-70	4
70-80	2

Occupation	N
Student	126
Homemaker	88
Government worker	36
Small business owner	20
Teacher	16
Forestry/Farmer	6
Manufacturing	3

Figure II: Bear Park Visitor Response Rates (Question 1-4; in percent)

	Yes				No				Unsure	
	1	2	3	4	1	2	3	4	2	3
Female	6	14	28	81	92	73	58	19	13	14
Male	12	15	22	81	85	76	62	19	9	16
Age										
0-10 years	3	4	27	77	97	88	68	23	8	5
10-20	10	18	53	69	92	74	28	31	8	19
20-30	9	12	47	84	92	78	32	16	10	21
30-40	15	7	15	97	85	76	70	3	17	15
40-50	30	30	43	100	70	70	43	0	0	14
50-60	11	0	22	92	89	100	56	8	0	22
60-70	25	50	25	100	75	50	25	0	0	50
70-80	0	100	100	100	100	0	0	0	0	0
Student	9	12	34	74	91	78	58	26	10	8
Company emp.	9	18	44	87	91	63	27	13	19	29
Homemaker	18	12	29	86	82	85	52	14	3	19
Government	6	0	0	85	94	95	78	15	5	22
Small business	39	15	33	87	61	85	60	13	0	7
Teacher	0	20	0	100	100	40	0	0	40	0
Forestry/Farm	0	0	0	80	100	100	0	20	0	0
Manufacturing	0	0	0	100	100	100	0	0	0	0
Hokkaido	14	17	46	81	86	71	33	19	12	21
Kanto	10	9	27	84	90	89	62	16	2	16
Kinki	9	40	56	96	91	35	31	4	25	13
Chubu	14	0	17	100	86	100	50	18	0	33
Shikoku	0	13	50	60	100	75	0	40	13	50
Tohoku	0	25	100	100	100	75	0	0	0	0
Chugoku	0	10	33	100	100	60	50	0	30	7
Okinawa	14	0	50	100	86	40	50	0	60	0
Kyushu	0	0	0	67	100	100	0	33	0	0

THE ECONOMICS OF THE BEAR TRADE

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The following is a summary of a longer paper that is still in draft form. If you are interested in obtaining the full version, please contact the author by e-mail: afreco@wn.apc.org or fax: + 27 11 883 4615.

Abstract: The international trade in bear parts is of great concern to conservationists and animal welfarists alike. There are calls to ban all international trade, terminate the practice of bear farming in China, and even to end legal bear trophy hunting. Of these measures, an international ban on legal trade of bear parts will probably be the easiest to achieve. In isolation, however, such a ban would probably have detrimental effects both on bear conservation and bear welfare. It may simply drive up the black market price for bear products, thereby providing further incentives to poach wild bears and a further impetus to the practice of bear farming in China, which the Chinese government seems reluctant to stop.

Bear farms have both positive and negative implications for bear conservation, but closing down all farms could have dire consequences for wild bear populations unless the consumer demand for bear products falls substantially. Preventing the sale of gall bladders harvested from legally hunted bears also makes little sense. This practice should rather be encouraged, whilst ensuring that the proceeds from such sales are reinvested in appropriate bear conservation and field protection measures.

1. Introduction

The international trade in bear parts raises concerns for both conservation and animal welfare. Excessive commercial exploitation threatens many wild bear populations, and the practice of bear farming and bile milking is widely regarded as inhumane.

What is the most sensible way to address these concerns? Many different measures have been suggested. Among these, there are three general (and simplistic) solutions:

- stop all bear hunting
- stop all bear farming
- stop all commercial trade in bear parts

These proposed solutions are not realistic for several reasons. First, the legal practice of bear sport hunting is strongly entrenched, and the hunting lobby will defend it vigorously; even if all bear hunting was banned, it would certainly continue illegally. Second, the Chinese government has stated clearly that it will not outlaw the practice of bear farming until suitable

substitutes for bear bile have been identified and accepted by the public. Third, consumer countries such as Japan and China are reluctant to ban all domestic trade in bear products, and even if international trade in products was banned, strong incentives for illegal trade would persist.

Although the above are not realistic as complete solutions, they may be achievable in part. For example, it may be possible to outlaw legal bear hunting and trapping in certain jurisdictions. It may also be possible to outlaw the extraction and sale of bear parts from legally hunted bears. The Chinese government may be persuaded to outlaw bear farms that do not meet certain minimum humane standards. Other governments may agree to a moratorium on international trade in bear products, and may impose domestic measures that criminalize the sale of bear parts.

What would be the effect of such partial measures? They would all act to restrict the supply of bear products to the market, without directly addressing the demand for those products. If the demand for bear products does not fall, a restricted supply of products will simply encourage a higher-priced black market, which in turn would encourage illegal hunting (poaching) and possibly further bear farming (under more clandestine and generally poorer conditions).

It is important to realise that trade and commercial exploitation of wildlife is not always bad for conservation, and that restricting these activities is not always good for conservation. Unfortunately, commercial exploitation, especially bear farming, is definitely harmful to the welfare of certain bears, and in this instance there may be a trade-off between species conservation objectives and the welfare of individual animals.

2. Economics of Wildlife Trade

We know that not all commercial exploitation and trade is harmful to wildlife. If harvesting takes place at sustainable levels, i.e. at a rate lower than the natural reproductive rate of the species, conservation objectives can be met. If harvesting take place at unsustainable levels - higher than the natural reproductive rate of the species - there are three ways to address this problem:

- (i) improve control of the supply at source - i.e., better field protection of wild specimens;
- (ii) expand the supply from alternative, non-threatened sources such as captive-bred or farmed specimens, and
- (iii) reduce the demand for the product by persuading consumers to switch to substitutes.

Note that none of these options directly implies the use of trade bans. Trade bans may help indirectly with achieving the third objective, but only if consumers are already willing to change their habits. The international ban on the trade in elephant products helped to reduce the

demand for ivory in certain Western countries, because consumers responded readily to media appeals that accompanied the ban. Conversely, banning trade in rhinoceros and tiger products has failed to reduce Asian consumer demand sufficiently to protect those species; this is because the demand for Asian traditional medicines has far stronger cultural roots than the more fickle Western demand for ornamental ivory.

Trade bans may also have certain undesired effects. Initially, they constrict the supply of product to the market. As long as demand for the product remains, illegal trade will continue. If a ban does not reduce demand for the product to the same extent as supply, the (black market) product price will rise. The new, higher price may provide additional incentives for poaching and illegal trade. A ban together with higher prices may also encourage an increased rate of illegal harvesting if some people anticipate future product shortages and start to stockpile the product as a speculative investment.

Trade bans are especially inadvisable if consumers show reluctance to switch to substitute products, a condition which economists call “inelastic demand”. There are many examples of goods for which demand has been shown to be inelastic; for example energy, water, alcohol, tobacco and certain drugs. When trade in such goods is restricted or banned, the percentage drop in the rate of consumption is usually lower than the percentage increase in price that consumers are willing to pay. Consequently, the industry as a whole becomes more profitable.

A trade ban on a wildlife product for which demand is inelastic creates significant profit opportunities for criminals, whilst denying legal suppliers the opportunity to compete with them. The product trade becomes increasingly dominated by powerful criminal cartels who specialize in smuggling and related criminal activity, using a combination of violence, intimidation and bribery to remain beyond the reach of the law. Their activities are virtually impossible to stop; this has been proven repeatedly by the classic examples of failed trade bans on alcohol, narcotic drugs and rhino horn.

In deciding whether to further restrict or ban trade in bear products, it is critically important to understand the nature of demand for those products. If demand is inelastic (and there is substantial evidence to suggest that it may be so in markets such as Korea) a trade ban may be counterproductive for bear conservation.

3. Bear farming

The practice of bear farming in China is undeniably detrimental to the welfare of individual bears, and thus unacceptable to many people for humane reasons. However, there is some evidence that bear farming may have positive effects for bear conservation.

Table 1, below, shows recorded prices of whole bear gall bladders in several consumer countries in 1991 and 1995. Note that prices have increased dramatically in all countries except China, where sale of whole gall bladders is illegal, but sale of substitute milked bile products is legal. The prices of milked bile in China vary between US\$1 and US\$9 per gram, which is similar to the 1995 prices for whole gall bladders. This implies that the average Chinese consumer shows no clear preference between wild-harvested bile and milked bile; if anything, there are signs that milked bile has become relatively more popular in recent years.

Table 1. Recorded prices for whole bear gall bladders (US dollars per gram)

COUNTRY	1991 min.	1991 max.	1991 avg.	1995 min.	1995 max.	1995 avg.
China	9	12	-	2	9	-
Macao	-	-	21	-	68	-
Hong Kong	2	35	22	17	45	30
Taiwan	8	42	-	11	75	22
Japan	-	-	30	10	120	35
S. Korea	1	210	-	10	500	93

There is strong evidence that bear farming has led to a recent oversupply of bear bile products within China. In the short term, this is probably positive for wild bear conservation, because the oversupply has brought down the price of wild-harvested gall bladders in China, and thus reduced incentives for people to poach wild bears.

This raises two important issues. First, what would be the effect of terminating or severely restricting China's bear farms? This measure would substantially reduce the supply of all bear bile products; if demand did not fall similarly, prices would rise, both for milked bile and for gall bladders from wild bears. This would probably result in increased illegal farming (under less humane conditions) and certainly a resurgence of poaching.

Second, if China were allowed to export its milked bile products to other consumer countries, this would probably lead to a more widespread fall in prices for wild-harvested gall bladders, and thereby reduce overall incentives to poach wild bears. Export of milked bile, although currently prohibited under CITES, is not necessarily bad for conservation of wild bears. As far as bear farming is concerned, there does appear to be a trade-off between the welfare of individual farmed bears and the conservation of bear species in the wild.

4. Bear hunting and legal trade

If demand for bear gall bladders and paws persists, it makes little sense to prevent their harvest from legally hunted bears, for reasons discussed above in Section 2. If the products of all legally hunted bears were provided to the market, this would most likely cause a fall in product prices, and less incentive to obtain these products from illegally harvested animals.

The most commonly (legally) hunted species is the American black bear. Although its gall bladder is not prized to the same extent as other species such as the Asiatic black bear, it remains an acceptable substitute. If agencies in the USA and Canada set up appropriate supply channels of American black bear products, they could probably make a positive contribution to the global bear conservation problem.

To be effective, a legal supply mechanism would need to be appropriately structured. It would need to ensure that products from legally hunted bears reach the market easily and efficiently whereas products from illegally killed bears do not. To achieve this, US and Canadian agencies could create a supply cartel mechanism. This would involve a collection technique that rewards licensed hunters for working within the official system and penalises them for not doing so.

Using a deposit and reward system, official wildlife agencies could collect all products from legally hunted bears, and then transfer them to a central facility. This facility could then transfer product in carefully controlled batches to distributors officially sanctioned by traditional Asian medicinal institutions. These distributors would authenticate the product, thereby providing an incentive for retailers and consumers to buy from them rather than the black market where fake products abound. Proceeds from this system could be reinvested in bear conservation measures.

5. Conclusion

Measures that restrict or attempt to ban commercial exploitation and trade in bear products will not necessarily benefit bear conservation or bear welfare. If the underlying consumer demand for bear products persists, bans and further restrictions may even be counterproductive; they may simply place the entire bear trade in the hands of well-organized criminal groups. Experience has shown that once organized crime controls an industry, it is virtually impossible to control or stop.

A more sensible (less risky) alternative set of policy measures would incorporate all three approaches discussed above in Section 2. In order of preference (and probable short-term effectiveness), these measures would as follows:

- I. Gain control of the supply of bears and bear products, without restricting it unnecessarily. This implies providing adequate field protection, backed by appropriate law enforcement and carefully regulated harvesting.
- II. Facilitate and expand the legal supply of bear products to out-compete illegal suppliers. This could imply more humane forms of bear farming, or better collection techniques of products from wild-hunted bears.
- III. Encourage consumers to change their tastes and switch to substitute products. This implies concerted, long-term campaigns using moral suasion to convince consumers of bear products to change their cultural attitudes and habits.

IV. REGULATING THE LEGAL TRADE: MANAGEMENT AND MECHANISMS

THE REGULATION OF BEAR MANAGEMENT IN NOVA SCOTIA, CANADA

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Abstract: Bears have been considered a threat to agricultural pursuits and human safety since the arrival of European settlers. From the early 1900s until 1966, anyone killing a bear in Nova Scotia was rewarded through a bounty system. Until 1988, any hunter could take an unlimited number of bears without a special license to do so. Trappers, as well, could take an unlimited number of bears under a permit that was issued at no charge. In 1988, many new regulations were implemented. These are still in place and include: a separate license for both hunting and trapping; hunting a registered bait sites only; required written permission of land owners; compulsory reporting regardless of success; and compulsory submission of the jaw/skull for tooth extraction. Although there has never been a spring hunt nor a hounding season for bears in Nova Scotia, the use of foot snares by licensed trappers is permitted. Nova Scotia continues to permit the sale of bear gallbladders, however, in 1996, a new regulation was implemented requiring all galls to have a permanent locking and serial numbered seal attached, prior to sale or export. The regulation and its administration, after its first year of use, are assessed.

Nova Scotia (Figure 1) continues to permit the sale of bear gallbladders but now requires that galls are registered with and sealed by the Department of Natural Resources (DNR). These new sealing regulations are the focus of this paper. However, an understanding of the history and other regulations pertaining to the use and management of bears in Nova Scotia, is essential to appreciating the applicability and effectiveness of the program.

Since the arrival of European settlers, and until very recently, the area's only bear species, the American Black Bear (*Ursus americanus*) has been considered a threat to many agricultural pursuits, property and human safety. From 1909 until 1966, there were a number of bounties on bears in Nova Scotia. At times during that period both a provincial and in some areas, a municipal bounty could be collected for killing a bear. During the bounty years, records indicate annual harvests of between 139 and 409. Although the bounty is no longer in place, many Nova Scotians continue to look upon the black bear as a destructive pest. The bounty was lifted in 1966, however, the animal enjoyed little protection until 1988. During this period estimated harvest figures rose to as high as 882. (see Figure 2).

Figure 1: Nova Scotia

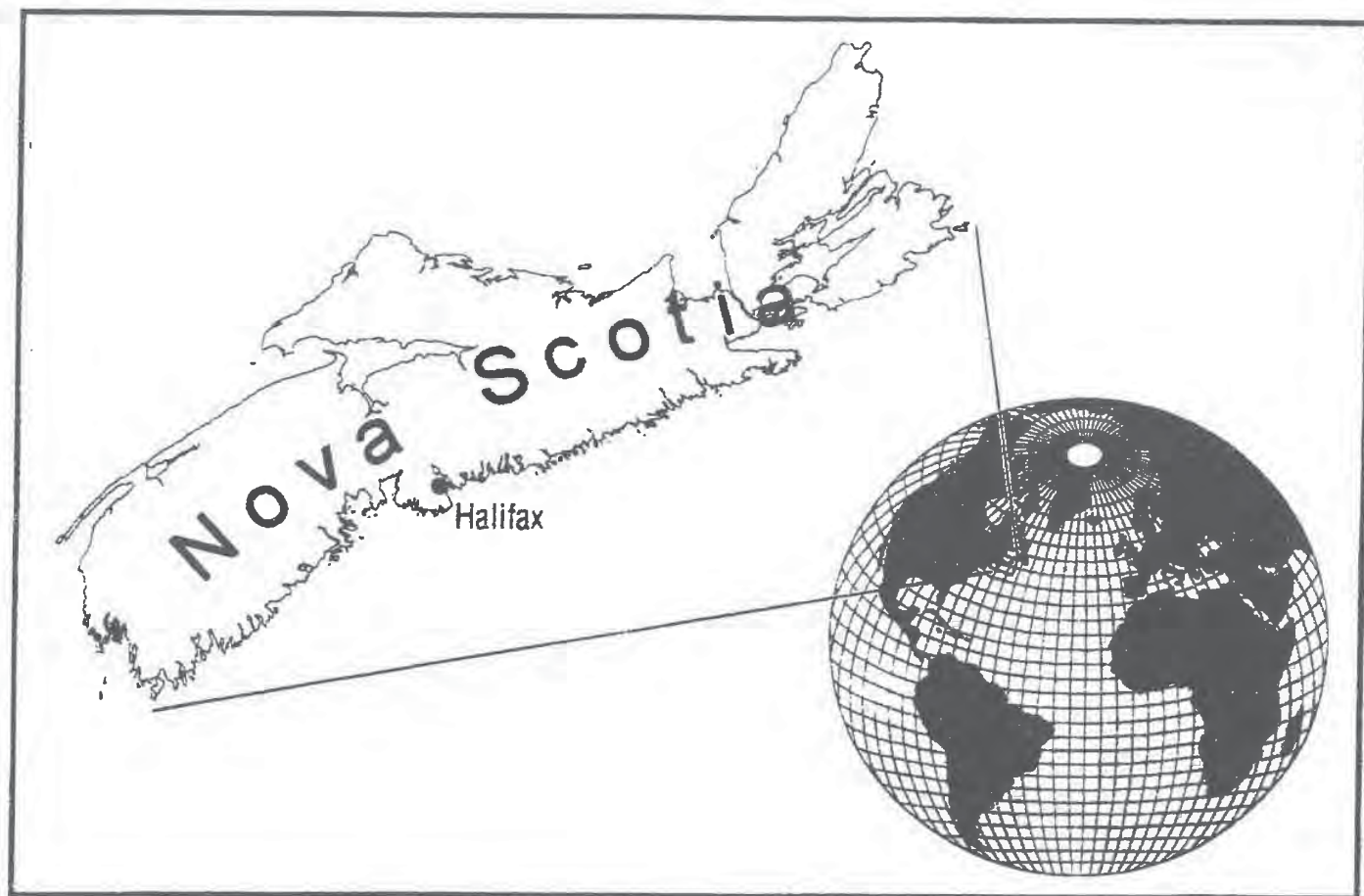
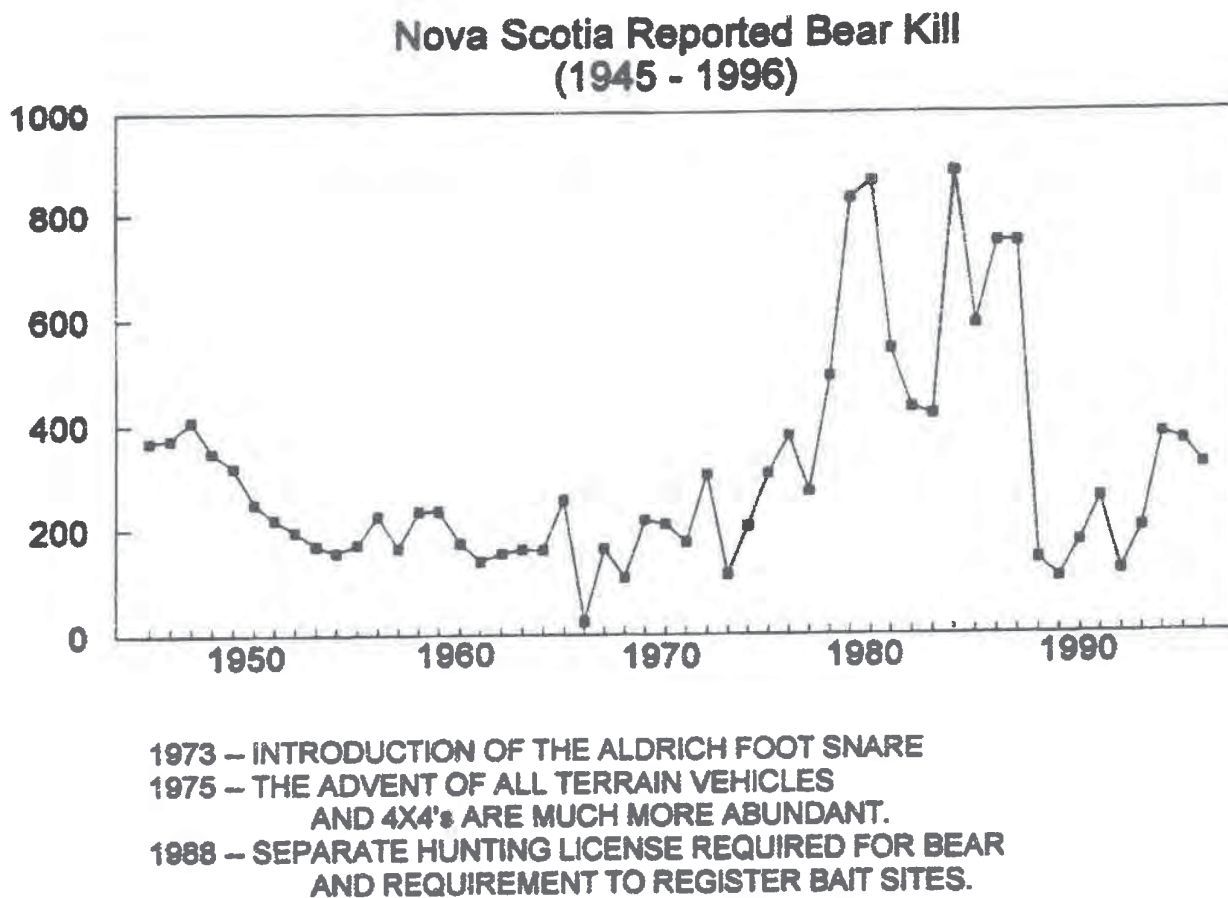


Figure 2: Bear Kill



In addition to bear kills associated with protection of property, any person having a big game license, (i.e. up to 95,500 deer hunters), could kill any number of bears. As well, trappers could obtain a permit (at no cost) entitling them to take an unlimited number of bears.

During the late 1970's and early 1980's, there was growing concern (by both the provincial management agency and the organized hunting fraternity) for the sustainability of harvest levels. In addition, hunters continued to insist that bears be afforded greater protection and be recognized as a valued big game animal. These management concerns resulted in the implementation of new regulations in 1988, that have remained in place until present. They include:

- 1) A separate license to hunt bear (at a cost of \$20 + tax);
- 2) A separate license to trap bears (foot snare only) also at \$20 + tax;
- 3) Issuing of bear hunting and snaring licenses only at DNR district offices;
- 4) Hunting over bait only;
- 5) Bait site registration with DNR;
- 6) Written landowner permission on private land (73 percent of province);
- 7) Bear hunting season separate from deer hunting season (to reduce poaching of deer);
- 8) Submission of hunter and trapper report card compulsory, regardless of success, and
- 9) A bag limit of one by hunting and one by snaring.

These regulations effectively changed the taking of bear from... "incidental to other hunting activities ... free and unlimited," to a hunt that requires pre-planning and an investment of time and money. As a result of these regulation changes, those truly serious about hunting bears can now be counted, identified and required to submit information/specimens meaningful to the management of the species.

As an aside, another significant event that has affected harvesting bears in Nova Scotia, occurred in 1992-93. The Nova Scotia Wildlife Federation (NSWF...an umbrella hunting organization) requested that consideration be given to a spring hunt. Part of the decision making process by DNR, was to gain public input. The subject became an emotionally charged issue, with those opposed to hunting in general at one extreme and bear hunting enthusiasts at the other. A poorly informed general public watched the debate intensify. The process attracted much media attention and raised the awareness of bear hunting. Although the idea of a spring hunt was rejected, the attention generated numerous inquiries of both DNR and NSWF as to, "How do I go about bear hunting?" In the following years, hunting and snaring license sales and the corresponding harvest, increased substantially. (See Table 1).

Although other minor regulation changes have been made since 1988, it was not until 1996 that the bear gall sealing program was introduced. International attention was being drawn to Nova Scotia as one of the three remaining Canadian jurisdictions still permitting the sale of bear gallbladders. The Department of Natural Resources received many questions, concerns and objections on the issue. Once again bears (this time the sale of their parts) were becoming a politically hot issue. Something had to be done.

The Department's philosophy has always been that, "If an animal has been legally taken, the person doing so is encouraged to make full use of that animal." This, together with no concern over current harvest levels, left only one problem. We had to ensure that our management regulations did not impact on the management objectives of other jurisdictions. We concluded that disallowing the sale of galls could impact other jurisdictions, as could continuing the loosely regulated sale of galls.

Nova Scotia Bear Data Summary, 1984 - 1996.

Table 1: Bear Data Summary

	Hunting Licensees		Calculated Hunter Harvest	Mean Hunter Success	Snaring Permits	Calculated Snaring Harvest	Non-Hunting Related Mortalities	Problem Bear Investigations	Total Bears Killed
	Resident	Non - Resident							
1984	94429	1298	287	N/A	1001	585	30	80	882
1985	96156	1583	337	N/A	834	239	15	47	591
1986	94523	1976	296	N/A	1064	416	34	74	746
1987	95047	1893	285	N/A	1162	433	29	76	747
1988	232	14	52	21.80%	163	82	7	66	141
1989	146	25	36	21.00%	108	57	13	67	106
1990	245	13	99	35.20%	111	57	18	98	174
1991	364	10	178	47.60%	102	53	26	132	257
1992	239	30	76	29.70%	104	43	15	112	134
1993	286	44	111	44.24%	129	60	29	275	200
1994	481	37	232	44.84%	181	110	40	197	382
1995	708	81	255	32.41%	227	72	41	243	368
1996	656	102	223	29.27%	184	68	30	188	321

At about the same time, (February 1996) World Wildlife Fund Canada sent a number of recommendations to a meeting in Kenora Ontario, of Canadian government agencies. One of the recommendations was, "In provinces where the sale of bear parts is legal, mandatory marking, registration and recording systems be implemented in order to monitor the legal trade."

Consequently, we decided to implement a gall sealing and recording program to allow the continued sale of galls. This would also ensure minimal impact on the population management of other jurisdictions.

The main features of the regulations are:

- 1) All bear gallbladders must be sealed by DNR prior to sale or export from the province.
- 2) Seals used are permanent locking devices, having Nova Scotia identification and a recorded serial number.
- 3) Records are kept of date of issue, hunter/trapper i.d., license number, condition of the gall (dried, frozen or green) and the seal serial number, and
- 4) Galls of other jurisdictions (any species of bear) that are passing through Nova Scotia will only be sealed if they are accompanied by documentation proving legal origin from a jurisdiction that permits sale.

A fee of \$5 is charged for each seal as a means of administrative cost recovery. Postal scales, already used at all district offices, are used to determine the weight of each gall.

At this time of year (March), most galls taken during the previous fall hunt have been sold and exported. Records indicate that 167 galls have been sealed to date (three by DNR for demonstration/educational purposes). A small number of these were galls held over from the fall of 1995. The number of bears harvested during the fall of 1996 was 291.

In summary, the administration of these sealing regulations requires additional time by department staff, but they allow the continued full use of legally taken bears. The program's effectiveness, as well as harvest levels and the status (by trend information) of Nova Scotia's bear population will continue to be monitored.

Anyone seeking further information on these regulations and the effectiveness of the program, or wishing to provide input, is encouraged to contact the author of this publication.

CAN THE PROHIBITION OF LEGAL TRADE ACTUALLY PROTECT AMERICAN BLACK BEARS?

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I am very happy to have an opportunity to speak my opinion on the Bear Protection Act, although I am afraid it happened unexpectedly. I have had experience opening a clinic for eight years as an oriental medical doctor and now am a scientist and professor at university. Thus, I want to speak my thoughts frankly on behalf of oriental medicine and academic research.

Above all, I want to give my great esteem to CITES and WWF, TRAFFIC and EIA in their work to protect endangered species, including bears.

However, recently I learned that the Bear Protection Act was being reintroduced in the U.S. Congress. I thought to myself: "Can we protect bears effectively as expected?" My answer was "No", especially in Asian countries using traditional medicine. We, oriental doctors, have a sensible and reasonable mind to protect endangered species such as bears, though we had used the small amount of bear gallbladder only for the treatment of hepatic cancer and acute cerebrovascular disease (CVA) according to oriental prescriptions.

That's why the Oriental Medicine Association published the newsletter on "TRAFFIC EAST ASIA" last year in order to let oriental medical doctors know the principles of CITES. Oriental Medicine has contributed to the human beings for many centuries, just as western medicine. Briefly speaking, oriental medicine is based on specific principles, Yin and Yang, according to which Yin is earth and Yang is heaven and man is thought to be a small cosmos of Yin and Yang. Human beings have to keep the rule of nature for health and so man has used traditional medicine or natural products for the treatment of diseases and acquirement of longevity from the old times. We think natural drugs are better than artificially synthesized drugs, since God's work may be better than man's. It's our culture. Therefore, it may be very difficult for any person from a different culture to understand ours. Although we try to eliminate another countries' culture with any law or act, it may be very difficult if people of that country were not cooperative. We have to know the cultures or situations of their countries just as an old saying "anyone should know his enemy thoroughly in order to beat off enemy." I suppose the price of gallbladder of bear will be more expensive, up to US\$1000 or more than US\$400 per gram, current price, so that it will induce more smuggling and poaching at last, if the legal and

illegal trades of gallbladder of bears is restricted. Then, how can we protect the worldwide population of bears effectively? Of course, illegal trading of bear gallbladder should be prohibited strictly. I sometimes heard there were bear gallbladders illegally brought by traders or travelers, not by doctors in Korea.

However, if every trader would take a permit from government or responsible authorities to import, export and possess legally and also encourage the legal trade of bear gallbladder, the price of it will be cheaper and the profit will be less than before according to the economic law of supply and demand, which reduces the illegal trade and protects especially the endangered Asian bears and also American black bears.

I hear that approximately 40,000 American black bears were killed chiefly by poaching or hunting according to Nova Scotia's report. If we can prevent the hunting for fun and poaching for illegal commercial use, bears propagated rapidly can be exported legally for the control of heavy population. If we just propagate and protect all the bears, what situation will happen? It will have a negative impact on the ecology, different from our expectation. Therefore, I suggest gallbladders of bears should be allowed to be used for the life of urgent or incurable patients at least, just as we can donate our organs to any urgent patients.

Unfortunately, artificially synthesized alternatives of bear gallbladder didn't show the same effectiveness as natural gallbladder, although several constituents were identified as tauro-ursodeoxycholic acid (UDCA, 20 percent), chenodeoxycholic acid and cholic acid etc.

Have you heard of Ginseng Radix that is known to have tonic effects? It was known that all kinds of constituents still couldn't come up with the effect of natural ginseng, although 20 or more kinds of saponins have been isolated from ginseng so far. However, we have to continue the research to find out more effective alternatives than UDCA in the near future.

In conclusion, I propose we should allow the legal trade of bear gallbladder only for the medical use and scientific research, though illegal trade of gallbladder, poaching, and hunting for fun should be prohibited strictly, for the effective protection of life of worldwide bears including American black bears. I am afraid of too many objections against my opinion, but I also sincerely hope you would understand I just spoke another opinion for the same purpose to protect bears effectively. Thank you.

A TCM TRADER'S PERSPECTIVE ON THE BEAR TRADE REGULATIONS IN HONG KONG AND THE RE-INTRODUCTION OF THE BEAR PROTECTION ACT IN THE USA

Mr. TSANG Sau Yuen

Representative¹ of the Po Sau Tong Ginseng & Antler Association Hong Kong Ltd. and
the Hong Kong Chinese Medicine Merchants Association Ltd.

Abstract: Trade in bear gall bladders in Hong Kong is strictly controlled under the principle of CITES by the Agriculture and Fisheries Department, the CITES Management Authority in Hong Kong. Import, export and possession of bear gall bladder require permits issued by the Agriculture and Fisheries Department, and only legally exported bear gall bladder is allowed to be imported to Hong Kong. The stock are also subject to laboratory testing, and only genuine bear gall bladder can be licensed and sold in Hong Kong. In addition, the registered stocks are inspected by the Agriculture and Fisheries Department on a regular basis. Although this system does have an impact on price and TCM practitioners' prescription, it stops fake gall bladders from entering the market. Those patients who need a prescription containing bear gall bladder are therefore protected. Most traders in Hong Kong observe the local law implementing the CITES.

The wild population of American Black Bear is plentiful and is so large that approximately 40,000 individual bears are shot down annually by "sport hunters" for fun and enjoyment. Besides, the survival pressure on the American black bear seems to come from habitat loss and not from trade of bear parts. In fact, all kinds of animals are subject to poaching, and the poaching of an American black bear does not necessarily mean its gall bladder would be traded. In addition, there is by far little conclusive evidence that poaching of American black bear is motivated by the demand for gall bladders.

If the existing trade is regulated and the trade does not jeopardise the survival of the wild population of a particular species, then there is no reason why the export or trade of that species should be banned. This is, in fact, the concept of sustainable use of natural resources which has been being advocated by conservationists and the 135 CITES Parties.

I have been invited to talk about my experience with Hong Kong's bear gall bladder registration system. In addition, I wish to talk about the fact that the Traditional Chinese Medicine Community in Hong Kong is concerned about the re-introduction of the *Bear Protection Act* in the United States. I, therefore, would like to express opinions on the latter issue on behalf of the Po Sau Tong Ginseng & Antler Association Hong Kong Limited and the Hong Kong Chinese Medicine Merchants Association.

¹ Mr. Tsang is the Chair of the Supervisory Committee of the Po Sau Tong Ginseng & Antler Association Hong Kong Limited for the years 1996-97. He presents the opinions on behalf of both trader associations in this Symposium.

The Registration System² for Bear Gall Bladder in Hong Kong

Trade in bear gall bladders in Hong Kong is strictly controlled under the principle of CITES by the Agriculture and Fisheries Department, which is the CITES Management Authority /in Hong Kong. Import, export and possession of bear gall bladders require permits issued by the Agriculture and Fisheries Department, and only legally exported bear gall bladders are allowed to be imported to Hong Kong. Legally imported bear gall bladders are subject to laboratory testing, and only genuine bear gall bladders can be licensed and sold in Hong Kong. In addition, the registered stocks are inspected by the Agriculture and Fisheries Department on a regular basis.

The system does create more paper work and has caused the price of bear gall bladders to go up slightly. The system also has an impact on TCM practitioners' prescriptions, in that they now prescribe the bear gall bladder only when there is a real need. Nonetheless, the system stops fake bear gall bladders from entering the market, and patients who need a prescription containing bear gall bladder are protected from fraud.

It is important to note that most Hong Kong traders who trade in bear gall bladders comply with the registration system and other laws implementing CITES.

The Proposed *Bear Protection Act*

I understand that the *Bear Protection Act* is now being re-introduced in the U.S. Congress. However, does the proposed Act deserve bearing the term "Bear Protection"? Is protection of bears the real issue? Is the gall bladder trade a real threat to the protection of American bears?

As far as I know, the wild populations of the American black bear are plentiful and so large that approximately 40,000 individual bears are shot annually by "sport hunters" for fun and personal enjoyment. In addition, I understand that - in most cases - survival pressure on the American black bear comes mainly from habitat loss rather than trade in bear parts.

In fact, all kinds of animals are subject to poaching, and the poaching of an American black bear is not necessary driven by demand for its gall bladder. It is important to note that, in actuality, very little conclusive evidence exists that poaching of American black bears is motivated by demand for gall bladders.

² For a full description of the registration system, please refer to Chan, P.K.R. (1994), "Control of Trade in Bear Parts in Hong Kong", *Proceedings of the International Symposium on the Trade of Bear Parts for Medicinal Use*, TRAFFIC USA and WWF US, Washington DC, USA.

If the existing trade does not jeopardize the survival of wild populations of American black bears, why is there a proposal to ban export of the gall bladders of American black bears?

The proposed ban under the Act does not address habitat loss, the policing of poaching or better ways to stop illegal trade. Would taxpayer money not be spent more wisely in enhancing the capacity of law enforcement officials to stop poaching and intercept illegal trade?

An Innovative Idea

I am proposing that the U.S. Government consider asking all bear hunters to hand in the gall bladders from all legally killed bears, as a condition of obtaining a hunting licence. I further propose allowing those 40,000 bear gall bladders - from legally-hunted bears - to be exported to Asian medicinal markets. Profit from the sale of these legally-obtained gall bladders could go back to pay for anti-poaching efforts. This would not only ensure that the trade in gall bladders from American black bears is carried out in a legal and controlled manner, but it would also generate much-needed revenue for enforcing protection of wild bears.

In addition, this would take pressure off wild bears in Asia by satisfying medicinal needs for authentic bear gall bladders for health care with a legal supply from a source guaranteed to be authentic.

Banning the trade in gall bladders from the American black bear will not stop illegal trade. It will only deny honest traders like myself a legal source for gall bladders.

The "Hunting Protection Act"

Furthermore, I would like to point out that the proposed Act seems to be directed at traditional oriental medicine. The term "bear protection" is a misnomer. This is not a law protecting American black bears. It is, in fact, a "Hunting Protection Act". There is no intention in the proposed Act to reduce the bear hunting quota nor is there any intention of reduce the hunting of bears.

To many Asians, the proposed Act seems to have racial or cultural biases at its core. Such prejudice should not take place in a land proud of its cultural diversity and advocating civil liberties. Sport hunting, by its nature, exists just for fun and enjoyment. The pleasure of hunting comes from tracking and shooting animals, even from taking pictures next to dead animals. Traditional oriental medicine, however, saves people from disease and suffering. It is illogical to protect the right to hunt up to 40,000 bears annually and, at the same time, to prohibit the access to this natural resource which has precious medicinal value.

A Lose-Lose Approach

If the Proposed Act is passed, I would imagine the following might happen:

1. Legal trade will stop.
2. Illegal trade will increase.
3. Prices will go up severely.
4. Higher prices will stimulate more illegal trade.

The only winners will be poachers, middlemen and smugglers. Honest traders will lose. People in need of bear gall bladders for health care will lose. And, most importantly, bears will probably lose.

The Win-Win Approach

Since the real issue is habitat loss and poaching, trade of parts from bears that are *not* in danger of extinction should not be banned but rather better regulated.

If the existing trade is well controlled and it does not, in actual fact, jeopardize the survival of the American black bear, then there is no reason why the export or trade of that species should be banned. Controlled trade is, in fact, the heart of CITES, an international convention backed by 135 nations.

I therefore urge all the participants of the meeting, Senator McConnell, Representative Porter, and the 100+ NGOs who back the ban to reconsider. Please do not make an uninformed decision based on rhetoric and fear. We face an opportunity to keep the American black bear free and healthy in the wild, as well as to ensure a legal, stable supply of medicine to Asian people in need of health care.

Finally, I wish to close by encouraging more communication between the supporters to the *Bear Protection Act*, especially Senator McConnell and Representative Porter, and the medicinal communities involved.

Correspondence to the two traders associations could be mailed to:

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CHINESE BEAR FARMS AND THE USE OF BEAR BILE IN TRADITIONAL CHINESE MEDICINE – AN ANIMAL WELFARE PERSPECTIVE

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Abstract: This paper discusses the work of the International Fund for Animal Welfare (IFAW) in mainland China and focuses on current programmes aimed at closing bear farms and replacing the uses of bear bile with a safe, effective, non-endangered, plant-derived alternative. Whilst recognizing the long tradition and proved efficacy of many medicines containing animal derivatives, it is also beholden upon those in the animal welfare community to emphasize and discuss the degree of cruelty associated with this trade. IFAW's exposure of bear farms in China in 1993 led to worldwide concern of the practice of "milking" live Asiatic black bears (*Selenarctos thibetanus*) through surgically implanted catheters, whilst they were incarcerated in tiny wire cages for up to 13 years of their lives.

Through IFAW's subsequent negotiations and development of programmes of cooperation with the Chinese government and related authorities, China ceased issuing new bear farm licenses in 1994 and began closing the worst and unlicensed farms. IFAW was given custody of nine farmed bears in 1995 and went on to remove the gall bladder implants and release the bears later into a semi-natural purpose built sanctuary in southern China. Although the first steps have been encouraging, there is still a long way to go. Despite the fact that then numbers of bears on Chinese farms are reducing and new regulations continue to be drafted in an effort to improve current conditions, the status and future of bear farming is still largely undefined.

Additionally, there are undoubtedly ethical and humane considerations within the trade of animals used in traditional Chinese medicine (TCM) which need to be urgently considered. In an effort to address this problem, IFAW has joined with the TCM community in Hong Kong and China to stimulate the growth of Chinese medicine preparations which contain no animal derivatives, whilst, at the same time, helping to promote the efficacy and reputation of TCM worldwide. IFAW also continues to fund Beijing's State Administration for Traditional Chinese Medicine to source and promote a global alternative to bear bile.

IFAW would like to thank the Woodland park Zoological Gardens and the TRAFFIC Network for the invitation to present a paper on our current China Bear Farm campaign. This programme continues to encourage worldwide support and debate and we are grateful for this opportunity to discuss our progress – and our concerns – for the current and future status of bear farming.

Background:

At the last International Symposium on the Trade of Bear Parts in September 1994, IFAW's campaign was barely 18 months old. At that time, we had identified that 10,000 Asiatic black bears (*Ursus Selenarctos Thibetanus*) were caged, with surgical implants, on hundreds of farms throughout China; with the intention of the Chinese authorities that this number should increase to 40,000 bears by the year 2,000.

IFAW subsequently launched an international media and public education campaign, whilst developing contacts with Government and non-Government groups within China itself.

In November 1994, a meeting arranged with the help of China/Hong Kong Executive Council Member, David Chu Yu Lin, between Beijing's Ministry of Forestry Government Department, the China Wildlife Conservation Association, the Chinese Association of Medicine and Philosophy, local Hong Kong group EarthCare and IFAW, concluded that China would reduce the number of bears on farms by 1/3 by November 1997; would improve the conditions on the farms themselves and would work towards the future elimination of bear farming. Additionally, all the groups agreed that, for bear farming to end, a safe, effective, non-endangered herbal alternative would need to be sourced. Only when a substitute is found can the bear farms gradually phase out and wild populations begin to recover through a reduced consumer desire for bile.

Since that date, the authorities have stopped issuing new bear farm licenses, began closing the worst and unlicensed farms down, started drafting new bear farm regulations and, in 1995, gave IFAW custody of nine bears from the worst farm we exposed, in order that their care and recovery could begin. Today, the official number of bears on 481 farms across China has been reduced to 7,632; already 24 percent into the originally agreed target of a 33 percent reduction by this November.

Consequently, IFAW has several priorities this coming year (expanded below): to encourage the closure of more farms and obtain further data on existing farms; to influence the immediate cessation of breeding on farms; and to initiate and develop programmes which will improve the lives of farmed bears in the short term, whilst actively funding and promoting the development of a global herbal alternative to bear bile, in order that our long term aim for the closure of all farms can be reached.

Whilst we believe that the Chinese authorities have been sincere in following the spirit of our joint agreement and that our current programmes in China have established significant breakthroughs towards our target for the closure of all bear farms, we continually face barriers which expose the complexities we face and show intrinsic differences between local perspectives and animal welfare concerns.

Historic Usage of Bear Bile:

Bear gall bladder may have entered the Chinese pharmacopoeia as many as 3,000 years ago (Wu 1990). Bear gall is a “cold” medicine used to clear “heat” and detoxify various forms of “fire” (Reid 1987) including high fever, convulsions, chronic illnesses of the liver and heart disease (Beijing Medical College 1985).

Bears are the only animals to produce significant amounts of the bile acid *tauro ursodeoxycholic* or UDCA. The Giant Panda is the only exception to this rule in that it produces no UDCA, and anecdotal evidence suggests this is the only bear species not hunted specifically for its gall bladder. Today, UDCA made synthetically from cow bile is used in Western medicine to dissolve gallstones and has shown promise in treating a fatal form of cirrhosis. China, Japan and South Korea together consume nearly 100 tonnes of synthesized UDCA every year – well over half the world’s annual consumption. Chinese medical texts recommend the Asiatic Black Bear or the Brown Bear of Asia as sources of medicinal bile. Due to this preference and perhaps simple proximity, East Asia’s bears have been the hardest hit by the demand for gall bladder. The combined pressures of commercial demand, excessive hunting, habitat destruction and nuisance animal control have depleted most of Asia’s bear species. (Mills, Chan and Ishihara TRAFFIC Report 1995).

China Bear Farming History and Perspective:

Summaries from the “Third East Asiatic Bear Conference – August 1994 – Beijing, China:

Since 1985, development studies on bile drainage have subsequently encouraged the growth of hundreds of farms across China, housing a total of nearly 10,000 bears (Tao Jin, 1993). Bear farming has a comparatively short history of approximately 10 years and it appears that the drainage techniques have been perfected in the last five years, using healthy bears of at least three years of age and weighing over 100kgs. Heilongjiang first introduced the bile drainage techniques through surgical operations in 1984. This method was quickly explored and extended into neighbouring counties (Cheng Jizhen, Heilongjiang Institute of Natural Resources. The value to conservation of bear farms is that one bear farm is the equivalent of saving 300 bears during a production period of 3-5 years. China produces 10,000kgs of bile powder at a cost of US\$1,000 per kg. The intention is to satisfy the market demands and stop capture from the wild (Dr. Guo Yinfeng, CITES Scientific Authority, China).

Conservation Perspective:

“Since there is no way to identify bile from farmed versus bile from wild bears, some of the increased demand may be met by killing of wild bears. Thus, the farming of bears for bile could increase the pressures on wild populations by increasing the demand for bile which would still be available from wild bears. A further impact of farming is that it legitimises the use of this product that originates from wild animals. Farming will legitimise and foster the use of bile that cannot be identified as to its origin. In summary, bear farming will likely increase and legitimise the use of a product that will continue to come from wild bears and therefore negatively impact their populations” (Dr. Christopher Servheen – IUCN/SSC Bear Specialist Group).

“The Cost of captive breeding is prohibitive to many farmers who believe that it is far cheaper to take bears from the wild. Economics is the motivation and farms are definitely impacting wild populations” (Keith Highley, International Symposium on the Trade in Bear Parts for Medicinal Use, Seattle, 1994).

Physical and Mental Implications of Bear Farm Confinement:

IFAW’s introduction to the consequences of bear farm confinement and surgery and extraction techniques occurred when the Chinese authorities agreed to close the worst – government licensed – farm we exposed and approved our custody of the farm’s remaining nine bears.

Veterinary Surgeon, Dr. Gail Cochrane (upon seeing these bears for the first time):

“Initially, I was predominantly concerned with the effects of their long term incarceration from confinement in constrictive wire crates, rather than the effects of surgery and bile extraction. However, I was appalled to discover that the subsequent evidence of poor surgery and crude materials used to insert the implant into the bears gallbladders, had led to chronic infection and long term pain for these bears.”

Farmed bears are the only animals in the world to have their bodies surgically incised, with the placement of a foreign object penetrating deep into their abdomens, for the duration of their (reduced) lives.

The catheters subsequently removed (available for exhibit) included metal attachments which had rusted – leaving rust flakes within the gall bladders – and the colour of the bile in eight of the nine bears an unhealthy dark brown colour. Additionally, there were found: internal abscesses due to unsterile procedures; mid-line abdominal hernias caused by either improper suture techniques – or early suture breakdown before healing as a result of infection; numerous adhesions between the liver, gall-bladder, mesentery and old incision site – either due to unsterile surgery, irritation from the crude implant, failure to flush out the abdomen properly after surgery

– or a combination of all these problems. Additionally, the suture material was non absorbable, ordinary cotton.

Dr. Cochrane subsequently established through independent sources that a combination of the poor surgery techniques and confinement was responsible for shortening the life span of farmed bears by more than a third.

IFAW's next task, after performing the surgery to remove the catheters, was to begin gentle physiotherapy on the nine bears. By forcing them to stretch for treats we were encouraging them to exercise limbs that had virtually never moved before. All of their muscles were severely depleted and many had bone deformities on front and back legs and the ribcage due, amongst other reasons, to the cage restrictions.

One bear, "Yat Ho", was severely affected by this cage confinement. The ribcage and entrance to his chest had grown around and narrowed so much that he was unable to swallow food properly and would eventually have starved to death. We had little alternative but to euthanise him when it became clear that we could do nothing more to improve his life.

Similarly, "Boris", although making good progress, is permanently crippled – initially only able to walk on her forearms, but now, through a combination of drugs and physiotherapy, becoming stronger.

With regard to the mental effects of incarceration, Dr. Cochrane comments: *"In addition, the bears isolation, lack of space and lack of complexity in an artificial environment had caused an alarming stereotypic reaction in most of them. Their inability to exhibit normal behaviour had led to head bobbing, swaying, rocking and other bizarre sequences of repetitive, rhythmic movements."*

Eighteen months after they were confiscated and treated we are, at last, seeing remarkable improvements to their health and personality and all are now enjoying a new life, free from confinement and pain, in an IFAW constructed sanctuary in southern China.

Note: IFAW is concerned to hear that one farm we have visited has been "approved" by the CITES authorities, but sincerely hope that any country's formal application to farm bears and export bile will be rejected on the grounds of conservation and animal welfare concerns.

"Having seen bear farming at first hand and removed implants that had been causing extreme pain and inflammation from bears which had been kept in inhumane conditions for many years, it is my view that bile collection from live bears is not a viable long-term proposition due to the extreme and critical requirements that would be needed to ensure acceptable humane standards." Suzanne I. Boardman BVMS MRCVS. Senior Lecturer, the Royal Veterinary College, London. Chief Executive, Wildlife Information Network.

Herbal Alternatives to Bear Bile and Initiatives to Fund and Promote Them:

Together with other local and international animal welfare groups and conservationists, IFAW considers the promotion of current plant derived replacements and our research into a global herbal alternative to bear bile, to be fundamental in moving traditional Chinese medicine (TCM) Doctors and patients away from the prescription and consumption of preparations containing bear bile.

Many TCM practitioners also share the opinion that the growing reputation worldwide of traditional Chinese medicine continues to be damaged by the use of endangered, wild and even domesticated animal species.

Our research with Doctors in Hong Kong and China show that there are already many combinations of herbs available which can treat the ailments currently treated by bear bile. However it is also generally agreed that a global alternative to replace all the combinations of herbs currently used would be most readily accepted by the TCM community. Consequently, IFAW has extended initial funding of US\$75,000 to Beijing's State Administration of Traditional Chinese Medicine, to enable them to begin sourcing and promoting a global herbal alternative to bear bile, in a programme which is estimated to take four years and cost a total of US\$500,000.

Discussion group meetings with Chinese practitioners continue and IFAW is planning to host a TCM seminar in Beijing this Spring – with the intention of expanding this initiative to Chinese communities worldwide, in order that an international network of Doctors, sympathetic to animal welfare considerations, can influence their peers and patients away from bear bile consumption.

Additionally, we encourage Chinese Doctors and TCM distributors to rid their shelves of all non essential preparations containing bear bile – including shampoo, cough syrup, haemorrhoid cream, throat lozenges and tea.

A public education television advertisement, exclusively and sensitively aimed at Doctors and consumers of bear bile, with the agreed participation of “Beyond”, voted Hong Kong's most popular rock group 1996, is being devised for distribution in Hong Kong – and, subject to approval by the relevant authorities, in China.

Dr. Lo Yan Wo of the Chinese Association of Medicine and Philosophy, who works closely with IFAW towards replacing animals with herbs in TCM, was quoted during a TRAFFIC conference in S. Korea, March 1995:

One main reason why I have, all along, participated in the work of protecting endangered animals is to make the public understand that the majority of Chinese medicine made from endangered medicine is not indispensable. We can easily replace them with herbal medicines which are cheaper and easier to find. If the Chinese medicine community ceases to use endangered animals as medicine, it can not only join in helping to save endangered species from extinction but also raise the international reputation of Chinese medicine to that of a sophisticated branch of medicine."

Similarly, during a meeting with IFAW in February, Dr. Sun Ji Xian, representing the Chinese Association of Preventative Medicine in Beijing stated that: *"Bear bile should only be used to cure a few eye and skin complaints. However, we definitely do not have to use bear bile as it can be replaced by herbs, which are cheaper too. I choose not to use bear bile and go to the trouble of replacing it, because I believe that animals should not suffer."*

In a speech during the opening ceremony of IFAW's bear sanctuary in December 1996, the deputy Director, Department of Science, Technology and education, of Beijing's State Administration of Traditional Chinese Medicine, Mr. He Huiyu, stated: *"Once this project (IFAW funded the herbal research to replace bear bile) begins, it will blow the horn for the closure of all bear farms. I think this day will come and with our joint cooperation, it will come sooner."*

Finally, during the same ceremony, the Vice Secretary general of Beijing's China Wildlife Conservation Association (CWCA) – a department which reports directly to the Government's Ministry of Forestry Division, Mr. Li Yu Ming, stated: *"If the herbal substitute of bear bile can meet these conditions: lower cost, more effective and a readily available resource, the CWCA will push the administration for the elimination of bear farms."*

Additional IFAW Priorities and Activities to Achieve Them

Bear Farm Regulations: IFAW has agreed, with reservations, to make recommendations to Beijing's draft bear farm regulations and encourages the current intentions of: increasing the cage sizes, caging only during bear extraction and initiating recreation areas on all of the farms. However, there is concern that our suggestions for further improvements may not be fully accepted due to a combination of economic and enforcement limitations. Additionally, the time scale for deciding upon the new regulations and thereafter implementing them is prolonging the suffering of those bears currently confined. We sincerely hope that China will allow further suggestions of improvement and adopt a speedy implementation programme.

Emergency Relief: Recently, the Ministry of Forestry department advised that the displaced bears from farms which are closing are transported to zoos, safari parks, licensed farms – or are not replaced when they die. Sadly, Professor Ma Yi Qing (Chairman Bear Specialist

Group of Mammalogical Society in China, IUCN/SSC Bear Specialist group) added that many of the bears on farms were dying in significant numbers because of poor surgical techniques and post surgical infection. This latter statement is an area of great concern to IFAW and we have consequently implemented "Emergency Rescue Centres" in China, surgically equipped to operate on those bears needing urgent medical attention.

Bear Sanctuary: Phases I and II of IFAW's Bear Sanctuary in southern China, costing US\$250,000 and incorporating bear dens, catch-up area and a semi-natural enclosure were completed and opened with 8, previously farmed bears, in December 1996. Phase III, an interactive education centre, aimed at bear information and protection programmes from a local and international perspective, is currently being designed. Sponsorship and advertising cooperation is sought with the intention of making it self sustaining, in order that other Provincial authorities will be encouraged to replicate it as bear farms continue to close.

Breeding: The issue of continued breeding on farms is persistently debated with the authorities. IFAW has consistently stated that, after the worst and unlicensed farms close, we will reach the stage where the number of captive bears begins to rise again, due to the Government's current legislation actively promoting the promulgation of endangered species in captive bred facilities.

We recommend that the Government disallows the breeding of farmed bears forthwith. The time scale for the ultimate closure of all farms would then be from 10 years (when those bears whose life span have been shortened by surgery will die prematurely), up to 30 years (their natural life-span in the wild). This would appear to be a generous time scale given our intensive investigations and financing of herbal alternative research, which would safely, effectively and cheaply replace bear bile. Additionally IFAW is offering to microchip each farmed, tapped bear in order that a documented and computerised system can be implemented.

Joint Initiatives: From our new office in Beijing, discussions with the Ministry of Forestry and the China Wildlife Conservation Association (CWCA) continue to identify programmes of cooperation. To date, these have included IFAW funding of US\$50,000 to aid the CWCA's current investigation into the country's bear farms and additional funding of US\$9,000 for the publication of a joint wildlife protection calendar. New proposals include a meeting between IFAW and the authorities of 18 Provinces across China, focusing on bear farms and recommendations to improve them, which is expected to take place towards the end of the year.

IFAW believes that our programmes of cooperation with the Chinese authorities are gradually progressing or goal "for future elimination of bear farms". Although recognising the inevitable areas of disagreement, we continue to source the compromises which can be reached for improvement and replacement, whilst ensuring that they will never jeopardise the bears' welfare or the urgent progression towards the continued closure of the farms.

**V. STOPPING THE ILLEGAL TRADE:
A VIEW FROM THE FIELD AND COURTROOM**

BEAR HARVEST IN CANADA - LEGAL AND ILLEGAL

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Ministry of Natural Resources
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Abstract: The Canadian Natural Resources Law Enforcement Chief's Association has taken an active role in assessing the efforts of illegal harvest of black bears in Canada. As well, they have taken the initiative in improving knowledge, both internally and externally, of the facts about the trade of bear parts, and are working towards improved cooperation in enforcement actions dealing with illegal trade.

Ontario Ministry of Natural Resources and Canadian Wildlife Service cooperatively funded a nation wide assessment of the status of bears (primarily black bears) in Canada, and the relative proportions of legal and illegal harvest and trade in parts. This was followed by a National Bear Workshop for Natural Resources Law Enforcement Groups hosted by Ontario in February 1996. The information presented was used as a base for three initiatives - a review of legislation across the country to develop a position to assist enforcement; a communications strategy to be used by member agencies; and a cooperative action plan to address illegal activity.

Black bear populations in Canada are estimated at 402,000 bears and are considered stable to increasing. Black bears are not endangered in Canada, and all provincial and territorial jurisdictions have management strategies to conserve bears. There is no evidence of wholesale slaughter of bears and the illegal taking of bears for their parts is minimal. There is both a legal and illegal trade in bear parts in Canada, with most of the parts coming from the legal harvest of bears, through hunting or other sources. However, the monetary value of galls and other parts is generally exaggerated, and there are many myths extant about illegal harvest of bears.

Enforcement agencies are focusing increased intelligence and communications effort on understanding the facts about illegal harvest and its relative effect on our capability to manage the black bear resource. This assists in prioritizing our enforcement capability, and using enforcement resources effectively.

Introduction

This paper will be mostly a descriptive summary of the actions being taken by Natural Resource law enforcement agencies in Canada to effectively enforce the laws in a cooperative manner relative to trade in bear parts, particularly black bear. It is more of a "public issue and strategy" paper, than a "science" paper. It will briefly describe some key points resulting from a Canada wide survey jointly supported by the Ontario Ministry of Natural Resources, and the Canadian Wildlife Service, but focus more on the actions resulting from a National Bear Workshop, where the information from the survey was used to formulate a position and action plans for Canadian Natural Resource Law Enforcement Agencies. These are expressed in three components - Intelligence Networking, Legislative Review and Assessment, and Communications Strategy. Each will also be discussed in broad terms.

Canadian Natural Resource Law Enforcement Chiefs Association (C.N.R.L.E.C. Assoc.)

This Association has existed in various forms for about 12 years, starting with the Eastern Chief's group, followed by gatherings of the Western Chief's, with subsequent joining into the Canadian Natural Resource Law Enforcement Chief's Association which met once per year in recent years as a loose collective, but "formalized" their Association in 1996, with the election of an executive.

The Association is small, represented by the Law Enforcement Chief (regardless of official title) of each Natural Resource management agency primarily responsible for land and water based natural resources, at the Provincial, Territorial and Federal level. Each jurisdiction has differing structural organizations, and often differing ranges of resources responsibility, but the primary focus of all are fisheries and wildlife resources. Associate members are those agencies who have some law enforcement responsibility for natural resource legislation, but are not the management agency responsible for the resource - for example, the Royal Canadian Mounted Police.

In the last two years, the Chief's Association has focused their limited meeting opportunities and time on more actively working together to create products that are of value to the law enforcement program in each agency. This initiative relative to bears is one such effort.

Process and Action

In May, 1995, at Charlottetown, P.E.I., Yvan Lafleur, Canadian Wildlife Service (C.W.S.) Chief of Enforcement, presented information on the known legal traffic of black bear parts (mostly galls) within Canada. Clearly most of that traffic from provinces such as Saskatchewan and Quebec, where sale of galls is/was legal, was to Ontario, a province with a wide cultural diversity, especially the City of Toronto. At that time, Ontario prohibited the sale of bear galls and most other parts from Ontario bears, but proof of origin was incumbent on the Crown. It also appeared that most of these galls were remaining in Canada, and not being exported, though legal means were available to do so. Subsequent discussions revealed a lack of coordinated assessment of knowledge held by individual Association members and a growing public interest in bears generally, with a great deal of misinformation being used to form the basis of positions either for or against bear management strategies of the natural resource agencies. Ontario subsequently offered to host a National Bear Workshop in February 1996. This was part of Ontario's intelligence collection plan for the sale of wildlife parts.

Prior to the Workshop, C.W.S. and the Ontario Ministry of Natural Resources joined forces to personally visit and survey each member jurisdiction. The survey and subsequent internal report was prepared to address the status, use, values and enforcement concerns facing Canada's bear population, with a special focus on the parts trade.

The National Bear Workshop - February 1996 - Kenora, Ontario

Thirty (30) biologists, intelligence officers/analysts, communication planners and enforcement chiefs from 10 Canadian natural resource agencies came together for two working days. They reviewed the results of the National Bear Questionnaire, talked about the myths about bears, then were divided into three working groups to 1) Develop an action plan to cooperatively deal with illegal activity in Canada, 2) Review a cooperative approach to legislative needs, and 3) Develop communications messages and a strategy to be used by Canadian agencies. An interim plenary session was held, the working groups refined the product, then a final plenary confirmed the working groups' efforts.

The Questionnaire

The management section consisted of sixteen questions and was required to establish the status of black bear populations, harvest statistics, hunting seasons, revenue generated and methods of handling nuisance bears across Canada.

The 1995 black bear population in Canada had an estimated 402,000 animals. The total number of bears harvested yearly was estimated to be 24,487 on average or approximately 6.1 percent of the population. Nowhere in Canada are black bears considered to be endangered, threatened or harvested at or near maximum sustainable levels.

All provinces, with the exception of Nova Scotia, have both spring and fall black bear hunts (Nova Scotia has a fall hunt only). Black bears have big game status in all jurisdictions across Canada with mandatory reporting by all black bear hunters in Yukon, Quebec, New Brunswick and Nova Scotia. Only non-resident black bear hunters are required to report on their hunting activities in Ontario, British Columbia and Manitoba. No reports are required in Northwest Territories, Alberta, Saskatchewan and Newfoundland. The black bear hunt in Canada is valued at \$53 million; this includes revenue from license sales and economic impact estimates.

The sale of bear parts has been an accepted practice in Canada with most provinces allowing the sale of parts normally associated with the fur and taxidermy trades (i.e. hide, head, claws and teeth) and banning the sale of black bear gall bladders. Only Quebec, Nova Scotia and Northwest Territories allow for the sale of gall bladders. Black bears are also classed as fur bearing animals and may be harvested by trappers in British Columbia, Saskatchewan, and Quebec. Trappers may harvest black bears in Ontario even though they are not classed as fur bearers in Ontario.

The Communications Strategy

The communications group were lead by an experienced communications specialist, and drew on the results of the questionnaire and the discussion about myths to formulate their messages.

The proposed plan followed standard communications planning procedures such as setting objectives, assessing the public environment, determining audiences, developing the messages, anticipating reactions, and development of the strategy and tactics.

Key recommendations of this group included ensuring that the communication plan encompassed other bear management issues and messages besides enforcement, establishing a national information base from which communications products can be derived, and sharing and coordinating information. Clearly we wanted factual messages that each jurisdiction could use, that were consistent with a national message. These messages would be used by all members of the agency, whether enforcement staff or wildlife managers, in communicating internally or externally about bears.

As the workshop drew to a close, it was agreed that there would be one spokesperson, myself as Chief for Ontario, and that little would be said about the products until ratified at the C.N.R.L.E.C. Workshop in British Columbia in April 1996.

The C.N.R.L.E.C. Workshop - Victoria, British Columbia - April 1996

The Chief's workshop again addressed the workshop results by breaking into three groups and examining the work of their co-workers. With minor revisions the work was accepted.

The Chief's readily recognized that "ownership" of the legislative process and the deployment of the communication strategy was not solely in their purview. Each agency collectively needs to assess their situation and use the information and products accordingly. The Wildlife Directors of each agency generally have the responsibility for wildlife resource management, and management of public issues about those resource management strategies reach up through an agency to the policies of the government.

Each Enforcement Chief agreed to take the products of our work and discuss it with the Wildlife Director in their agency and foster a closer working relationship. It was also agreed to present our work to the Canadian Wildlife Director's meeting hosted by Ontario in June, 1996.

The Wildlife Director's Meeting - Toronto, Ontario - June 1996

The work of the Enforcement Chief's was presented to the Wildlife Director's for information and discussion with subsequent concurrence with the direction taken by the Chief's Association regarding sale of bear parts.

Summary and Conclusion

Bears in Canada are managed by Federal, Provincial and Territorial jurisdiction under resource management strategies that provide for sustainability of bear populations. In spite of this there is a great deal of misinformation about the harvest of bears, particularly the extent of illegal harvest, with implications that bears in Canada are endangered and that illegal harvest is substantial compared to legal harvest. There is both a legal and illegal trade in bear parts, but bears are not being "slaughtered" for their parts in numbers that affect sustainability of bears. Most parts in the trade come from legally taken bears, but a more concerted effort is still being taken by Canadian Law Enforcement agencies to curtail that illegal trade in a cost effective cooperative manner. Several trends in legislation are to increase prohibitions against sale and possession of most bear parts such as galls, or improve the tracking of movements of bear parts. These actions will assist law enforcement personnel in minimizing illegal activity.

The activities described in this paper clearly show a greater effort by Canadian Resource Agencies, particularly law enforcement components of these agencies, to work together to achieve maximum enforcement effect on illegal activities that are national and international in scope.

[Editor's Note: The following several pages present reproductions of slides shown by Mr. Winterton at the Symposium].



History of Workshop

- *C.W.S. Presentation at Chief's Conference, PEI*
- *Concurrent issues in Ontario - Bear Alliance*
- *Increasing public interest across the country in bear management issues - particularly illegal activity*
- *Increasing concern about the "hype" and misinformation around the role of illegal activity in bear management*
- *Ontario hosts Bear Workshop - February 1996 - part of an intelligence collection plan*

OBJECTIVES OF WORKSHOP



- *Factual Information Base*
 - *scope of illegal activity*
 - *relationship to legal harvest*
 - *relationship to and status of bears in jurisdictions*
- *Action Plan to cooperatively deal with illegal activity in Canada*
- *Review and cooperative approach to legislative needs - minimal impingement on neighbours*
- *Agreed communications messages and strategies to be used by Canadian agencies*



WORKSHOP PROCESS

- *Standardized information base - Ontario and C.W.S. - report prepared*
- *Agency representatives met in Kenora in February - next slide - representatives - 3 days*
- *Day 1*
 - *Review of information base*
 - *Review of myths"*
- *Day 2*
 - *Working groups*
 - *Action Plan*
 - *Legislative Review*
 - *Communication Strategy*
- *Day 3*
 - *Plenary sessions - review*
 - *Working groups refined*
 - *Final Plenary*
- *Summary of Workshop results*

BEAR WORKSHOP

(FEBRUARY 6-8/96)



<i>PROVINCE/TERRITORY</i>	<i>NAME</i>
<i>Alberta</i>	<i>Jim Struthers</i>
<i>Saskatchewan</i>	<i>Lauri Rohs</i>
<i>Manitoba</i>	<i>Dave Ward</i> <i>Bob Schmallerberg</i>
<i>Quebec</i>	<i>Gilles Lamontagne</i> <i>James Keating</i>
<i>New Brunswick</i>	<i>Kevin Craig</i>
<i>Nova Scotia</i>	<i>Chuck Moore</i> <i>Tony Nette</i>
<i>Newfoundland</i>	<i>Marilyn Squires</i>
<i>Northwest Territories</i>	<i>Ed Bowden</i>
<i>Environment Canada (Ontario)</i>	<i>Yvan Lafleur</i> <i>Chuck Dauphine</i>
<i>Environment Canada (Guelph)</i>	<i>Robert Wenting</i>
<i>Environment Canada (Winnipeg)</i>	<i>Gene Whitney</i>
<i>Environment Canada (Vancouver)</i>	<i>Gary Grigg</i>
<i>MNR - Ontario</i>	<i>Guy Winterton</i> <i>Mike Morencie</i> <i>Nancy Shaw</i> <i>Joy Peterson</i> <i>Dennis Beukelman</i> <i>Darlene Hunter</i> <i>Al Sullivan</i> <i>Marianne Hong</i> <i>Ruth Taylor-Williams</i> <i>John Brisbane</i> <i>Maria DeAlmeida</i> <i>Merilyn Twiss</i> <i>Gerry Couillard</i> <i>Al Farrer</i>



WORKSHOP RESULTS

OBJECTIVES ACHIEVED - *results reported*

INFORMATION BASE

- *Bears abundant and stable in Canada*
- *each agency has management programmes ensuring population stability - legal harvest*
- *illegal harvest for parts is minimal and of negligible effect generally*
- *trade in parts*
- *is mostly from legally taken bears*

ACTION PLAN

- *primarily focused on intelligence*
- *increased contact among agencies*
- *JFO's - support each other*

LEGISLATIVE REVIEW

- *recognition of trade - legal and illegal*
- *jurisdictional sovereignty*
- *legislate trade to allow individual choices but support neighbours - tracking process*

COMMUNICATION STRATEGY

- *proposed strategy for use by agencies*
- *messages established based on information base and myths*
- *audiences and processes identified*



RESULTS OF CHIEF'S WORKSHOP

- *Review and approval of Bear Workshop objectives that we all support*
- *Recognition that implementation of components will be variable depending on jurisdictions position*
 - *General support for information base - negate the hype and the myths*
 - *Agreement by Chiefs to deliver Action Plan*
 - *Agreement to pursue legislative need for tracking - collectively and individually*
 - *Support for Communications Strategy - use proactively or reactively as needed by each agency*
- *Collective representation of the issue as the Canadian Natural Resource Law Enforcement Chiefs*
- *Review with Wildlife Directors*

SUMMARY



- *Bears are abundant and managed for sustainability in each Canadian jurisdiction*
- *Legal and illegal sale of parts occurs in Canada*
- *Illegal harvest of bears for their parts has negligible effects on bear populations*
- *Canadian Law Enforcement agencies will work cooperatively to minimize illegal activity in the trade in bear parts*

KOREAN CUSTOM'S EFFORTS TO STOP ILLEGAL BEAR TRADING

Mr. Heon YOON, Korean Customs Service
Deputy Director
Trade Cooperation Division
Korea Customs Service
71 Nonhyondong, Kangnamku
Seoul, Korea 135-702
Tel: (822) 512 2317
Fax: (822) 512 2209

1. Legislation

Korea has long recognized the need to address the precipitating extinction of species due to indiscriminate human activities and acceded to CITES in July 1993. The Convention has been in effect since October 1993 and Korea actively participates in international efforts to protect endangered species of wild fauna and flora.

For more effective implementation of CITES, Korea has adapted its legislation to comply with the obligations of the Convention and has intensified its enforcement activities.

Various laws regulate the trading of bear or bear parts:

- Bear parts for medical purposes, such as gall bladders and bile, are regulated by the Pharmaceutical Affairs Law. This Law, administered by the Ministry of Health and Welfare, was enacted in 1963 and was amended in 1993 in order to implement CITES. Maximum penalty for violation of the CITES-related provisions of the Pharmaceutical Affairs Law is five-year imprisonment or 20 million Korean Won (US\$25,000) fine.
- Bear parts other than those for medical purposes is covered by the Law Concerning the protection of Wildlife and Game. Carried out by the Forestry Administration, this law was amended in 1994 to facilitate CITES implementation. This law requires any persons intending to import/export bear or bear parts to obtain a permit from the Forestry Administration. Maximum penalty for violation of this law is one-year imprisonment or three million Korean Won fine. In addition, any person who possesses, concedes to, transports and deposits, or makes arrangements for illegally captured, collected, or imported wildlife species will be punished by maximum penalty of six-month imprisonment or 1 million Korean Won fine.

- Korea Customs Service administers the Customs Act which deals with all import/export matters of bear or bear parts and is the strongest of the existing CITES-related legislation. This Act requires all importers/exporters to provide permits or approvals from the appropriate ministries in order to import/export bear, bear parts, or derivatives thereof.

1) **Penalty for Import/Export without declaration.**

Any person who smuggles CITES-listed goods into Korea shall be punished by maximum five-year imprisonment or fine not exceeding the higher of either the cost of the goods or 10 times the customs duty. Any person who smuggles CITES-listed goods out of Korea shall face maximum three-year imprisonment or fine not exceeding the cost of the goods.

2) **Penalty for Unlawful Import/Export**

The Customs Act punishes not only smugglers but also illegal traders who use false documents to clear CITES-listed goods. Any person who makes an import declaration without a proper permission, approval, recommendation or certification of origins, or any other required documents shall be punished by maximum three-year imprisonment or fine not exceeding the higher value of either the cost of the goods or five times the customs duty. Any person found to have obtained the aforementioned documents in a deceitful or other unlawful manner shall face the same punishment. Any person who makes an export declaration in this way shall be punished by maximum one-year imprisonment or fine not exceeding the cost of the goods.

3) **Penalty for Acquisition of Smuggled Goods**

Dealers of illegally imported goods are also punished by the Customs Act. Any person who acquires, transfers, transports, holds in custody, or mediates in dealing with goods smuggled or unlawfully imported shall be punished by maximum three-year imprisonment or fine not exceeding the cost of the goods.

4) **Forfeiture and Additional Collection**

All smuggled or unlawfully imported goods possessed or held by offenders shall be confiscated by the Korea Customs Service. When the whole or part of goods subject to forfeiture cannot be confiscated, an amount equal to the current domestic wholesale value of the goods subject to forfeiture shall be collected additionally from the offender.

5) **Forfeiture of Transportation Carriers or Other Goods Used Exclusively for Smuggling**

Any vessel, automobile, or transportation carriers which have been used exclusively for committing any of the above-mentioned offenses shall be forfeited when the owner had knowledge that the vehicle in question had been used in committing such offenses. Goods which were specially processed for committing of offenses shall also be confiscated or destroyed to render them useless regardless of the owner.

6) Punishment of Company and Attempted Crime

- a. Two features set the Customs Act apart from other criminal laws.
- b. It punishes, in conformity with the principal offenses, the person who prepared or attempted to commit offenses.
- c. The Act also punishes companies along with the actual offender. It prescribes that the company concerned in committing the offense shall be punished as well as the actual offender, if any executive officer, staff, or employee of the company is involved in the offense.

2. Enforcement Activities

With the growing trade volume and demand for facilitation in customs clearance, customs worldwide has to strike a balance between two of its main functions: preventing illegal trade and speedy clearance.

1) Cargo Selectivity System

For effective surveillance, KCS has adopted the Cargo Selectivity System, which registers goods in 92 HS codes as high risk CITES violating goods, including bear and gall bladders. KCS has also compiled a list of companies and private individuals with a record of CITES-related crimes.

2) Training and Publicity

- To enhance the ability of customs officers to identify CITES-listed goods and to investigate related cases, Korea Customs circulated *Guidelines in Clearance of CITES-listed Goods* to all customs houses.
- We created CITES classes at our Training Institute to familiarize customs inspectors and investigators with CITES matters.
- We have written to the 50 major business groups and 100 travel agencies to make them more aware of CITES violations and to advise them on how to enter CITES-listed goods legally, as the customs seizure records of bear gall bladders rose.

3) International Cooperation

Cites frauds and smuggling are taking place internationally regardless of borders owing to development of telecommunications and transportation methods. At such times, international cooperation including sharing of information, has become the most valuable tool in combating such crimes. With this in mind, KCS maintains close relationships with the CITES Secretariat and the World Customs Organization. KCS was successful in cracking one of the largest CITES frauds in history – a 662kg musk case – in cooperation with the CITES Secretariat and other concerned authorities.

3. Trends in CITES Frauds, Including Bear Parts

Major CITES fraud items intercepted by KCS are musk and bear gall bladders. 892kg of musk and 181kg of bear gall bladder were seized last year.

CITES fraud goods are usually concealed among other goods or declared with a falsified permit. But in the case of bear gall bladders, the goods are mostly carried in small amounts by individual travelers. KCS was able to seize large amounts of bear gall bladders through intensified inspection of travelers coming from areas susceptible to bear product sales. Another reason is that we changed the *Traveler's Customs Declaration Form* to include any CITES-listed items as goods that need to be declared. Therefore, all travelers carrying any CITES-listed items must properly complete the customs declaration form and submit it to a customs officer at the "Goods to Declare" channel.

◆ CITES Items Seized

Year	1995	1996	1997 (Jan. - Feb.)
Item			
Ivory (pcs)	7,421		?
Bear gall bladders (kg)	67.8*	180.6	26.85
Musk (kg)		892	
Rhinoceros horns (kg)	15.4		
Animal skin (pcs)	1 (tiger)	2 (leopard, boa)	8 (tiger, crocodile)
Stuffed animals (pcs)	64	16	13

* This is the final figure and it differs from the 55kg reported to the CITES Secretariat.

◆ Bear Gall Bladders Seized

Unit: kg			
Year	1995	1996	1997 (Jan. -Feb.)
Port			
Kimpo	37.07	75.12	22.51
Incheon	25.2	100.6	3.7
Kimhae	5	4	0.19
Pusan	0.5	0.08	
Kunsen		0.8	0.45
Total	67.77	180.6	26.85

This confiscated contraband is destroyed in order to avoid laundering.

Major ports where most gall bladders are seized are Kimpo and Incheon. Kimpo is Korea's main airport where hundreds of planes come from all over the world. Incheon is the largest seaport trading with China and has an average of 1.2 vessels and 319 passengers arriving every day from four Chinese cities.

4. Additional Efforts

In April 1996, upon receiving information from TRAFFIC East Asia on illegal activities committed by Koreans overseas, 10 different government agencies and seven relevant organizations had a meeting and came to an agreement to strengthen the enforcement on smuggling and concentrate on public awareness. On October 6 South Korea's three-year reservation on bear and musk deer species on CITES Appendix II expired, which was officially notified to the CITES Secretariat. To be prepared for the expiration of the reservation, in September 1996 staff from Korean Customs Service together with CITES Management and Scientific Authorities and from the Association of Korea Oriental Medicine visited the Agriculture and Fishery Department (CITES Management Authority) to learn more about the bear gall bladder registration system and to visit the forensic laboratory, and also met one of the traders who actually is practicing this system.

In early 1997, bear stickers were prepared and distributed among TCM shops and to the general public to increase public awareness. In addition the Ministry of Environment, the Ministry of Health and Welfare, the Forestry Administration, and the Korean Customs Service are currently in the process of producing CITES awareness pamphlets in Chinese, English, and in Korean. Once ready, they will be distributed at major air/sea ports in South Korea.

At present, the Korean government is in the middle of amending the Natural Environment Preservation Law by incorporating more detailed articles related to CITES, such as articles prohibiting the advertisement of CITES products or species on Appendix I or II and articles allowing the Minister of Environment to recommend that international airlines and ferry companies broadcast public awareness announcements to passengers with regard to CITES regulations.

There is one more thing that I have to add, which I believe is important. Recently, the issue of bear protection has not only been a CITES matter, but also a matter of domestic concern. Some wild bears were reported to be spotted in Chirisan National Park and efforts were made to protect this endangered species at the national and inter-ministerial level. There has been an overwhelming interest in local governments, general public, media, environmental NGOs, etc. Even the President of Korea gave a special instruction to protect this precious species and stiff warning has been given to possible poachers.

As for the TCM community, in December 1996 the Association of Korea Oriental Medicine voluntarily cooperated with TRAFFIC East Asia to publish 4,000 copies of a newsletter in native language in order to get more information on the wildlife trade situation and to take an active part in global conservation. AKOM represents 7,000 registered TCM doctors in South Korea and the next issues are to be published sometime in May of June of this year and will be distributed to all TCM doctors in South Korea.

5. Conclusion

In conclusion, Korean Customs Service will continue to reinforce our enforcement efforts in preventing illegal bear parts trade. National Forestry will continue to monitor domestic bear poaching, the Ministry of Environment will continue to increase public awareness, and TCM doctors will also take active part in conservation voluntarily.

AN OVERVIEW OF U.S. FEDERAL CHARGING AND SENTENCING ISSUES IN BEAR PARTS TRAFFICKING CASES

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Abstract: Several federal U.S. wildlife laws, including the Endangered Species Act, the Lacey Act, and the Marine Mammal Protection Act, prescribe misdemeanor and felony criminal penalties for those who traffic illegally in specimens or parts of bears. Other non-wildlife criminal laws, such as those prohibiting conspiracy, smuggling and money laundering, are also often used in these cases. A special team of federal prosecutors has been created within the Department of Justice for the purpose of litigating these cases and providing support to other federal prosecutors engaged in wildlife cases. Sentencing of persons convicted federally of bear trafficking offenses is controlled by the Federal Sentencing Guidelines, which sets out a very predictable structure in which the market value of the bear parts at issue is very important to determining the sentence received. Providing a clear and provable evaluation of market value can be challenging in these cases, due to poor and inconsistent information regarding value in the United States and the wide range of prices paid for different types of bear parts by consumers in other countries. Recently, the sentencing guidelines have been applied in a way which has resulted in stiff sentences for international traffickers in bear parts and derivatives.

I. INTRODUCTION

- Illegal trafficking in bears and their parts in the United States usually occurs in one of five ways:
 - Illegal take (killing) during the course of commercial, guided hunt
 - Illegal intrastate sale after lawful or unlawful take
 - Illegal interstate sale or transport
 - Illegal export by concealment or false documentation
 - Illegal import by concealment or false documentation
- Such activity may be investigated by state or federal wildlife agents and prosecuted at the state or federal level, depending on whether state or federal laws have been violated.
 - State laws pertaining to illegal take or sale of bears or their parts vary widely. Some states provide misdemeanor criminal penalties for the sale of bear parts, some do not prohibit this activity at all. This presentation will be restricted to the federal laws applicable in bear trafficking cases.
- Federal prosecutors in U.S. Attorneys Offices in every state and territory, who prosecute all types of federal violations, are also authorized to prosecute violations of federal wildlife law, including cases involving bear trafficking.

- At the Wildlife and Marine Resources Section of the Department of Justice's Environment and Natural Resources Division a special team of federal wildlife prosecutors exists to provide information and support to local federal prosecutors who are litigating federal wildlife cases, and to take the lead in cases which are complex or otherwise need our direct involvement. The WMRS prosecutors are authorized to act as special prosecutors anywhere in the U.S. to litigate federal wildlife violations and any other criminal violations arising as part of the wildlife case. The presenter of this paper is a member of that team.^{1/}
- During the past few years, an increasing number of cases have been charged in U.S. federal courts involving illegal trafficking in bears and their parts. This paper will provide an overview on the types of charges available in such cases, and the system used in their sentencing, noting trends, problem areas which have recently become apparent and outlining how NGOs, the public and press can play a constructive role in the cases.

II. BEARS RECEIVE DIRECT AND INDIRECT PROTECTION UNDER U.S. FEDERAL CRIMINAL LAW

A. Direct Protection Under Federal Wildlife Laws

- Marine Mammal Protection Act (MMPA), 16 U.S.C. § 1372, et seq. (Polar bears)
 - The polar bear is classified as a marine mammal under this law, along with the sea otter, walrus, pinnipeds, cetaceans, etc.
 - The MMPA generally prohibits the illegal killing or sale of marine mammals, though exceptions exist for Alaskan native subsistence uses.
 - Violators face civil fine, forfeiture of wildlife and cargo and Class A misdemeanor criminal penalties (max: one year, \$100,000 fine)

^{1/} Any opinion expressed during this presentation is that of the presenter alone and does not necessarily reflect the position of the U.S. Department of Justice, nor does it afford any right or benefit to any witness, subject, target or defendant.

- Endangered Species Act (ESA), 16 U.S.C. § 1531 et seq.
 - The ESA prohibits killing and interstate/foreign commerce in species listed as threatened or endangered, and implements CITES in the U.S., prohibiting trade contrary to CITES and possession of specimens traded contrary to CITES.
 - Grizzly bears in lower 48 states are listed as threatened. 50 C.F.R. § 17.11(h)
 - Most bear species and populations are listed in CITES Appendix II; some are Appendix I
 - Violators face civil fine, forfeiture of wildlife, vehicles and equipment and misdemeanor penalties.
 - Note: there is no felony criminal sanction provided for any violation of the ESA.

B. Indirect Protection Under Federal Wildlife Laws

- Lacey Act Amendments of 1981 (Lacey Act), 16 U.S.C. § 3372 et seq.
 - In general, the Lacey Act prohibits the import, export, transport, sale, purchase, receipt or acquisition of wildlife which has been taken, possessed, transported or sold in violation of a state, federal, foreign or tribal law or regulation (the “triggering violations”) It also prohibits mismarking of wildlife shipments.
 - Violators face civil fine, forfeiture of wildlife, vehicles and equipment, Class A misdemeanor penalty (max: one year, \$100,000) and Class D felony penalty, (max: five years, \$200,000), depending on the existence of certain proof elements such as defendant's knowledge of illegality and market value of wildlife.
- Introduction of Merchandise Contrary to Law (Smuggling), 18 U.S.C. § 545
 - Prohibits import of "merchandise" (which includes wildlife) contrary to any federal law (including ESA, Lacey Act, wildlife declaration requirements, etc.)
 - Provides a felony penalty (max: five years, \$200,000 fine).
- Wildlife declaration requirements, 50 C.F.R. § 14.61
 - All wildlife or wildlife products entering the U.S. must be presented for clearance to the U.S. Fish and Wildlife Service.

C. Indirect Protection Under General Criminal Statutes

- Conspiracy, 18 U.S.C. § 371
 - Occurs when two or more people agree to commit a federal crime and one of them takes any action (even a legal action) to further that agreement.
 - Conspirators face misdemeanor or felony criminal sanctions, usually depending on whether the agreed-upon crime is a misdemeanor or felony.
- Laundering of Monetary Instruments (Money Laundering), 18 U.S.C. § 1956
 - This crime has many forms and is most often charged in drug-money cases. However, there is one type of money laundering violation that is applicable to wildlife cases and that occurs when a person transports, transfers or transmits money from the U.S. to a foreign country (or vice versa) with the intent to promote the carrying on of smuggling activity.
 - Provides a felony penalty (max: 10 years, \$500,000).
- False Statement, 18 U.S.C. § 1001
 - This crime, which carries a felony penalty, occurs when a person makes a materially false statement to a government agency on a matter within that agency's jurisdiction, such as lying on a customs or wildlife declaration form.

D. Pending Legislation

- Bear Protection Act, 105th Congress, HR 619, S263
 - This legislation, currently making its way through the 105th Congress, would prohibit import, export and interstate commerce in bear viscera or products labelled as containing bear viscera, invoking the penalties and certain other provisions of the Lacey Act.

III. APPLICATION OF FEDERAL CRIMINAL LAWS TO TYPICAL TRAFFICKING SCENARIOS

- **Interstate Sale/Transport Of Grizzly, Black Or Polar Bears**
 - Very common, often involving illegal trophy hunts as well as sale of parts for Traditional Medicine (TM) use; can trigger ESA, MMPA, Lacey Act.

- **Illegal Export Of Bear Parts And Derivatives**
 - Less common, usually involving black bear parts for the foreign TM market.
 - Can trigger ESA and Lacey Act sanctions.
 - Does not trigger smuggling or money laundering statutes due to the direction of the trafficking (outbound from U.S.).
- **Illegal Import (Smuggling) Of Bear Parts And Derivatives**
 - Very common, usually involving gall products for TM use.
 - Can trigger ESA, Lacey Act, conspiracy, smuggling, false statement and money laundering statutes.
 - Frequently results in stiff sentences, as explained below.

IV. SENTENCING OF BEAR PARTS TRAFFICKERS

A. Introduction

- Sentencing of all federal criminal violations described above is controlled by the Federal Sentencing Guidelines which impose a fairly rigid scheme for determining the type and duration of sentence to be imposed on a convicted trafficker.
- The Sentencing Guidelines were developed several years ago in order to ensure that similar criminal conduct is treated similarly in courtrooms across the country.
- The Guidelines are reviewed and amended periodically by the Federal Sentencing Commission.

B. Significant Features Of Guidelines Sentencing

- All similar counts are grouped together and sentenced as if they were a single count.
- One overall sentence is fashioned which takes into account all counts of conviction, rather than imposing “consecutive” or “concurrent” sentences for each violation.
- There is no differentiation in the sentencing of felonies and misdemeanors: the guidelines sentence is computed and imposed without regard to the status of the offense. However, since the maximum incarceration provided for a Class A misdemeanor (such as the ESA) is only one year, in cases where only one misdemeanor count is charged the defendant can't receive a sentence exceeding one year, no matter where s/he falls within the guidelines.

- This does not mean that conviction for a felony is no different than conviction for a misdemeanor. Felony convictions still carry collateral penalties, such as loss of certain civil rights (such as voting) and a permanent prohibition on possessing firearms
- A guidelines sentence is computed based on all acts and omissions committed, aided, abetted, counseled, commanded, induced, procured or willfully caused by the defendant during the criminal scheme at issue, including all reasonably foreseeable acts of others in furtherance of a jointly undertaken criminal activity. This is the concept of "relevant conduct" and it means that a defendant's guidelines offense level, and resulting sentence, is computed based on crimes for which s/he may not have been charged or convicted.
- The federal system employs the concept of "real time" sentencing. This means that there is no parole available to a defendant sentenced to federal incarceration. The only reduction in the term of incarceration is a "good behavior" reduction of 54 days per year for inmates who comply with institutional disciplinary rules. This reduction is only available if imprisonment is for a period longer than 12 months.

C. The Sentencing Table

- Ultimately, the type and duration of the sentence imposed is determined by where on the Sentencing Table a defendant is placed after the Guidelines computation.
- Placement on the Sentencing Table is a function of two things; offense level and criminal history category. Once placed within the table, the defendant may be sentenced within the range of months listed at that site. The actual length of sentence within that range of months is decided by the court. The Zone in which the placement is located determines what type of sentence (imprisonment, probation, home confinement, community confinement) the court may impose.
- The Sentencing Zones allow the court to impose the following types of sentence:

- Zone A: -imprisonment for the entire term, or
-probation for entire term;
- Zone B: -imprisonment for the entire term, or
-imprisonment for at least one month followed by
community confinement/home detention, or
-probation, with some substitute for imprisonment,
such as intermittent confinement, community
confinement or home detention;
- Zone C: -imprisonment, or
-at least one half of the minimum term in the range
served as imprisonment and the remaining half
served under supervised release with intermittent
confinement
- Zone D: -imprisonment only for at least the minimum term
in the range.
- As you can see, while the court is free to impose imprisonment in any case, it is only free to impose alternatives to incarceration, such as home detention or community confinement in some situations. For sentences falling in Zone D, the defendant must be incarcerated for the at least the minimum number of months in the range.

D. Computing The Total Offense

1. General Methodology:

- Following conviction by plea or at trial, a confidential pre-sentence report is prepared by the federal probation office describing the offense conduct, the defendant's personal history and computing the Guidelines application to the case. The defendant and the prosecution have an opportunity to comment on, and suggest corrections to the PSR prior to sentencing. At the sentencing hearing, the judge hears the arguments of the parties, corrects any material error in the PSR, announces his/her findings regarding the Guidelines calculation and imposes sentence.
- In general terms, the Sentencing Guidelines are calculated using the following four steps:
- First, the base offense level established for the crime or group of crimes, along with any offense characteristics specific to that type of crime, are computed (see below);

- Second, additional offense levels may be added or subtracted based on the defendant's aggravating or mitigating role in the commission of the offense(s), his/her use of a special skill to accomplish the crime or obstruction of justice during the investigation or trial;
- Third, offense levels may be subtracted based on the defendant's acceptance of responsibility and cooperation with investigators.
- Fourth, the defendant's criminal history category is computed (too complex for discussion herein);

2. **Base Offense Level And Specific Offense Characteristics In Wildlife (Bear Trafficking) Cases**

- For all types of federal wildlife, and wildlife-related crimes, regardless of whether they are misdemeanors or felonies, including conspiracy to violate wildlife laws (18 U.S.C. § 371) and smuggling violations involving wildlife (18 U.S.C. § 545, U.S.S.G. Section 2Q2.1. sets forth a **base offense level of six**
- The specific offense characteristics in wildlife cases are:
 - If the crime(s) involved a commercial purpose, **add two levels.**
 - If the criminal conduct violated U.S.D.A. quarantine requirements or created a significant risk of disease transmission to humans, **add two more levels.**
 - If the offense involved a species listed as endangered or threatened by the ESA or on CITES App. I. **add the greater of either four levels or the number of offense levels associated with wildlife market value.**
 - Compute the offense levels for market value by determining the fair market U.S. value of all wildlife involved in the criminal conduct (whether charged or uncharged) and applying that dollar amount to the Fraud Table at U.S.S.G. § 2F1.1. **Add the appropriate offense levels unless the wildlife market value equates to less than four levels and the addition for ESA/CITES species is applicable, in which case use the four levels from that subsection only.**

3. Role In The Offense And Other Adjustments

- If the defendant was an organizer or leader or supervisor of a criminal enterprise involving several people, **add 2-4 levels.**
- If, on the other hand, the defendant was a minor or minimal participant in the criminal activity, **subtract 2-4 levels.**
- If the def. obstructed justice **add two levels.**
- If the defendant used a special skill to accomplish the crime, **add two levels**
- If the defendant pleaded guilty and accepted responsibility for the crime(s), **subtract 2-3 levels.**
- If the defendant provided substantial and truthful cooperation in the investigation and prosecution of others, **subtract 1-? levels.**

4. Placement On The Sentencing Table And Imposition Of The Sentence.

- The ultimate determination of the defendant's final offense level and criminal history category (not discussed herein because too complex for this short presentation) is made by the sentencing court, after reviewing the recommendation of the Probation Office and hearing the arguments of counsel and statement of the defendant at the sentencing
- The final offense level may be increased if certain aggravating factors are present, or decreased if certain mitigating factors are present, but the judge's discretion to depart from the guidelines is fairly limited and such departures are relatively rare.
- Following placement on the sentencing table, the court must determine how many months within the appropriate range the defendant should receive as a sentence, and what type of sentence will be imposed, subject to the restrictions of the Zones, discussed above. For Zone D sentences, the defendant must be incarcerated for the entire term of sentence: no probation or home/community confinement is available.

E. Other Charging And Sentencing Issues To Bear In Mind

- The prosecution bears the burden of proving every element of every charge beyond a reasonable doubt.
- Defendants in these cases always have the right to a jury trial, and almost always exercise that right when plea negotiations are unsuccessful. At a federal criminal jury trial, guilt on any charge can only be found if all twelve jurors agree that there is no reasonable doubt as to any element of the charge.

- The Guidelines provide a fine range for each offense level: for example the fine range for offense level 12-13 is \$3,000-\$30,000, within which the court may impose any appropriate amount.
- The value of the wildlife involved in the case usually need not be proved at trial; the only time wildlife value is an issue during trial is when we are attempting to show a value exceeding \$350 as proof of the proof for a Lacey Act trafficking felony.
- Total wildlife value can be proved at sentencing using defendant's comments, his documents, prices quoted by other wildlife dealers, prices paid by the agents, etc.
- According to Sentencing Commission statistics, 164 defendants were sentenced under Guideline § 2Q2.1 during FY 1993. In those cases, imprisonment was ordered in one third of the cases, with the average term imposed being 10.4 mos. Fines were assessed in 49 percent of cases. Average fine amount was \$4,660 and total amount of fines imposed was \$424,086.
- The sentencing guidelines do not yet apply to institutional defendants, such as corporations.

F. Case Study: If You Were The Prosecutor...

- Facts: Joe Smuggler is apprehended at Los Angeles International Airport coming in on a flight from Shanghai, China. He is carrying 10 bear gall bladders concealed on his body. He has denied on his declaration form that he is carrying any wildlife products. He is traveling with four other people, each of whom is also carrying two bear gall bladders concealed under their outer clothing. The 18 bear galls weigh a total of 1 kilogram. Smuggler is interviewed and admits to trying to smuggle the gall bladders, and asking his friends to do so, and explains that he had hoped to sell the galls to traditional medicine dealers in the L.A. area. He says that he paid only about \$100 U.S. for each of the 18 gall bladders. Smuggler says that he lives in the L.A. area and traveled to China carrying \$1,800 in cash which he used to purchase the gall bladders. Smuggler is not sure what species the gall bladders come from, but thinks they are from farmed Asian brown bears (Ursos arctos thibetanus).
- Issues for you to resolve:
 - What crimes, if any, could you charge Smuggler be charged with committing?
 - If there are several potential crimes, which do you think are appropriate for his behavior?

- What will you tell his attorney when she asks what sort of sentence Smuggler is likely to receive if he pleads guilty? Will this depend on the charge(s) you file?
- How will you compute the probable guideline sentence for the wildlife violation(s)?
- What is the market value of the wildlife?
- If Smuggler pleads guilty, will this affect his sentence?
- If Smuggler testifies against other members of his group, will this affect his sentence?

G. Special Issues And Recent Apparent Trends In Bear Trafficking Cases

- As noted above, CITES Appendix I listing can make a difference, though sometimes insignificant, in the sentence imposed, due to the provisions of U.S.S.G. 2Q2.1(b)(3).
- However, no forensic method presently exists which enables us to determine the species from which a parts or derivative has originated.
- Each year it appears that more and more bear trafficking cases are prosecuted in the United States. Though the usual number of big game guiding and interstate transport cases continue, there seems to be an increase in the number of smuggling (import) cases involving significant quantities of parts and derivatives intended for use in the U.S. TM trade. This is a completely subjective impression on the presenter's part.
- As investigators and prosecutors learn to use the statutes and guidelines more effectively, and as the courts increase their willingness to treat these cases seriously, sentences are getting stiffer, press attention seems to be increasing and the resulting deterrent effect of such cases is seemingly enhanced.
- It remains very difficult to obtain verifiable information about the value of bear parts and derivatives in the United States TM market, primarily because of the difficulty in penetrating the hidden market for such products here.

H. NGO/Public/Press Involvement In Bear Trafficking Cases

- NGOs, the press and the public often play a significant role in the investigation and prosecution of bear trafficking cases, by:
 - providing expert testimony and information to attorneys and investigators about species status, trade trends and market value;

- spreading the word about successful cases, thereby increasing the deterrent effect;
- making careful and appropriate contact with the courts to inform them of the public's interest in the environmental issues surrounding these cases and the threat illicit wildlife commercialization poses to biodiversity and specific populations.

V. CONCLUSION

- A person who traffics illegally in bear parts in the United States may be violating any number of state and federal criminal statutes, some of which have no facial relation to wildlife protection but are nonetheless applicable. Nearly all of these statutes offer the possibility of stiff civil and criminal sanctions.
- Federal prosecutors in every state are empowered to advise wildlife agents who encounter these cases and to prosecute violations that are discovered.
- A special team of federal prosecutors exists for the purpose of ensuring that federal wildlife cases, including those involving bear trafficking, are investigated thoroughly and litigated correctly.
- Sentencing of federal wildlife violations such as bear trafficking occurs under a system which provides predictability and, in appropriate cases, stiff sentences of fine and incarceration.
- It appears that the smuggling of bear parts and derivatives into the United States, usually for sale on the TM market, is increasing.
- NGOs, the press and the public have a role to play in these cases by spreading awareness of the problem of illicit wildlife commercialization, supporting the system's serious treatment of these cases and providing expert information and testimony when requested by investigators and attorneys engaged in such litigation.

BEAR TRADE AND USFWS INVESTIGATIONS IN CALIFORNIA: 1994 - 1997

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Introduction

The traditional Asian medicinal market represents not only an overseas tradition in Asia, but one transplanted, and burgeoning, with the growth of Asian communities in the United States. While the validity of these traditions and cultures should be respected (and generally are), the traditional medicinal market must in turn adapt, as any sound tradition will, to new locales and circumstances. As certain species become unavailable for harvest or consumption, rules are set in place to regulate this imbalance until the tradition's adaptations (substitute species, synthetics, etc...) and the species' population arrive at a new, sustainable equilibrium.

Law enforcement's role in this trade tends to fall in one of two categories: enforcing the rules of trade which regulate wildlife traffic **generally**, and enforcing those prohibitions on certain species for which the demand is deemed unsustainable. The fair enforcement of the laws on the books effectively deters illegal activities, but also helps along the collective push for adaptation in Asian medicinal traditions. Useful perspectives may be provided from a field agent in Southern California with the U.S. Fish & Wildlife Service's Division of Law Enforcement. The types of investigations conducted from 1994 to 1997, and the information derived therefrom, shed light on present trends in the bear trade.

Bear Trade - Generally

Seizures and investigations in Los Angeles indicate an existing trade in bear products both for export to Asian markets, and for retail in the US markets. In either direction, the traffic is primarily directed by and for a very small segment of the Korean communities in the U.S. and overseas. An increase in cases since 1994 is most likely the result of improved law enforcement efforts in this area, in turn a result of training, improved forensic techniques, and inter-agency cooperation. The commercialization of bear parts in the State of California is a felony under state law, and this has some relation to the types of investigations conducted as well.

Bear Bile Imports

The majority of cases involve the importation from Asia to the US of dried bear bile taken from CITES Appendix 1-listed species. Persons responsible for about a dozen importations of large, commercial quantities of bottled product, totaling approximately 10 kilograms¹, were successfully prosecuted in Federal Court. These seizures represent the output of "bear farms" located in China, which was the source country for nearly all confiscations of this type. While Chinese law reportedly allows for limited operation of bear farms for research purposes, it prohibits the export (or inter-provincial trade) of the bile, or other products, from these farms. Upon analysis of the documents found in the possession of, or later provided by, the bile traders, in not one case was the source found to be a "bear farm" operating with the requisite government approval.

The ultimate destination appeared to be, in each case, traditional Asian medicinal shops and doctors in the US. In fact, such facilities were often the only actual point of contact the traders had in the United States at all; most had entered the U.S. on business visas at the invitation of U.S. companies which proved to be non-existent. Depending on the facts of each case, the defendants were successfully prosecuted for violations of either the Lacey Act or the Endangered Species Act.

Bear Gall Bladder Imports

Several cases involved the illegal importation of whole gall bladders, from Russia and from Canada. These would have been taken from CITES Appendix II listed species in either case, but were imported without the appropriate permits, proof of legal take, and without any declaration. These importations were also all destined for Traditional Asian medicine facilities in the Los Angeles area were it not for their fortuitous detection by US Customs.

The importations from Russia were concealed in one case within a shipment of deer horn, and concealed by body-carry in the other instance. Significantly, in both cases, information showed a relationship with Russian organized crime. Both these cases were successfully prosecuted by the State of California.

The importations from Canada were shipped via express mail service, and led to the joint investigation of the US recipients by USFWS, US Customs, and the California Department of Fish & Game.

One shipment was sent to a couple who operated a mail-order, traditional Asian medicine business from their home in Los Angeles; the supplier was traced to a Toronto photo-shop.

¹ Including other bear bile seizures, the total weight intercepted about doubles.

The other case involved a man who had made arrangements to sell the gall bladders to traditional Asian medicinal shops in Orange County, just south of Los Angeles. He had obtained the gall bladders from British Columbia, and tried to ship them via Wyoming to conceal their true origin. Notably, this last entrepreneur said he entered the business after learning of the profitable trade in bear parts from the Discovery Channel on television.

Bear Part Exports

Exports of bear products were detected during two investigations conducted by the State of California Department of Fish & Game. While these bear parts would only be listed at CITES Appendix Two, the method of take, the commercialization, and the failure to comply with State laws marked these dealings as illegal. In both cases, firearms violations were also noted (illegal sales and/or types of weapons). In both cases, prosecutions were handled by the State of California, and garnered fines and probation.

One case involved a businessman, operating a hunting club and gun store, who arranged for foreign businessmen to enter the US on holiday, hunt bear, and return with the body parts. No effort was made to export legally. Evidence suggested that hunter-safety certificates were fraudulently acquired in order to legitimize the hunters. Documents studied during a search warrant also suggest that hunts were being led or planned into National and State parks throughout the northwestern states and British Columbia. California's investigators established that the visiting hunters were "guaranteed" a successful hunt, and were led by local guides who were paid by the hunting club to ensure success, as well as provide additional bear parts as available.

The other case involved the acquisition of bear parts throughout the Western states by a businessman with several Asian passports.

What We Learned – Next Steps

The information acquired from these investigations provided the following feedback, and resultant actions:

- More education and outreach was needed, directed toward the Asian community in Los Angeles, working with local, Asian-language media. Such a program was initiated by the Service in the fall of 1995 along with non-governmental organization partners, and actively sought out the participation of local Asian community leaders, press, and educators. The program was received enthusiastically by all but one of the Asian-American communities contacted by the Service.

- Coordination with the local consulates is crucial: on matters pertaining to the arrest of foreign nationals (as required by law), to analysis of foreign documents and laws, and to community outreach programs. The Consulate of the People's Republic of China was exceedingly helpful in each of these important elements.
- Improved coordination and training of the concerned agencies at the Federal and State levels within the US has led to the establishment of task forces (one in L.A., one in San Francisco) to coordinate the various enforcement and inspection capabilities. These task forces were initiated by US Customs along with the Service, and include representatives from US Food & Drug and the US Attorney's Office, as well as state officials from California Department of Fish & Game, Department of Public Health, and prosecutors from County and City levels. This will help to disseminate information and identify contacts to further the enforcement of wildlife laws, both as related to traditional Asian medicine and in general. Some information has already been shared with the appropriate agencies, on matters ranging from immigration and visa violations, to officer safety, to setting up procedures for appropriate translations during interviews.
- The Service has improved targeting for inspection at point-of-entry; intelligence acquired from previous investigations is used as feedback to effect these improvements. In addition, the Service has begun a project using a dog to detect illegal bear products (and other wildlife). This project, now primarily in use on the US - Mexico border, could also service mail and express package traffic inspections.
- The statutes available to the Service for the investigation and ultimate prosecution of traffickers have been used effectively in Southern California: these are the Lacey Act and the Endangered Species Act, and are fully adequate as legal tools to intercept the illicit trade.
- More coordination is needed with both producer and consumer nations, preferably down to the field level. This will lead to:
 - ◆ Better dissemination of legal sources of bear, legal methods of take, and other general regulatory requirements, and
 - ◆ Better identification and interdiction of illicit traffic.
- For instance, the launching of genuine, cooperative efforts between the US, Canada and South Korea would help disseminate North American requirements for legal trade both in the US and overseas, reduce pressures on bear populations which are presently threatened with extinction should trade continue, and refine enforcement efforts to locate and interdict illegal trade.

VI. WHAT FORENSIC ANALYSES TELL US ABOUT THE TRADE

THE APPLICATION OF FORENSIC ENTOMOLOGY TOWARDS ILLEGALLY KILLED WILDLIFE

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ABSTRACT: Insects, often the first witnesses to a death, arrive in a predictable sequence, that is influenced by decomposition changes that occur in carrion. When the sequence of insects colonizing carrion is known, an analysis of the insect fauna can be used to establish the time of death, historically in human death investigations. Overlooked to date is the application of forensic entomology to wildlife poaching investigations. Forensic entomology provides an alternate, accurate method of predicting time of death in wildlife which, unlike other methods currently used, can be used beyond 48 hours since death. Research examining insect succession on wildlife carrion in various habitats and seasons throughout British Columbia was performed in 1994-1996. An insect database was compiled for use in time of death determinations for wildlife. Insects also can provide important information regarding position and presence of wounds, the movement of a corpse from one location to another, the time of dismemberment, the presence of drugs or poisons, and animal abuse. However, forensic entomological applications to wildlife investigations are constrained by a lack of reliable baseline data and insufficient awareness of the usefulness of entomological methods as an investigative tool. The development of insect standards as well as more awareness and training in forensic entomological procedures will benefit enforcement agencies and will increase case numbers.

INTRODUCTION

Insects, often the first witnesses to a death, arrive in a predictable sequence (Smith 1986) that is influenced by biological, chemical and physical changes that occur in carrion as it decomposes. When the sequence of insects colonizing carrion is known, an analysis of the insect fauna can be used to answer forensic questions. One of the most pressing forensic questions concerns determining the time of death. Recent research has expanded on the use of insect succession as a means of establishing the time of death in human death investigations. Overlooked to date is the application of forensic entomology to wildlife poaching investigations.

Time of death in wildlife has been determined by measuring the extent of rigor mortis, changes in body temperature, eye occlusion or response to electrical stimulus (Adrian *et al.* 1994; Oates *et al.* 1984). However, most techniques are influenced by physiological variables, or are based on experience, skill, visual assessment, or personal interpretations. Subjective techniques are less reliable, and may not be accepted in court. In addition, these estimations only predict time of death up to 24 to 48 hours. Forensic entomology provides an alternate, accurate method for predicting time of death in wildlife beyond 48 hours since death. Insects also can provide important information regarding position and presence of wounds, the time of

dismemberment, the movement of a corpse from one location to another, the presence of drugs or poisons, and animal abuse (Anderson 1996; Goff 1993; Catts & Goff 1992; Catts 1990). However the application of entomology to wildlife investigations is constrained by a lack of reliable baseline data and insufficient awareness of the usefulness of entomological methods as an investigative tool. There is a need to establish data bases of insect succession for use in wildlife death investigations so that forensic entomology can be used with confidence.

APPLICATIONS OF FORENSIC ENTOMOLOGY

Entomological evidence is primarily used to determine time of death. However, there are many other applications of entomology which may assist investigators in wildlife death investigations.

Bear carcasses are now being found in Canada mutilated with their salable parts, such as gall bladders, missing (Mills & Servheen 1991). However, confirmation of the presence or absence of soft body parts may be impossible once the carcass has reached an advanced stage of decomposition. Despite these potential difficulties, a wound site, indicative of an unnatural cause of death, becomes identified by blowflies and their offspring. Blow flies (*Calliphoridae*) lay eggs on facial and genital orifices within minutes to hours following death. Early stages of larvae will hatch and develop and will tend to remain at these initial oviposition (egg-laying) sites. Flies, attracted to exuding fluids such as blood, muscle plasma and body fluids (Smith 1986), will also oviposition on wound sites on a carcass. Although animal hair on wildlife carcasses may disguise wounds, hair does not impede blow fly oviposition (Dillon 1997). Eggs will be laid on blood soaked hairs located near wound sites, and newly emerged first instar larvae will migrate down shafts of hair towards wound sites, creating large maggot masses. Irregular patterns of maggot activity may indicate the presence of a wound site, long after disappearance or decomposition of soft body parts which may be useful in a wildlife death investigation.

With the exception of entomological methods, determinations of time since death in wildlife may be impossible if a carcass has been skinned, or dismembered. Current methods require an intact carcass to determine time of death, whereas entomological methods do not, and can be used on mutilated carcasses. Furthermore, estimating time of dismemberment is possible by aging the insects infesting animal parts. Animal parts, such as bear paws severed from a carcass, will still tend attract insects in a predictable manner and may indicate time and presence of dismemberment as has been seen in human cases (Anderson 1996).

Information regarding the location of the death site may be delineated from carrion fauna associated with animal parts. Different geographical regions have been found to host different types of carrion-feeding insects (Dillon 1997). Thus insects characteristic of the death site, may not be common or found in other geographic locations. Forensic entomologist, Dr. Bulter identified ticks associated with a bear hide claimed to have been killed in the state of Florida (Bulter 1996). Bulter demonstrate that the distribution of the tick species was limited to the state

of New York, and consequently, not associated with animals in the state of Florida. Entomological evidence may be of considerable importance to conservation authorities where neighboring states or provinces have different hunting regulations.

Poisoning may be the cause of death for wildlife. At times, there may not be enough tissue left on a carcass to perform toxicological tests to determine cause of death. However, maggots on corpses have been found to bio-accumulate drugs such as cocaine, valium and morphine (Wilson 1993) and similarly may bio-accumulate poisons from wildlife carrion. An analysis of maggots may identify a drug substance in a carcass at the time of death.

Domestic animal torture has been recognized as a sign of a potentially dangerous offender (Brantley 1996). Profiling of killers such as Jeffrey Daumer and Ted Bundy has indicated that many have histories of violence towards small animals during their childhood (Brantley 1996). Violent tendencies escalate with time, progress towards humans. Determination of time of death of abused animals may help identify potentially dangerous offenders.

As dead tissue may be found in wound sites on live animals, blow flies may be used to determine the time of wounding. A wound infested with the secondary screw worm, *Cochliomyia macellaria* (F.), was found on a cougar prior to death of the animal (Bulter 1996). The insects indicated time of wounding, and the hunter responsible, was apprehended. He had attempted to remove the cougar from his deer hunting area.

CONSTRAINTS TO THE USE OF ENTOMOLOGY IN DEATH INVESTIGATIONS

The application of entomology to wildlife investigations is constrained by a lack of reliable baseline data and insufficient awareness of the usefulness of entomological methods as an investigative tool. There is a need to establish data bases of insect succession for use in wildlife death investigations so that forensic entomology can be used with confidence.

Historically, decompositional experiments have been performed on human remains and non-human carrion (Anderson & VanLaerhoven 1996, Goff 1991; Rodriguez & Bass 1983; Smith 1975; Payne 1965). Despite reservations by researchers when using non-human carrion data for time of death estimations for humans (Schoenly *et al.* 1991; Mann *et al.* 1990; Johnston & Villeneuve 1897), data from decompositional studies using non-human subjects have been applied with success in homicide investigations (Anderson & VanLaerhoven 1996; Goff 1993).

Wildlife carcasses are an unpredictable source for carrion ecological studies. The killing of wildlife for research purposes is rarely permitted and highly controversial and may explain why so few researchers have used wild animals as research subjects (Braack 1981; Coe 1978; Smith 1975; Nuorteva & Hasanen 1972; Easton 1966). The focus of these studies has been diverse and none was conducted specifically to generate baseline insect data for wildlife death investigations until recently (Dillon 1997; Walette, 1996; Bulter 1996). The opportunity to

obtain recently-killed wildlife (black bear *Ursus americanus* and cougar *Puma concolor*) that were also commonly poached animals, represented a rare research opportunity. Therefore, wildlife carcasses obtained from the British Columbia Ministry of the Environment were accepted for preliminary, ancillary study. These animals were nuisance animals and are normally destroyed and incinerated (Forbes 1994). Because wildlife carcasses were offered when they were available, no control over type, size, timing or number was possible. Wildlife carcasses were received as available in different habitats, seasons and zones, making replication difficult. For this reason, the wildlife ancillary study coincided with a larger research project examining habitat, season, and geographic location as factors affecting the insect fauna on 72 pig carcasses (Dillon 1997). A data base of insect succession on wildlife carcasses in British Columbia was established to provide forensic standards that can be used in both human and wildlife death investigations. In 1996, this data base provided standards that were used in a wildlife poaching investigation for the first time in Canada.

Although the usefulness of entomology in human death investigations is well known, most conservation authorities are still unaware of forensic entomology as an investigative tool. In 1994, a survey examining currently used forensic techniques in wildlife investigations was conducted with forensic officials from 49 states, provinces and territories (McClymont 1994). Only 35 percent of respondents determined time of death of killed wildlife. This percentage is probably low--owing to the fact that most current methods are only accurate for 24-48 hours after death. Respondents to the survey called for the need for less subjective and more reliable techniques than those currently available to determine time of death. Only four percent of respondents used entomological means to determine time of death for killed wildlife. The lack of awareness of entomological methods an investigative tool in death investigations is the principal reason for its lack of use among conservation authorities. The development of insect standards as well as awareness and training in forensic entomological procedures will benefit enforcement agencies and will increase case numbers.

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WILDLIFE DEATH INVESTIGATION

Leigh C. Dillon¹

This handout is design to assist conservation authorities in the collection, preservation and rearing of insect evidence associated with wildlife carrion. Accurate time of death estimations are dependent on proper techniques (Goff 1993; Lord & Burger 1983) as well as proper training. Ideally, conservation authorities using this handout will have received adequate entomological training or will be assisted by an entomologist. Insect collection materials for wildlife carrion found in a terrestrial environment is provided (Table 1). Please note that different collection materials, techniques and training may be required for wildlife found in different environments (*i.e.* aquatic, and burial).

Table 1: Insect Collection Kit*

-Gloves	-Trowel	-Beef liver
-Large containers (for soil samples)	-Thermometer	-Paper towels or cheese cloth
-Plastic containers (~100 ml)	-Sweep net	-Elastic bands
-Ethyl alcohol (70 %)	-Ruler	-Camera and film
-Cup of hot water	-Rearing containers	-Vicks [®] Vapour Rub (optional)
-Small paint brush	-Vermiculite or saw dust	-Handwipes (optional)
-Forceps		

*Modified from Anderson 1996, Catts & Haskell 1990, Lord & Burger 1983

Lord & Burger (1983) recommend to collect sufficient numbers of insects to ensure complete representation of carrion fauna hosting in, on or under carrion as well as identification of insects for a more meaningful specimen collection. Preservation and rearing details for two main taxonomic orders, Diptera (flies) and Coleoptera (beetles) is provided in Table 2.

Table 2: Preservation and Rearing Details for Insect Specimens

Insect Type	Minimum No. to Collect	Rear?	Preserve in Alcohol?
Adult flies	~10 of each type	No	Yes
Beetles	~10 of each type	No	Yes
Blow fly maggots	~ 100 of largest maggots and	60% -on beef liver or if <25	40% or if <25
	~ 100 of different sizes and from different areas on carrion	90% -on beef liver	10%
Blow fly pupae	~ 100 of different sizes , colour and from different areas on carrion	100% -in container with moist tissue	Never
Other dipteran larvae	~ 100 of different sizes, colour and from different areas on carrion	100% -on fatty tissue from carrion	No
Beetle larvae	~20-30 of different sizes and from different areas on carrion	100% -on spare maggots	No

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**WILDLIFE DEATH INVESTIGATION
DATA SHEET FOR COLLECTION OF ENTOMOLOGICAL EVIDENCE**

CASE NO. _____ DATE _____

PART A:

INVESTIGATOR:

LAST NAME _____ FIRST NAME _____

ADDRESS _____

CITY _____ PROVINCE/STATE _____

POSTAL CODE _____ COUNTRY _____

PHONE _____ FAX _____

PART B:

DATE FOUND _____ ☐ PHOTOS TAKEN

LOCATION OF REMAINS: _____

ENVIRONMENT TYPE:

TERRESTRIAL

☐ Rural

☐ Urban

☐ Full sun

☐ Partial Sun

☐ Full shade

BURIAL ☐ Partial ☐ Complete Approximate Depth: _____

AQUATIC ☐ Marine ☐ Freshwater ☐ Partial Immersion ☐ Complete Immersion

COMMENTS: _____

TEMPERATURE AT SCENE:

_____ Ambient _____ Water (if aquatic) _____ Soil (if burial)

☐ **Weather Records obtained**—daily temperature and rainfall data required for time of death determinations based on blowfly larval growth.

PART C:

WILDLIFE TYPE:

☐ PHOTOS TAKEN

☐ bear

☐ caribou

☐ deer

☐ cougar

☐ sheep

☐ elk

☐ antelope

☐ moose

☐ eagle

☐ grouse

☐ other _____

CARCASS OR PARTS FOUND:

☐ whole carcass ☐ antlers/horns ☐ skin/hide ☐ paws ☐ gallbladder ☐ head/cape

☐ other _____

COMMENTS: _____

PART D:

CAUSE OF DEATH _____

☐ PHOTOS TAKEN**APPROXIMATE STAGE OF DECOMPOSITION*:**

- ☐ **Fresh**—begins immediately following death and lasts until the first sign of bloating. Blow flies at orifices and wounds and ectoparasites (*i.e.* ticks, fleas) in hair may inhabit carrion.
- ☐ **Bloat**—begins with distention of the abdomen. Internal carcass temperatures may increase. Blow fly adults and larvae dominate the carcass. Scavenging may disrupt this stage.
- ☐ **Decay**—begins with the deflation of the bloated carcass. Maggots predominate this stage and may significantly increase internal carcass temperatures. Steam and foam may occur. The end of stage occurs when maggot feeding ceases and maggots migrate. Hair becomes detached from carcasses.
- ☐ **Post-Decay**—carrion consists of fatty tissue, cartilage, skin and bones. Various types of insects inhabit the carrion.
- ☐ **Remains**—is reached when only hair, some skin tissue and bones of the carcass remain. Few insects are associated with the carrion during this stage.

*(modified from Goff 1993)

EVIDENCE OF OTHER CARRION: ☐ Yes ☐ NoEVIDENCE OF SCAVENGING: ☐ Yes ☐ No**PART E:**

INSECT COLLECTOR: _____

☐ PHOTOS TAKEN

DATE OF COLLECTION: _____ TIME: _____

CARRION SITES EXAMINED FOR INSECTS:

- ☐ Facial orifices ☐ Groin region ☐ Ground/carcass interface
- ☐ All wound sites ☐ Soil near and underneath carcass

INSECTS COLLECTED:

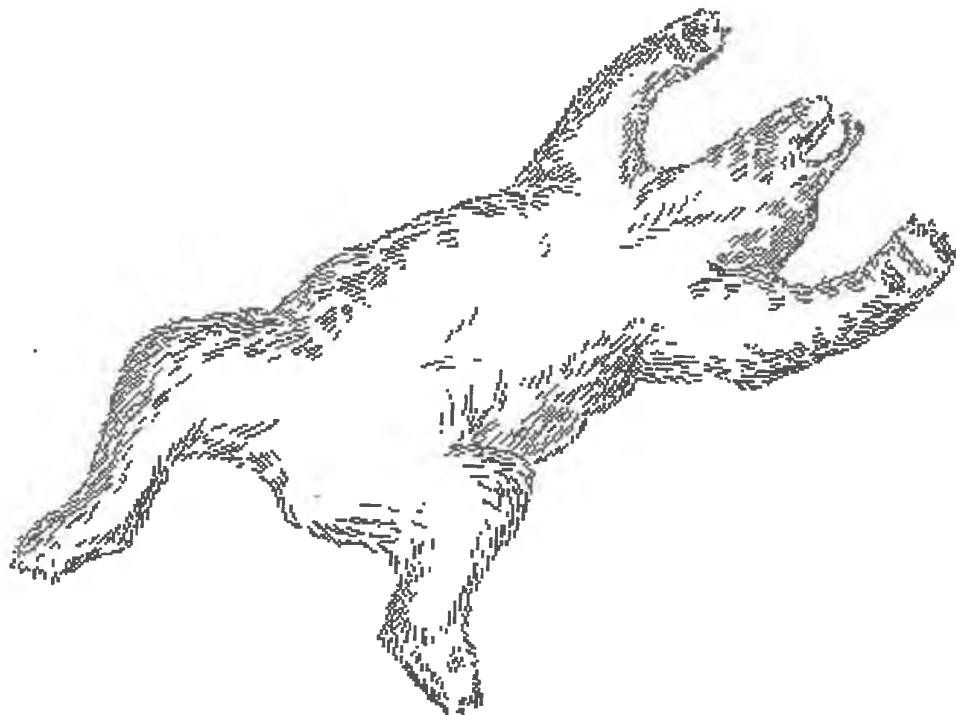
ID. Number	Specimen Collected	Number Preserved	Comments (Anything unusual, colour, size etc.)

COMMENTS: _____

PART F:

MAGGOT MASSES PRESENT:		<input type="checkbox"/> Yes	<input type="checkbox"/> No
MASS NO.	LOCATION	SIZE OF MASS	TEMPERATURE
1.			
2.			
3.			
4.			
5.			
6.			

PLEASE INDICATE LOCATION OF MAGGOT MASSES
 (As majority of poaching cases involve bears, only a bear diagram is provide)



Illustrated by Kyna Brett 1997

DETERMINING TIME OF DEATH IN A POACHING CASE IN CANADA USING INSECT EVIDENCE

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Abstract: Forensic entomology is the study of insects associated with carrion, in order, primarily, to determine time of death. Traditionally, forensic entomology is used almost exclusively in homicide cases and is currently used worldwide. However, it is equally applicable to wildlife cases. A case is presented in which two bear cubs were killed for their gall bladders. The cubs were found shortly after death, and time of death of the animals was paramount. Time of oviposition (egg-laying), and early development was used to determine the window of time in which death must have occurred. This evidence was considered key to the case by the judge in his summing up, and resulted in two people convicted, on a total of four charges. This case highlights the fact that insect evidence can be just as valuable in poaching cases as it is in homicide cases. It is limited primarily by the lack of knowledge of its availability by conservation officers. The entomologist was called into this case by a Royal Canadian Mounted Police officer, not a conservation officer. It is vital that conservation officers become more aware of this science.

INTRODUCTION

Forensic entomology is the study of insects associated with a dead body and is used in death investigations to determine the time of death. Forensic entomology has been used in such investigations since the 13th Century, in China.

In this case, a man killed another man with a sickle (McKnight 1981). Having committed the crime, he cleaned off the blade, because he did not want to be seen going through town with a bloody knife in his hands. He cleaned it well enough for the human eye, but not for the insects. When the head man of the village discovered what had happened, he demanded that every man in the village who owned a sickle come forward, line up and lay his knife on the ground in front of him - well you can picture the scene - there are many men lined up against a wall, with a nice shiny knife lying on the ground in front of them, and all of a sudden, thousands flies land on just one knife! Of course, we know why this happened, there was obviously enough blood and gore on the knife to be attractive to the insects. However, the killer did not understand this, took this to be a message from God, dropped to his knees and confessed! It's not the same way we use insects today but it was a start.

Using insects in a similar manner to the way in which we use them today began in Europe, primarily in France, in the 1850's. Forensic entomology was first used in Britain in the 1930's and finally made it to North America in the seventies, and is now firmly established here. In 1996, we established a certification board for forensic entomology, the American Board of Forensic Entomology, which will Board Certify forensic entomologists. However, all this relates almost entirely to human homicide cases. Forensic entomology is, so far, rarely applied to wildlife cases.

Forensic entomology is used primarily to determine time of death. Knowing time of death is important in any human death, even if it is an accidental death, as it is very important for the family to know WHEN someone died, it is part of our grieving process, and it is also the law. However, when the death is a result of crime, determining time of death becomes vital. Knowing the time of death can make or break an alibi. It can help to identify a victim and most importantly, it points the investigation into the correct time - speeding up the successful conclusion of the case.

It is exactly the same in a wildlife case. We still need to know the TIME of death; it can still make or break an alibi. Knowing the time of death points the investigation into the correct time frame, assisting the investigation, in exactly the same way as it works in a human death investigation. However, there is actually a bonus with wildlife investigations, because in some species, there are, of course, legal seasons on the animals - meaning that on any one given day, some members of that species can be legally killed, whereas on other days, killing that same animal may be poaching. In cases older than a few days, with no adequate methods of determining time of death, cases found close to the hunting season are presently just left, as you can't PROVE that the animal died in or out of season - well now you can - using insect evidence. Also, even if I can only give a very broad window of time, because the remains have been there so long, that still might be enough to determine whether this death was a poaching case or not. So there is no reason why forensic entomology can not be equally useful, or perhaps even more useful in wildlife cases.

DETERMINING TIME OF DEATH USING INSECT DEVELOPMENT

There are two ways to determine time of death using insect evidence, and both apply equally to human or animal cases, insects don't care about taxonomy, if it is a dead animal, it is a food resource.

The first method is looking at the successional waves of insects colonizing the remains over time and is usually used when the animal has been dead for about a month, up to a year or several years after death. Our work has concentrated on this and was presented in the previous session (Dillon and Anderson 1995; Anderson and VanLaerhoven 1996; Dillon and Anderson 1996; Dillon and Anderson 1996).

The second method is looking at larval development. Here we look at the maggots, or immature stages of blow flies. These are the insects that are attracted immediately after death. This is the method used in this case, so I would just like to explain it in more detail.

Insects are attracted to the body immediately after death, usually within minutes. They are usually attracted first to a wound site. A poached animal usually has a wound of course, but if there is no wound, they will go to the natural orifices. Insects arrive at the body very rapidly after death in a human case. We also know insects colonize pig carcasses, used in our research as close human models, within minutes of. Leigh Dillon's work has confirmed what we expected - the exact same thing happens in dead bears - the flies arrive immediately and lay eggs in a very short time. This also happens in other commonly poached species, such as cougar.

The eggs hatch into maggots and feed on the body. They are nature's little garbage recyclers, returning the nutrients in the body back to the earth. Without them, nutrients would not recycle. Insects are primarily responsible for this recycling, and are very efficient. As humans are better studied than animals, I will show you a human sequence, from the Tennessee Body Farm. The sequence shows decomposition over a few days and shows how rapidly facial skeletonization is achieved.

These insects have a very predictable life cycle. They are attracted to the remains to lay eggs; for them it is a food resource and a nursery for their offspring. They lay their eggs in a clump, or mass. This egg mass will be close to a wound site, or, if there is no wound, next to the natural orifices. The eggs will eclose or hatch after a set period of time. This time period is dependent on temperature and species. They hatch into first instar, or first stage maggots. These are tiny little maggots which can't break skin, so they need to feed on liquid protein - such as that provided by blood from a wound, or the mucous membranes. That is why the female lays the eggs so close to wounds or a natural orifice. After a known period of time, again dependent on species and temperature, they will moult into second instar. They will feed for a while, then moult to third instar. This stage reaches about 1-2 cm long and feeds voraciously. It consumes a large amount of flesh and can form great masses. After a few days, and the time again dependent on temperature and species, the insect will change its behavior. It will stop feeding and start to wander away from the body looking for a nice safe place to pupate. This is quite interesting from a biological standpoint, but it is vital from a forensic standpoint. It means that my evidence is now leaving the scene, so it means that, in an investigation, the insects must be collected, not just from the body, but also from the surrounding soil as well.

After a few days, again dependent on temperature and species, the insect will pupate, forming a hard outer coating or pupa. Inside this, the insect will change from the somewhat amorphous maggot to the well defined adult fly. It will emerge from the pupal case and the cycle will begin again, leaving behind the empty pupal case as evidence that this cycle has taken place. As I keep saying, the time spent in each stage, or to reach any stage, is dependent on two things, temperature and species.

Insect development is temperature dependent, that is, as the temperature increases, the development rate increases, so the insects go through the stages more rapidly. As the temperature cools, the insects go through their stages more slowly. This relationship is reasonably linear, within certain parameters, and so is predictable.

So, when a case which involving eggs or maggots is analyzed, the first step is to identify the oldest stage of insects on the body, for instance the oldest may be in the third instar. Then the insects are identified, by rearing them to adulthood. These data are then used, together with data from the local weather station, to determine the age of the oldest insect. For instance, if the oldest insects on the body are seven days old, then the animal has been dead for seven days. There will be younger insects present, including those being laid as you collect samples, but the oldest ones were obviously there first.

CASE HISTORY

The case begins near Winnipeg, Manitoba. Five adult bears had been killed near this site over the course of a few weeks. The carcasses were all found near or at a garbage dump, and all had been cut open, and their galls removed. So they all had been killed for profit.

At least one female had been lactating, and the newspapers reported that two very young cubs were orphaned and were at the dump. That newspaper report was released on the 14 July. That same day, both cubs were discovered dead, close together. They had been shot, disemboweled and their minute gall bladders had been removed. The public was outraged.

The cubs were found at approximately 1600 h on 14 July. Conservation officers and the Royal Canadian Mounted Police or RCMP were called to the scene. The RCMP officer who answered the call has worked with me in many cases over the last few years and immediately realized that the insect evidence was valuable. He collected the insect evidence at 1645 h and preserved a portion in alcohol at 1712 h on 14 July. The rest he placed on liver collected from the cubs to rear them through to adulthood. He contacted me the following morning and couriered the specimens to me.

The insect evidence collected was eggs. No maggots were present on the body, only adult flies laying eggs and the eggs themselves. In other words, the eggs had not yet hatched. The eggs were found close to the wound, not actually in the wound, otherwise the eggs would drown, but very close so the newly hatched maggots would be able to feed at the wound site.

The officer examined both cubs. He observed only eggs and adult flies, no later stage insects. He collected several samples. He then preserved about half of them in alcohol, so that these specimens could be produced in court if necessary to prove that the insects were eggs when collected. Also, specimens must be preserved so that they can be examined by the entomologist later.

The eggs were all at the wound site. There were no eggs at the natural orifices yet. As mentioned earlier, insects are attracted to a wound site first, if there is one, especially if there is a great gaping wound, as there was in this case. Later, they will go to the natural orifices.

In a human example, a girl was stabbed and the were found congregated in her chest region and in the palms of her hands. This indicated that she tried to fight off her attacker and displayed typical defense wounds in the palms of the hands. So the insects colonized these areas first, although later, they have colonized the face as well (Rodriguez and Bass 1987).

In this case, as the eggs were only at the wounds so far, it confirmed the freshness of the bodies.

The insects were all in the egg stage when collected at 1645 h on 14 July. They were still in the egg stage at 1712 h 14 July when they were killed by being placed in alcohol. When I later examined these specimens they were clearly still eggs, with no sign of hatching, such as 1st stage maggots or even egg 'shells' or chorion. The officer checked them at 2100 h that night and still none of them had hatched. When he looked at them the next morning, the 15 July, about 30 percent had hatched, and nearly all had hatched by that afternoon, at 1645 h.

When I received the evidence, I reared the newly hatched maggots through to adulthood on beef liver media. Three species of blowfly had been laid on the bodies, *Phormia regina*, *Phaenicia sericata* and *Lucilia illustris*. In order to determine time of death I need to know the species that I am dealing with, and the temperature of the area. So I identified the species in the lab by rearing them to adulthood, and got the temperature data from the nearest Environment Canada weather station. This indicated that the weather had been just perfect for insect colonization and development over the previous days, with a mean temperature between 21.5 and 3.3 °C, and no rain for the previous two days.

From my lab data, *Phormia regina* takes between 21.5 and 22.5 hours to hatch at 23 °C, and I have repeated that experiment at least six times.

Phaenicia sericata takes 20.9-23.6 hours to hatch at 21 °C (repeated nine times), and 21-22 hours at 23 °C (repeated twice).

Lucilia illustris takes 16-21 h at 21.2 °C (repeated three times).

So when did the cubs die? We can work out the minimum elapsed time since death by determining **when** the eggs were laid on the bodies.

The eggs first began to hatch between 2100h on the 14 July and 0745 h 15 July. So looking at each species, and based on the known time needed to hatch at the temperature of the death site, *Phormia regina* must have laid eggs on the bodies sometime between midnight and 0900 14 July. *Phaenicia sericata* must have laid eggs at the same time, between midnight and 0900 h 14 July. *Lucilia illustris* arrived later, and may have laid eggs around 0700 h up to 1500 h on the 14 July.

However, there are other factors to consider. Flies lay eggs very soon after death. This is known from the literature and our own work, which included observations on more than 40 pig carcasses, two bears and one deer. As well, there were open, gaping wounds which would have ensured rapid colonization AND they were all right in the middle of a garbage dump, a place which traditionally has lots of insects.

So the insects would have arrived shortly after death - BUT insects very rarely lay eggs at night - in fact I have never found them to lay eggs at night. So the eggs must have been laid in the early morning of 14 July - before 9:00 am, so probably at first light.

Therefore, the cubs must have been dead before the early morning of the 14 July.

They could have died the previous night - in the evening of the 13 July, because the flies would probably not have laid eggs until the following morning.

BUT, they could NOT have died the previous DAY, the 13 July, as if they had, they would have already developed to maggots by the time they were collected. Also, they could NOT have died later on in the day of the 14 July as the insects would have hatched much later.

So the insect evidence showed that, first of all, the cubs were fresh - this is based on the fact that all the insects were eggs when collected, and that those eggs were only at the wound sites so far, not yet at the orifices. So the eggs were laid at first light on the 14 July. Therefore, the cubs must have been killed either in the late evening of the 13 July or during the early hours of the 14 July.

This evidence successfully linked the two suspects to the crime scene and I testified to this evidence in December in Winnipeg, Manitoba.

The verdict was GUILTY. Both defendants were found guilty of two counts of poaching under the Provincial Wildlife Act each. They were sentenced to the maximum jail time possible under the law, which is six months.

In his summing up, the judge stated that he considered the entomological evidence to be the key part of the case.

We also used other forensic evidence in this case. My evidence linked the suspects to the correct time frame, and DNA evidence was used to link the defendants knife to the cubs. Together, we got a conviction.

The main point here is that insects are evidence. The police now recognize the need for forensic entomology in certain cases. However, conservation officers are not so aware of this technology. It is important that more conservation officers become aware of such evidence so that it can be used more often in poaching investigations.

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IDENTIFICATION AND DIFFERENTIATION OF BEAR BILE USED IN MEDICINAL PRODUCTS IN TAIWAN

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Abstract: One hundred eighty-three suspect bear bile used in medicinal products, collected in Taiwan as gall bladders or dried powder forms, were analyzed using FT-IR, HPTLC, and HPLC techniques to identify whether they are indeed bear bile. Those confirmed were further examined to determine whether the observed analytical parameters can be reliably used for source inference, i.e., differentiating products among North American black bear, farmed Asiatic black bear, polar bear, etc. Our data suggested that North American and polar bears contain a higher concentration of TC (relative to TUDC and TCDC), while the relative concentration of TC in Asiatic bears (wild or farmed) is much lower. Thus, the relative concentration of TC can potentially be used for differentiating Asiatic bear bile from North American and polar bear products, but it cannot be used for the differentiation of wild and farmed bear bile as suggested in an earlier report by Espinoza et al. The origin of the 183 samples analyzed were found to be as follows: 118 (64 percent), bile salts or gall bladders were of domestic pig; 56 (31 percent), bile products of Asiatic bear; 4 (2.2 percent), Asiatic bear mixed with pig bile salts; three (1.6 percent) goat gall bladders; 1 (0.55 percent) water buffalo bile salts; and 1 (0.55 percent), pig bile salts mixed with water buffalo bile salts.

The Investigative Bureau Forensic Laboratory has received 202 gall bladders (nine cases), items obtained from Council of Agriculture Executive Yuan. Analysis of 202 gall bladder items obtained as criminal evidence showed that of the samples from customs, 137 (67.8 percent) were gall bladders of domestic pig; 37 (18.3 percent) were from Asiatic bears; 14 (6.93 percent) were goat gall bladders; and 14 (6.93 percent) do not detect any animal bile components.

Introduction

Bear bile is highly valued and has been used as an important ingredient in Chinese medicinal remedies for thousands of years. Its medical functions were widely recorded in ancient Chinese medicinal and pharmaceutical documents [1] and in recent Chinese herbal medicine publications[2]. Bear bile is considered a “cold” medicine effective in clearing “heat” and detoxifying various form of “fire”, which can be manifested externally as burns, or internally as liver disease. “Cold” medications fight fever, reduce inflammation and swelling, reduce pain, and detoxify [2].

Asiatic black bear (*Selenarctos thibetanus*) and Tibetan brown bear (*Ursus arctos pruinosus*) are the original sources of gall bladders used for medical purposes [2]. However, recent information indicated that medicinal gall bladders also came from American black bear (*Ursus americanus*) and from two Asian bear species, Sun bear (*Helarctos malayanus*) and Himalayan brown bear (*Ursus arctos isabellinus*) [3]. The exploitation of the remaining Asian bear species, Giant panda (*Ailuropoda melanoleuca*), has not been reported.

International trade of bear gall bladders is regulated by The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The Asiatic black bear, sloth bear, sun bear, and certain Asian populations of the brown bear are included on CITES Appendix I, which prohibits commercial trade. All remaining Asian populations of brown bear and American black bear are listed in CITES Appendix II. Trading of products from these latter species is regulated by the issuance of permits. With diminishing bear population and strict regulations, the People's Republic of China has developed a procedure to extract bile fluid from the gall bladders of living bears [4]. More than 10,000 bears are now kept in captivity in bear farms for the purpose of "milking" their bile for medicinal use.

Bear bile found in traditional Chinese medicine stores can be divided into three categories: (a) true complete gall bladder; (b) farmed bear bile in dried powder form; and (c) fraudulent bear products, e.g., pig, water buffalo, goat, etc., as whole gall bladder or dried bile powder forms. Each of these categories can also be further subdivided. For example, true bear gall bladders are divided into golden-silk gall bladders, black oil ink gall bladders, or named according to their countries of origin. The farmed bear bile can be 100 percent pure or a mixture of various amounts of biles from other animals, such as pig, water buffalo, goat, and others. Fraudulent bear gall bladders, the trade names like "cheap bear gall bladder", "common bear gall bladder", "various gall bladder" and "miscellaneous gall bladder", are not derived from bear and their animal origins are unknown. Traditional Chinese medicine stores adopt certain identification procedures for these products. These procedures, however, are not based on modern chemical analyses methods [5].

Since the cost of bile derived from farmed bear is very competitive, it has recently taken over the market of wild bear gall bladder in Taiwan. The sale of fraudulent products is also common. The main objective of this study is to determine whether (a) bear gall bladders and bile can be distinguished from gall bladders and bile from other animals, and (b) gall bladders and bile from different bear species can be differentiated. This study was conducted with reference to the HPTLC and HPLC procedures and the findings reported by the US Fish and Wildlife Forensic Laboratory [6]. We further employed Fourier transform infrared spectroscopy (FT-IR) for this investigation and found it extremely useful.

Materials and Methods

Reagents

All solvents and reagents were HPCL grade and were purchased from Baker Inc. (Phillipsburg, N.J.). Tauroursodeoxycholic acid (TUDC), taurocholic acid (TC), taurochenodeoxycholic acid (TCDC) taurodeoxycholic acid (TDC), tauroolithocholic acid (TLC), glycodeoxycholic acid (GDC), glycolithocholic acid (GLC), glycochenodeoxycholic acid (GCDC), glycocholic acid (GC), and monobasic potassium phosphate were purchased from Sigma Chemical Co. (St. Louis, MO). Taiwan black bear and Polar bear bile salt were obtained courtesy of the Taipei City Zoo. Bovidae and Suidae gall bladders were obtained from local sources.

Sample Preparation

Bile-containing samples were named using two different systems in the text and figures: those from known sources were designated with words or letters, e.g., TCDC and pig; those collected from Chinese medical shops were designated with numbers (even if they might have been considered authentic), e.g., 80-4.

Samples were prepared by either weighing out 20 mg of crystallized bile salts or by pipetting 200 μ L of fresh bile and then transferring to a 10 x 75 mm test tube. Two mL of methanol was added. The test tube was placed on a horizontal shaker for 15 minutes and then centrifuged for 5 minutes. One mL of the supernatant was transferred to a 1.8 mL autosampler vial which contained 50 μ L of 4-methylphenol (1 mg/mL) serving as the internal standard.

High Performance Liquid Chromatography

The HPLC procedure used for the separation of bile acids is based on that reported by the US National Fish and Wildlife Forensic Laboratory [6]. A Hewlett Packard 1050 HPLC equipped with a multi-wave length detector was used for analysis. The analytical column was a Vydac reversed phase C18 column, 25 cm by 4.6 mm I.D., and 5 μ m particle size, 85:15 (v/v) of 25 mM $\text{KH}_2\text{PO}_4/\text{K}_2\text{HPO}_4$ buffer (apparent pH 5.45) in methanol:water was used as the elution solvent (0.75 mL/min, isocratic). The analytical wavelength was 210 nm with a reference wavelength of 400 nm. Tentative peak identifications were made by comparing the relative retention times with those of known standards.

Thin Layer Chromotography

The HPTLC and viewing procedures reported by the US National Fish and Wildlife Forensic Laboratory [6] were modified and used to confirm the presence of conjugated bile acids detected by HPLC. Bile samples were spotted (5 μ L) on a HPTLC aluminum sheet silica gel 60 F₂₅₄ plate (10 x 20 cm) (E. Merck: Darmstadt, Germany). The plates were developed three times in the chloroform/isopropanol/glacial acetic acid/water (30:30:0.4:0.1, v/v) solvent system. The plates were developed up to 9.5 cm from the origin (approximately one hour) and then were removed and dried under hot air. After the final development, the plate was sprayed with 20 sulfuric acid in water followed by 3.5 percent w/v phosphomolyblic acid in isopropanol and heated at 100 °C for five minutes.

Fourier Transform Infrared Spectroscopy

A model FTS-40 Fourier transform infrared spectrometer (Digilab: Cambridge, MA) was used for this study. Bile samples (0.1-0.2 mg) were mixed with approximately 100 mg of dry, powdered potassium bromide by thoroughly grinding in a smooth agate mortar. The mixture was pressed into a transparent disc with dies under a pressure of 12,000 pounds per square inch. Spectra were obtained in transmittance mode with 16 scans over the range of 400 to 4,000 cm^{-1} at 4 cm^{-1} resolution.

Results and Discussion

Identification of Bear Bile Products

Major bile acids are TUDC, TCDC, and TC (Fig. 1) which include the taurine constituent characterized by the presence of a SO_3^- functional group. This functional group exhibits strong IR absorption at 1082 cm^{-1} and 1208 cm^{-1} (Fig. 2). Computerized search of an unknown IR spectrum against an in-house generated library composed of bile acids from various animals has proven to be very effective for identifying a bear bile product.

This approach, however, is limited in two aspects. First, bile acids derived from goat also contain TC, thus may be falsely recognized as bear bile by its IR spectrum alone. (Approximately 93 bear and 12 goat samples that were from known or considered authentic products from Chinese medicine shops have been tested with this computerized searching

process. All were correctly identified.) Furthermore, chromatographic procedures (HPTLC and HPLC) are needed to provide a basis for potential differentiation of bear gall bladder products originating from various geographical regions.

Chromatographic Differentiation of Various Bear Bile Products

Characteristic features of HPTLC and HPLC chromatograms of bile extracts from goat, pig, and water buffalo are shown in the right-hand section of Fig. 3A and Fig. 4, respectively. Although not as convenient as the computerized IR spectrum searching process, these chromatograms provide characteristic patterns that may help identify the animal origins of gall bladder-derived products.

HPTLC retention factors (R_f) and HPLC retention time data of common bile products, (purchased from Sigma) are shown in Table i. HPTLC patterns of several standard compounds and various bile products are shown in Fig. 3. Representative HPCL chromatograms of wild and farmed bile extracts are shown in Fig. 5.

Differentiation of Goat and Bear Bile Products. The TC component in goat bile acid confounds its differentiation from bear bile by IR analysis. However, the HPTLC pattern of a goat bile lacks TCDC, TUDC, and GC components and can be easily recognized (far-right in Fig. 3A). Quantitative HPLC data are not needed for excluding goat bile products.

Differentiation of Bear Gall Bladder Products from Various Regions. HPTLC patterns obtained from (a) wild bear gall bladders smuggled from Bhutan (BD-A, BD-B, BD-C), (b) Taiwan black bear bile (from Taipei City Zoo), and (c) farmed bear bile (30-1, 40-13, 40-18) are shown in the left-hand section of Fig. 3A. HPLC chromatograms of these three categories of bear products (Fig. 5A-5C) show a relative TUDC/TCDC/TC content pattern similar to that reported [6] for farmed bear-derived products, i.e., "Characterized by a decreased presence of [TC] (< 10 percent) and a dramatic increase in the percent composition of [TUDC] (> 50 percent) and [TCDC] (> 20 percent)." Studies reported by Chinese scientists also failed to show significant differences in the composition of bile salts between wild and farmed bear products [7,8].

It appears that the low content of TC is common among all Asian bear species (wild or farmed) analyzed, with the exception of those derived from Polar and North American black bears (Figs. 5E and 5D). It is thus suggested that high content of TC may serve as an indicator for identifying Polar and North American bears (far left in Fig. 3A), but decreased TC can not be

used to identify farmed bear bile, as suggested by Espinoza et. al. [6]. More comprehensive studies are needed to clarify bile salts distributions among bear gall bladder products from geographical sources.

Source Survey of "Bear" Bile Products in Taiwan's Chinese Medicine Store Market

The results of TLC analyses on 183 samples collected from Chinese medicine shops throughout Taiwan indicate that alleged bear bile products sold in the market can be categorized into the following six types: (a) true bear bile (Fig. 3B: 20-1, 50-3, 70-1, 40-18, 50-12, 80-1); (b) pig gall bile (Fig. 3B: 10-19, 40-3, 40-32); (c) water buffalo bile (Fig. 3B: 10-8); (d) goat bile (Fig. 3A: 10-3, 10-6, 41-15); (e) mixture of bear and pig bile (Fig. 3B: 10-2, 20-2, 80-15); and (f) mixture of water buffalo and pig bile (Fig. 3B: 10-9). Both types (a) and (e) contain bear bile salts. Type (e) includes pig bile components shown as spots at R_f 0.7 and 0.8 (Fig. 3B: 70-1, 40-18, 50-12, 80-1). It is possible that a pig gall bladder sac was filled with bear bile, but one cannot be certain. Type (a) does not show any bile components of other animals indicating unadulterated Asian bear (wild or farmed) bile product.

The origin of the 183 samples analyzed were found to be as follows: 118 (64 percent), bile salts or gall bladders were of domestic pig; 56 (31 percent), bile products of Asiatic bear; 4 (2.2 percent), Asiatic bear mixed with pig bile salts; 2 (1.6 percent) goat gall bladders; 1 (0.55 percent) water buffalo bile salts; and 1 (0.55 percent), pig bile salts mixed with water buffalo bile salts.

The Investigation Bureau Forensic Laboratory has received 202 gall bladders (nine cases) items were obtained from Council of Agriculture Executive Yuan. Analysis of 202 gall bladders items obtained as criminal evidence showed that of the samples from the customs, 137 (67.8 percent) gall bladders were of domestic pig; 37 (18.3 percent) were from Asiatic bears; 14 (6.93 percent) goat gall bladders; 14 (6.93 percent) can not detect any animal bile components.

Conclusion

FT-IR spectra of an unknown sample can be used (through a computerized search algorithm against an in-house generated library) as an effective screening tool to determine its alleged authenticity. Samples that pass this preliminary screen can be further analyzed by HPTLC and HPLC procedures to determine whether it is a goat- or a bear-derived product, and if the latter category, differentiate polar and North American bears from Asian bears. Polar and North American bear appear to have higher TC content than the Asiatic bear species. Data collected in this study do not support an earlier proposal in using the relative TC content as the basis for the differentiation of wild and farmed bear biles.

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TABLE 1 - HPTLC R_f values and HPLC retention time of conjugated bile acids.

Compound	HPTLC R _f	HPLC Retention Time (min)
<i>p</i> -Cresol (HPLC retention time reference)	--	4.48
Taurocholic acid (TC)	0.08	6.09
Taurodeoxycholic acid (TDC)	0.21	--
Taurochenodeoxycholic acid (TCDC)	0.25	8.18
Glycocholic acid (GC)	0.29	7.21
Tauroursodeoxycholic acid (TUDC)	0.32	4.95
Taurolithocholic acid (TLC)	0.44	--
Glycodeoxycholic acid (GDC)	0.66	--
Glycochenodeoxycholic acid (GCDC)	0.71	10.78
Glycolithocholic acid (GLC)	0.91	--

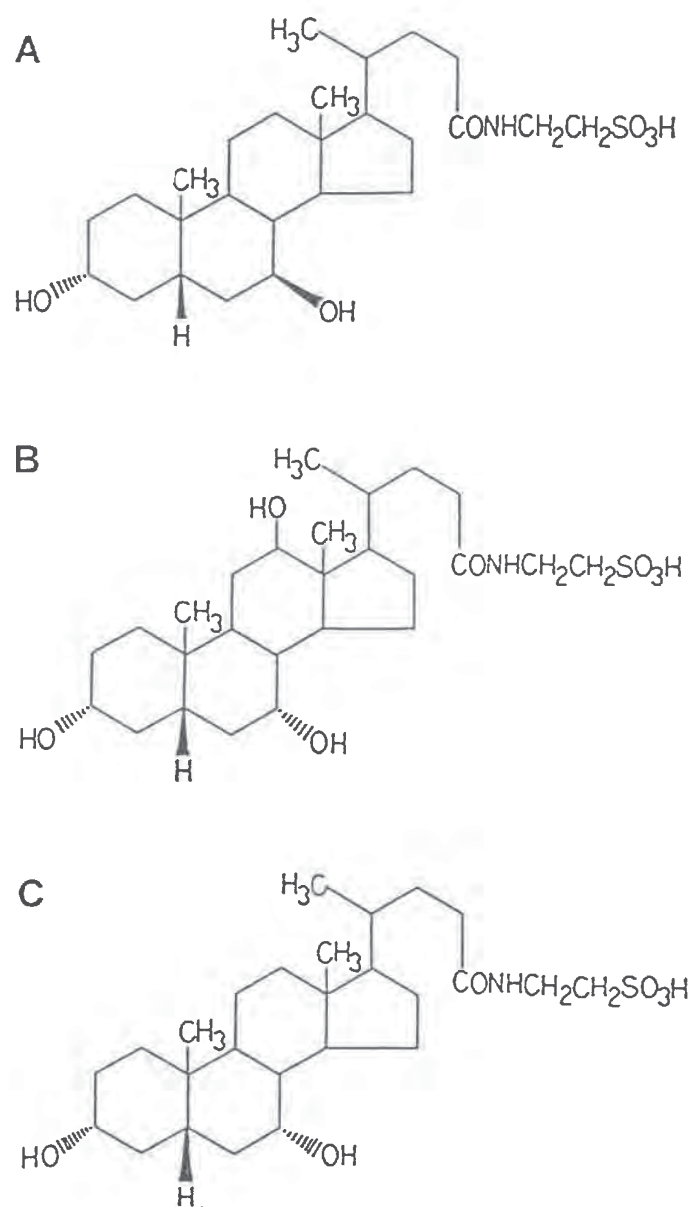


FIG. 1 — The structure of conjugated bile acids. A: taoursodeoxycholic acid (TUDC); B: taurocholic acid (TC); C: taurochenodeoxycholic acid (TCDC).

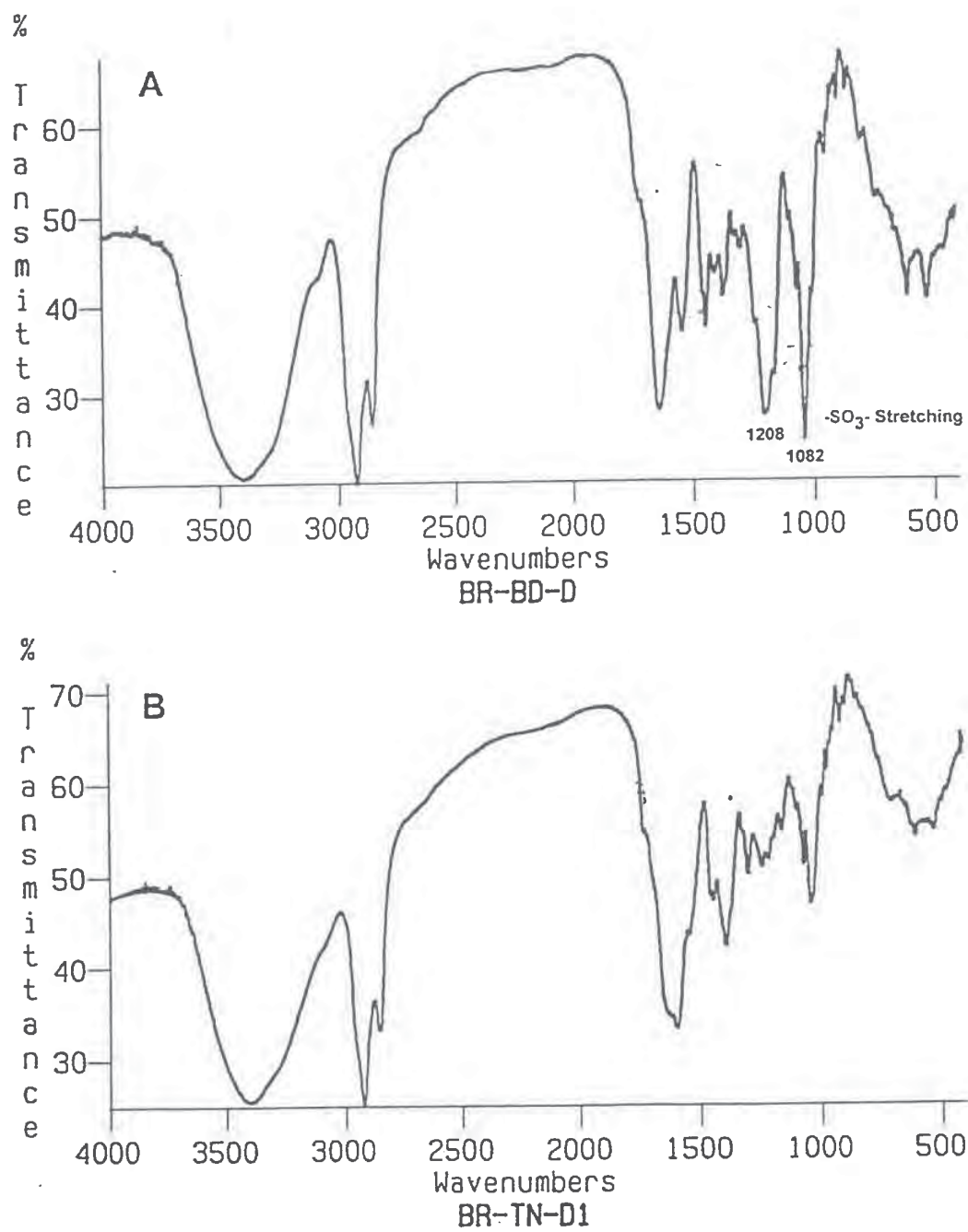


FIG. 2--FT-IR spectrum of bear and pig bile salts. A: bear; B: pig.

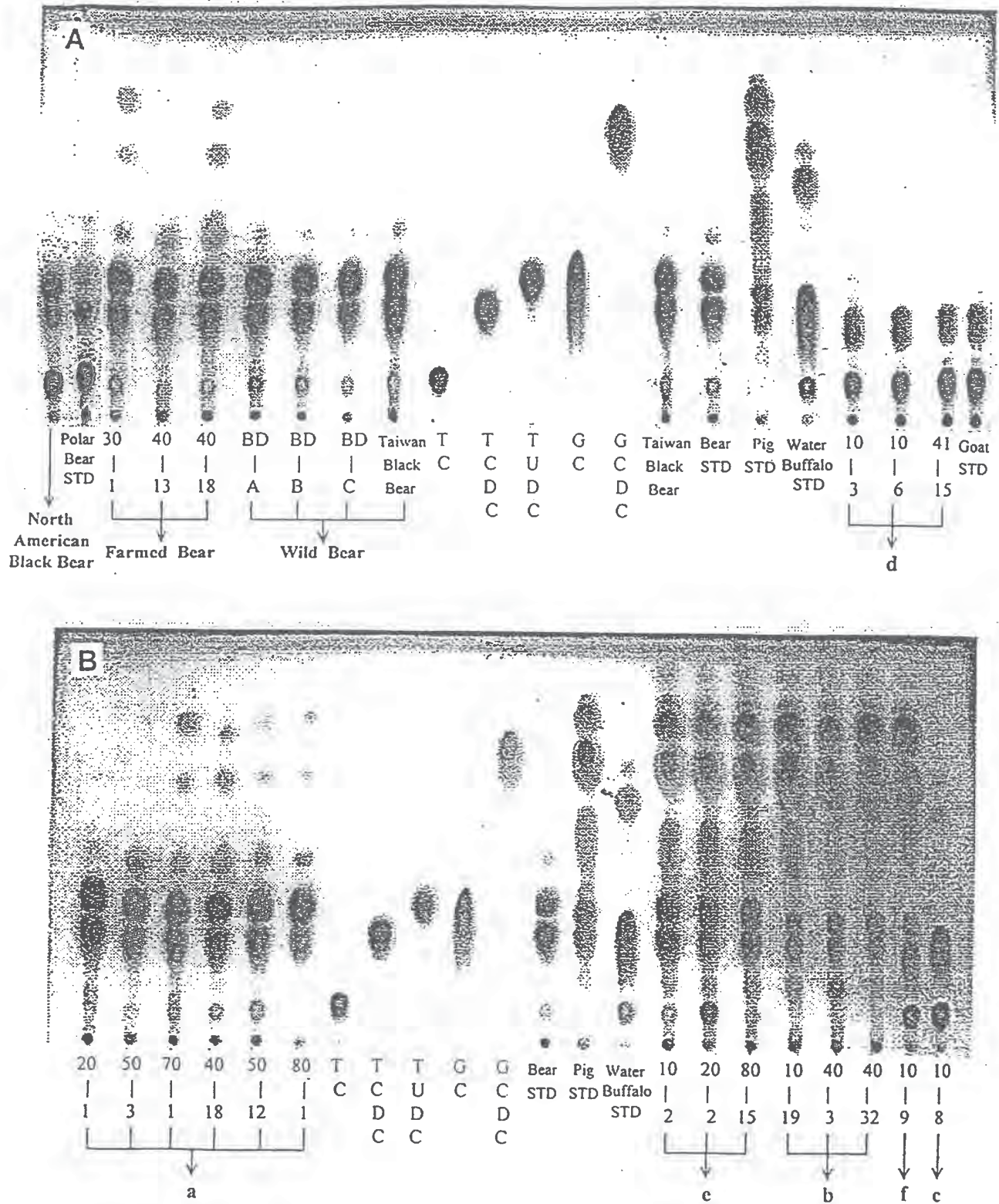


FIG. 3 — HPTLC chromatogram of bear bile salts from Chinese medicine shops. Six types: (a) true bear bile; (b) pig bile; (c) water buffalo bile; (d) goat bile; (e) mixture of bear and pig bile; and (f) mixture of water buffalo and pig bile.

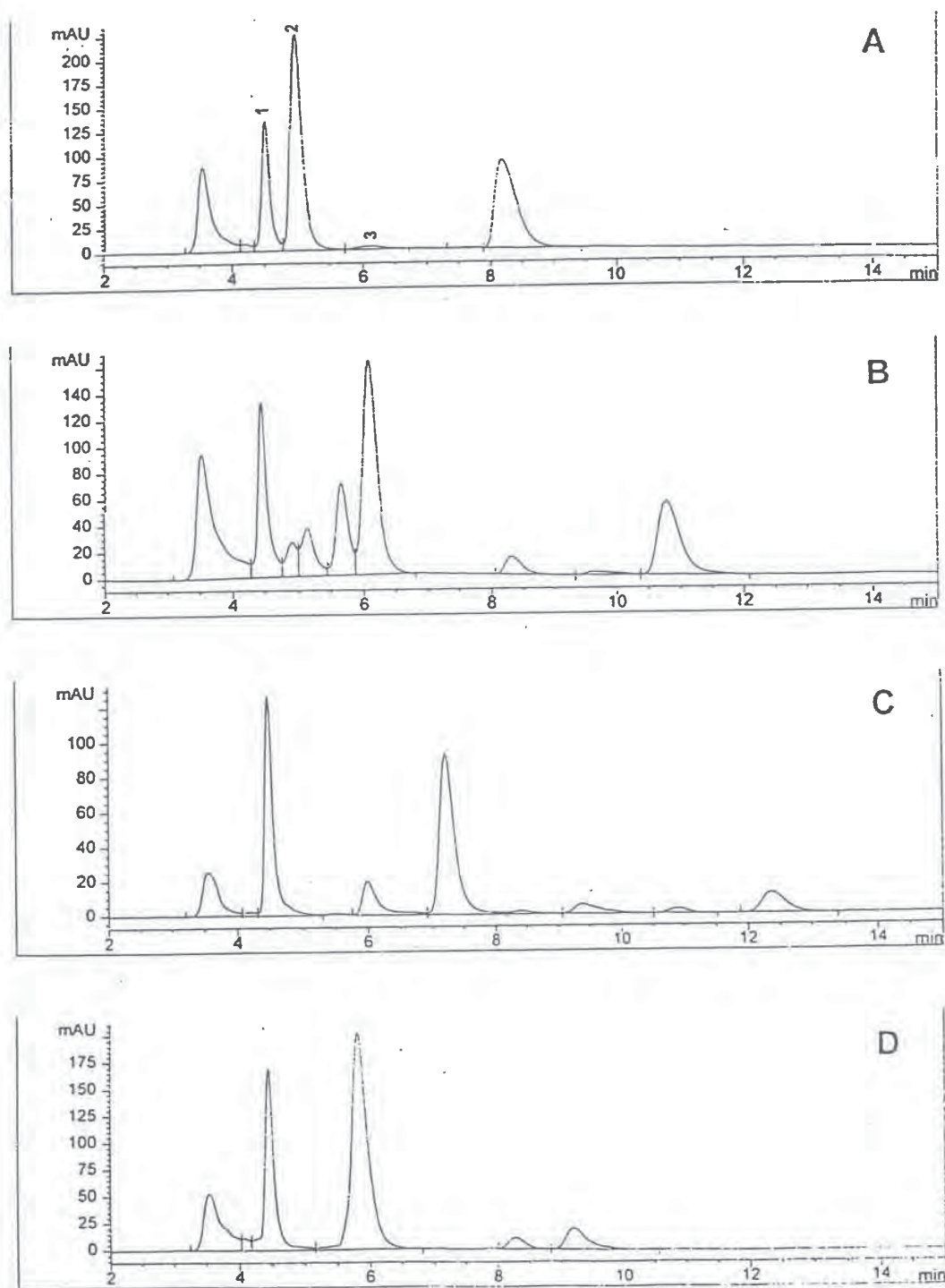


FIG. 4—HPLC chromatogram of animal bile salts. A: Asian bear; B: pig; C: water buffalo; D: goat.

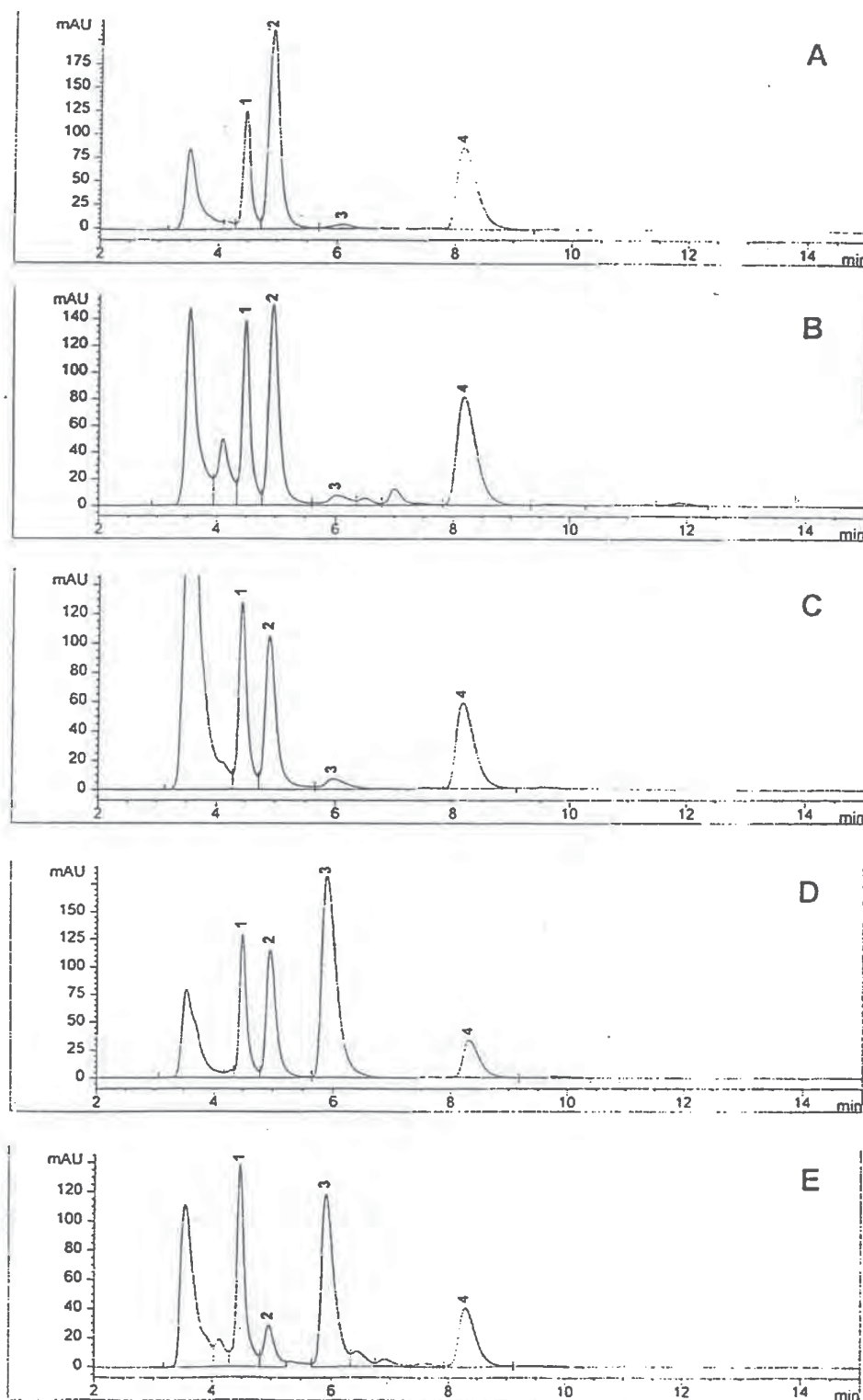


FIG. 5 -- HPLC chromatogram of bear bile salts. A: Bhutan wild bear; B: farmed bear; C: Taiwan black bear; D: North American black bear; E: polar bear. 1: P-Cresol (I.S.); 2: tauroursodeoxycholic acid (TUDC); 3: taurocholic acid (TC); 4: taurochenodeoxycholic acid (TCDC).

VII. INTERNATIONAL INITIATIVES OR NATIONAL SOLUTIONS?

CURRENT CITES ASPECTS OF CONTROLLING TRADE IN BEAR PARTS: U.S. PERSPECTIVES

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Abstract: CITES, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, provides an international mechanism for the maintenance of biodiversity by protection listed species of wildlife and plants from over-exploitation through international trade. All species of bears (Ursidae) are listed in either CITES Appendix I or II; only the American black bear, European brown bear, grizzly bear, and polar bear are listed in Appendix II. The U.S., recognizing the serious problems of conservation of bears throughout the world caused by the continued illegal trade in parts and products of Appendix I bear species, had raised this issue for discussion at both the CITES Animals Meeting and the CITES Standing Committee. The U.S. strongly believes that a multilateral effort is required to control this illegal trade. Leadership on this issue at the Animals Committee by the U.S. and China led to a decision and the request through the CITES Standing Committee that the CITES Secretariat issue a notification to the Parties. This notification (No. 946) requested that all bear range states submit for discussion at the next meeting (June 1997) of the Conference of the Parties (COP) any available information on their wild bear populations, trade threats to these populations, and legislative and regulatory controls on poaching and illegal trade in their parts and products. It also requested from all countries of import, re-export, and bear parts consumer countries, information on their enforcement efforts to interdict the illegal trade; legislative/regulatory controls on trade in bear parts and their derivatives; and additional information on conservation and education efforts for bears. The U.S. has responded to this notification and provided information on its bear populations and trade and enforcement activities. The information that the U.S. provided to the Secretariat will be discussed in this paper. Working with China and other CITES parties, the U.S. intends to seek multi-faceted solutions to curtailing the illegal trade in bear parts at the COP this June in Zimbabwe.

Introduction

We appreciate the opportunity to present this paper today. We would also like to thank TRAFFIC (USA) for having invited us to speak today and all their efforts to organize this International Symposium. CITES is unique in that it is a partnership not only between countries of the world, but between governments and non-governmental organizations interested in wildlife trade, both legal and illegal, and its impact on wildlife resources.

For those of you not familiar with CITES, I would like to give a very brief introduction to CITES, followed by an overview of bears and CITES, and recent CITES multilateral efforts to control the illegal trade in bear parts and conserve bears in the wild.

CITES

CITES, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, provides an international mechanism for the maintenance of biodiversity by protecting listed species of wildlife and plants from over-exploitation through international trade. The United States has been a leader in international efforts to protect biodiversity since 1973, when it hosted the conference in Washington, DC where the CITES treaty was concluded. The tenth meeting of the CITES Conference of the Parties (COP10) will be held June 9-20, 1997 in Zimbabwe. There are now 136 countries that are Parties to CITES, making it one of the most extensive international agreements for biodiversity conservation.

Human population growth and concomitant habitat destruction are the major factors impacting biodiversity worldwide. Yet the wildlife trade has had a major impact for many species and in many regions of the world. Significant public attention has been focused on more familiar species, such as the poaching of African elephants for the ivory trade, the illegal trade in hyacinth macaws, and the near extinction of African rhinoceroses for their horn. However, many little known but ecologically significant species have also been seriously depleted by the wildlife trade.

CITES serves a critical function as the world community's principal means of protecting threatened and endangered wildlife from the most disastrous effects of international trade. For a number of reasons, CITES is probably the best known international treaty dealing with wildlife conservation. It is through the cooperation of countries that are Parties to CITES that international wildlife trade is both monitored and regulated. As such, CITES is only as effective as the law enforcement and regulatory infrastructure within each Party. The CITES treaty regulates trade for species listed in different Appendices. Appendix I includes species in danger of extinction which are or may be affected by international trade; commercial trade in these species is prohibited. Appendix II includes those species that may become threatened if their trade is not bought under control. Commercial trade in Appendix II species is subject to regulation, and is allowed only if permits are obtained stating that trade is non-detrimental to the species' survival in the wild.

CITES and Bears

All species of bears (Ursidae) are listed in either CITES Appendix I or II, as shown in the following table:

TABLE 1: BEARS AND CITES

Scientific Name	Common name	Appendix
<i>Ursus americanus</i>	American black bear	II
<i>Ursus arctos</i> (all North American populations except <i>U.a. nelsoni</i>)	Brown bear; grizzly bear	II
<i>Ursus arctos</i> (Mexican population)	Mexican grizzly bear	I
<i>Ursus arctos</i> (all European populations, including Italian population)	European brown bear	II
<i>Ursus arctos</i> (all Asian populations, including populations of Iran, Iraq, Syria, Turkey, and the former USSR, except those populations and subspecies listed in Appendix I)	Brown bear	II
<i>Ursus arctos</i> (Bhutan, China, and Mongolia populations)	Asian brown bear	I
<i>Ursus arctos pruinosus</i>	Tibetan blue bear	I
<i>Ursus arctos isabellinus</i>	Red bear	I
<i>Ursus maritimus</i>	Polar bear	II
<i>Ailuropoda melanoleuca</i>	Giant panda	I
<i>Helarctos malayanus</i>	Sun bear	I
<i>Melursus ursinus</i>	Sloth bear	I
<i>Selanarctos thibetanus</i>	Asiatic black bear	I
<i>Tremarctos ornatus</i>	Spectacled bear	I

At COP10 in Zimbabwe, the CITES Parties will be considering two proposals to transfer all Asian and European populations of brown bear (*Ursus arctos*) from CITES Appendix II to Appendix I. One proposal was submitted by Bulgaria and Jordan, and the other was submitted by Finland. However, the proposals are not substantively different. The Service is still in the process of reviewing these proposals, and in particular is eager to receive more information on the status of brown bear populations in the Russian Federation.

We want to stress that the American Black bear was listed on CITES Appendix II at the Kyoto CITES meeting (COP8) in 1992, which became effective June 11, 1992. The listing was due to its similarity of appearance with endangered bear species listed in CITES Appendix I, particularly those found in Asia. Gallbladders and other parts of endangered Asian bears have been reported to be traded under the guise of being from the American black bear. Therefore, the listing of the American black bear is in order to control trade in other bear species, and not due to conservation needs or status of the American black bear itself.

In implementing CITES for the American black bear, therefore, any commercial exports of gallbladders, other viscera, paws, or other parts would require an Appendix II permit from the Service's Office of Management Authority. Individual hunters can take their legally acquired sport-hunted bear trophies with them out of the country under the CITES Appendix II personal effects exemption, which is implemented in the U.S. in 50 CFR Part 23. CITES export permits for bear parts or products can only be issued by the Office Of Management Authority after a finding is made that the items to be exported were taken in full compliance with all applicable state and federal laws. This points out the fact that we must differentiate between illegal trade in bear parts, particularly gallbladders, and illegal killing for commercial trade -- poaching. In the U.S., Service's Division of Law Enforcement has determined that the poaching of American black bears for their gallbladders and other parts to supply the demands of the Asian medicinal market for these products is not a significant problem and does not occur on any large scale. It is therefore important to continue to differentiate between illegal commercialization, and poaching.

CITES, Bears, and International Conservation Efforts

The First International Symposium on the Trade of Bear Parts for Medicinal Use was held here in Seattle Washington in September, 1994 and yet, we meet once again to discuss this trade. What is critical is that we realize that our first task must be to identify what the problems are, and then to proceed to see how those problems can be addressed. The U.S. recognized the serious problems of conservation of bear populations throughout the world caused by the illegal trade in parts and products of Appendix I bear species. In response to this problem, we raised this issue for discussion at both the CITES Animals Meeting which was held in Prague, Czech Republic in September of 1996, and the CITES Standing Committee in Rome Italy, in December 1996. We strongly believe that a multinational effort is required to control illegal trade. Our focus has continued to be on enforcement and the illegal trade- including interdiction, compliance, and

forensics. We need to recognize that domestic problems should be addressed domestically, while global problems necessitate multilateral solutions. We therefore continue to work through public education and community outreach on consumption of bear parts and products here in the United States. At the same time, we are committed to working with other governments on enforcement issues, and multilateral solutions.

A. The CITES Animals Committee Meeting

The U.S. placed the illegal bear parts trade issue on the agenda and for discussion at this meeting. I'd like to thank my colleague, Dr. Fan of the CITES Management Authority of China who is seated here today for his country's efforts on this critical issue. We also note that a recent CITES delegation from the U.S. to China, involving our Management Authority, Scientific Authority, and Division of Law Enforcement, provided our government with increased understanding of the bear parts trade in China, and conservation and enforcement efforts underway there. That visit was under the auspices of the U.S./China Nature Conservation Protocol. Just this month our governments signed a new two-year bilateral protocol, which includes a significant CITES component. Part of that CITES bilateral exchange will involve training in wildlife inspection and identification, and training and technical assistance in wildlife forensics. We look forward to cooperative work with our Chinese colleagues, who have recently established a new Detecting Center with forensics capability in Harbin, China; we are hopeful that the work of the Center will include identification of bear gall bladder and other bear products.

Leadership on this issue at the Animals Committee by the U.S. and China led to a decision and the request through the CITES Standing Committee that the CITES Secretariat issue a Notification to the Parties. Attached you will find a copy of the document that was agreed to by consensus of the Animals Committee, as well as the Secretariat Notification. This points to the importance of bringing such issues to the attention of multilateral bodies such as the Animals Committee, to focus increased attention on identifying and solving problems. The U.S. initially raised the issue of illegal trade in parts and products of Appendix I bears to the Animals Committee, but the representatives of China at the meeting insisted that the world community must look at all illegal trade issues, which we concurred with. We must note that the discussions at the Animals Committee were not about the status of black or brown bears, but on how the governments can cooperate to deal with the real problems of illegal trade in gall bladders and other products. The United States is committed to research in forensic methodologies to differentiate between these products, and looks forward to continued cooperation with China and other governments in Asia and around the world on these issues.

One important decision of the Animals Committee states that "bears are native to Asia, Europe, North America, and South America, and as such the problem of conservation of bears caused by illegal trade in their parts and products is a global one." This decision is important in that it reflects a recognition that problems of illegal trade are not limited to one region of the

world, but affect all populations and all geographic regions. Again, this points to both domestic and multilateral solutions to these problems. Another important decision in the Animals Committee document states that “the continued trade in parts and products of bear species undermines the effectiveness of the Convention.” We are pleased that the Animals Committee agreed, as did the Standing Committee, that illegal trade in CITES-listed species undermines the effectiveness of the Convention; the control of illegal trade is the very heart of making CITES an effective instrument. We were also quite pleased that the Animals Committee agreed that all consumer countries and non-governmental organizations should cooperate closely with the traditional Asian medicinal and other consumer communities within their countries. Our efforts in that regard are discussed below.

B. Notification #946 from the CITES Secretariat

Upon bringing the Animals Committee document to the attention of the Standing Committee, it was agreed by the Party governments to circulate a Notification from the Secretariat, asking countries for a number of pieces of information. This Notification, and the Standing Committee decision, stressed “the serious problem of conservation of bears throughout the world caused by the continued illegal trade in their parts and derivative.” The fundamental concern therefore is information on illegal trade, with the goal of making recommendations on how to deal with the problems. The Notification requested that Parties submit for discussion at the CITES meeting in Zimbabwe (COP10) :

From bear range states -

- all available information on the status of their wild bear populations, trade threats, legislative/regulatory controls on bear harvesting and on trade in their parts and derivatives;

and from countries of import, (re-)export and consumers of bear parts and derivatives -

- all information on their enforcement efforts to interdict illegal shipments of bear parts and derivatives; legislative/regulatory controls on trade in these parts and derivatives; prosecutions relating to illegal trade in bear parts or derivatives; the kinds of bear derivatives available on the market; efforts to promote the use of substitutes in traditional medicine; and information on public education and outreach efforts.

The purpose for this Notification, and the compilation of information, is to ascertain what the real problems are, what efforts have been made by countries, and what solutions could benefit bear conservation. The U.S. has responded to this Notification and provided information on its

bear populations, and trade and enforcement activities. I'd like to share with you today some of the highlights of the U.S. response to the CITES Secretariat, which is very extensive. I brought one copy with me if anyone would like to take a look at it. Other country submissions, as well as the U.S. submission, will be discussed at the CITES COP in Zimbabwe this June.

- ◆ Three species of bears inhabit North America - the black bear (*Ursus americanus*), the grizzly [brown] bear (*Ursus arctos*) , and polar bear (*Ursus maritimus*). The black bear is widely distributed throughout North America and occurs in 32 states of the U.S. You have already heard about the status of these species in the U.S. in this symposium and I won't discuss this further.
- ◆ State laws and regulations affecting the sale of American black bear gallbladders is summarized in Table 2 (Page 197). In the U.S., it is legal to sell bear gallbladders in 10 states; 27 states (54 percent) harvest American black bears and use bear hunting in their American black bear population management programs; Grizzly bear hunting occurs in Alaska but the sale of their gallbladders is prohibited in Alaska.
- ◆ The market and domestic demand for the sale of bear gall bladders within the U.S. remains largely unknown. The diversity of state regulations and lack of uniformity in the laws affects the sale of bear gall bladders within the U.S. Often, bear gall bladders from legally harvested black bears are sold illegally in violation of state laws. Of the Service's Law Enforcement investigations dealing with bear poaching in the U.S., very little evidence has been uncovered showing that the trade in galls or trade in other bear parts motivates the poaching of bears within the U.S. The evidence suggests that poachers are motivated by other factors, including the desire for a trophy (or hide), and the sale of the gall bladder or paws is a secondary activity that does not directly cause a bear to be poached.
- ◆ Before the 1992 CITES listing of black bears, the number of black bear gall bladders exported was not monitored and the quantity exported from the U.S. was not known. Since the listing of the American black bear on CITES Appendix II, the total number of CITES permits issued for the export of black bear viscera is 11, ten of which were issued to USFWS law enforcement personnel. One permit was issued for the commercial export of a single gall bladder. It was legally taken in Maine, sold to a state-licensed fur buyer and exported to Japan. One permit was denied for the export of 44 gall bladders to British Columbia, Canada. More restrictive domestic measures in British Columbia did not allow the importer to legally possess the gall bladders. Therefore, there is no significant legal U.S. commercial exports of black bear viscera. By submitting this information to the Secretariat, no bear gall bladders or products on the market in Asia can be falsely claimed to be of U.S. origin.

We were quite pleased that the Animals and Standing Committees agreed that all consumer countries and non-governmental organizations should cooperate closely with the traditional Asian medicinal and other consumer communities within their countries. We

submitted information on our efforts towards that goal, and encourage non-governmental organizations to submit information on this subject to the Secretariat as well. The Service is committed to creating a partnership with the U.S. traditional medicine community that helps to promote understanding between the community and the U.S. Government, and that involves community representatives fully in an educational outreach effort. Many traditional medicine community members have felt excluded on issues directly related to them, and have expressed concern that the media and conservation organizations tend to report stories concerning the connection between traditional medicine practices and diminishing numbers of endangered plants and animals in the wild, without consulting the community or without fully understanding the traditional uses of many plants and animals. The Service has acknowledged that real change can only come from the community, and therefore is working closely to develop a community-focused, community-based program. It is hoped that a strong partnership with the community will fuel change at levels more fundamental than those that are available through standard interdiction activities.

Direct involvement with the community is beginning to create a well-grounded partnership in which genuine discussions are taking place and where varying points of view are acknowledged (see attached summary of FWS educational efforts). Among community members, energetic discussions have begun, concerning the development of alternatives and substitutes for key ingredients in traditional formulas.

Future CITES Activities

The CITES Secretariat will be reviewing the information that it received from the Parties in response to its Notification and preparing a report for discussion at COP10. Unfortunately, the responses from many countries with bear populations and many consumer countries has been limited, but we hope that the Secretariat will be successful in its efforts to stimulate greater response.

We know that the illegal trade in Asian bear parts continues to be a threat to the survival of wild bear populations in Asia. Current controls on international trade in some countries are insufficient to prevent illegal trade in bear products, for a number of reasons. In East Asian countries, domestic control measures need to be strengthened. National trade controls currently in place are patchy and inadequate to ensure that legally obtained bear products can be distinguished from those obtained illegally. Although registration and marking systems and requirements for proof of legal acquisition for bear gall bladders and bile may appear to constitute one solution, cost and enforcement issues would render such an approach impractical. If a ban on the trade in bear gallbladders was recommended by CITES Parties as a multilateral strategy, the Service would be willing to support the prohibition of the export of bear gall bladders from the U.S.

Working with China and other CITES Parties, the U.S. intends to seek multi-faceted solutions to curtailing the illegal trade in bear parts at COP10 in Zimbabwe. We are already too familiar with how the illegal trade in tiger parts is decimating the world's tiger species. The U.S. is confident that a similar situation with bears can be prevented because we are acting judiciously and in a timely fashion to seek multi-faceted solutions in the appropriate international fora. What is also important is that we are seeking multilateral solutions to multilateral problems. The problems of illegal trade in bear parts and products are global, and are not the fault or problem of one country. We need to understand the trade patterns and illegal trade issues, including problems of identification, forensics, and interdiction, and work together and cooperatively to solve those problems.

In conclusion we are committed to working on these problems on three levels:

- (1) domestically, with the U.S. Asian communities and traditional medicine communities;
- (2) bilaterally with other countries- including through our U.S./China Nature Conservation Protocol, and our ongoing efforts and discussions with other Asian countries; and
- (3) multilaterally, through the CITES process, including discussions at the upcoming meeting of the Conference of the Parties.

Attachments:

- Table 2. Black bear hunting and the legal sale of their gall bladders in the United States
- Animals Committee Decision
- CITES Secretariat Notification 946
- USFWS Fact Sheet on Traditional Chinese Medicine
- Summary of FWS Educational Efforts with the TCM Community

Table 2. BLACK BEAR HUNTING AND THE LEGAL SALE OF THEIR GALL BLADDERS IN THE UNITED STATES

Note: The information contained in this table was confirmed with the states by the International Association of Fish and Wildlife Agencies, and is current as of 11/05/96.

State	Legal Black Bear Hunt	Sale of bear gallbladders permitted	Comments
Alabama	no	no	
Alaska	yes	no	
Arkansas	yes	no	
Arizona	yes	no	
California	yes	no	
Colorado	yes	no	
Connecticut	no	yes	allow sale of parts which originated elsewhere.
Delaware	no	possibly	have no regulations specific to bear parts, so the sale of galls is possible.
Florida	no	no	
Georgia	yes	no	
Hawaii	no	possibly	have no regulations specific to bear parts, so the sale of galls is possible.
Idaho	yes	yes	
Illinois	no	possibly	have no regulations specific to bear parts, so the sale of galls is possible.
Indiana	no	possibly	have no regulations specific to bear parts, so the sale of galls is possible.
Iowa	no	possibly	have no regulations specific to bear parts, so the sale of galls is possible.
Louisiana	no	yes	allow sale of parts which originated elsewhere.

State	Legal Black Bear Hunt	Sale of bear gallbladders permitted	Comments
Kansas	no	possibly	have no regulations specific to bear parts, so the sale of galls is possible.
Kentucky	no	possibly	have no regulations specific to bear parts, so the sale of galls is possible.
Maine	yes	yes	state hide buyer could buy & sell galls
Maryland	no	no	
Massachusetts	yes	no	
Michigan	yes	no	
Minnesota	yes	no	
Mississippi	no	no	
Missouri	no	no	
Montana	yes	no	
Nebraska	no	no	
Nevada	no	no	
New Jersey	no	yes	allows the sale of parts which originated elsewhere.
New Hampshire	yes	no	
New Mexico	yes	no	
New York	yes	yes	
North Carolina	yes	no	
North Dakota	no	yes	allows the sale of parts which originated elsewhere.
Ohio	no	no	
Oklahoma	no	yes	allows the sale of parts which originated elsewhere.
Oregon	yes	no	
Pennsylvania	yes	yes	
Rhode Island	no	yes	allows the sale of parts which originated elsewhere.

State	Legal Black Bear Hunt	Sale of bear gallbladders permitted	Comments
South Carolina	yes	no	
South Dakota	no	no	
Tennessee	yes	no	
Texas	no	no	
Utah	yes	no	
Virginia	yes	no	
Vermont	yes	possibly	have no regulations specific to bear parts, so the sale of galls is possible.
Washington	yes	no	
West Virginia	yes	yes	
Wisconsin	yes	no	
Wyoming	yes	possibly	have no regulations specific to bear parts, so the sale of galls is possible.

Attachment 1: CITES Animals Committee Decision

DECISION OF THE 13th MEETING OF THE ANIMALS COMMITTEE

Pruhonice, Czech Republic
23-27 September 1996

Illegal International Trade in Parts from CITES-listed bear species

The Animals Committee, in recognition of the serious problem of conservation of bears throughout the world caused by the continued illegal trade in parts and products of bear species.

NOTES:

- a) that if all Parties to the Convention, as well as non-Parties, do not take action to eliminate the illegal trade in parts and products of bear species, poaching of wild populations of bears listed in Appendix I may cause population declines that could lead to the extirpation of bear populations or even entire bear species; and
- b) the continued illegal trade in parts and products of bear species undermines the effectiveness of the Convention; and
- c) that bears are native to Asia, Europe, North America, and South America, and as such the problem of conservation of bears caused by illegal trade in their parts and products is a global one.

RESOLVES to recommend to the Standing Committee:

- a) to strongly urge all Parties to the Convention, as well as non-Parties, to endeavor to eliminate the illegal trade in bear parts and products; and
- b) to include international trade-related aspects of bear conservation as an issue of special concern at the tenth meeting of the Conference of the Parties; and
- c) to encourage all governments in consumer Parties and non-Parties, as well as non-governmental organizations in those countries, to cooperate closely with the traditional Asian medicinal and other consumer communities within their countries, both to educate consumers about the conservation of bear species, and to work cooperatively to seek substitutes for bear parts and products in traditional medicines, as appropriate; and
- d) to discuss legal and illegal trade in bear gall bladders and other parts; and
- e) to urge all Parties to the Convention, as well as non-Parties and non-governmental organizations, to cooperate on this issue.

RECOMMENDS that the Secretariat:

- a) request through a Notification to the Parties that all bear range states submit to the next meeting of the Conference of the Parties any available information on their wild bear populations, trade threats to these populations, and legislative and regulatory controls on poaching and illegal trade in their parts and products; and
- b) request through a Notification to the Parties that all bear consuming or trading countries submit to the next meeting of the Conference of the Parties any available information on: enforcement efforts to interdict illegal shipments of bear parts or products; legislative and regulatory controls on illegal trade in these parts and products; prosecutions for violations relating to illegal trade in bear parts or products; the kinds of bear products available on the market; efforts to promote substitutes in traditional medicine; and public education programmes; and
- c) notify the Parties that the information requested in paragraphs a) and b), above, be submitted to the Secretariat by 10 January 1997; and
- d) bring this issue to the attention of the Interpol Subgroup on Wildlife Crime and the World Customs Organization; and
- e) explore all avenues for funding to convene a workshop on controlling illegal trade in bear parts and related illegal trade, in accordance with the provisions of Resolution Conf. 9.8.

Attachment 2: CITES Secretariat Notification 946



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



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NOTIFICATION TO THE PARTIES

No. 946

Geneva, 18 November 1996

— CONCERNING:

Illegal International Trade in Parts and Derivatives of CITES-listed Bear Species

1. The Animals Committee, at its 13th meeting, Pruhoonice, Czech Republic, 23-27 September 1996, in recognition of the serious problem of conservation of bears throughout the world caused by the continued illegal trade in their parts and derivatives, adopted a decision on such trade.
2. In this context, the Animals Committee directed the Secretariat to request
 - a) from all range States of bears: all available information on the status of their wild bear populations, trade threats and legislative/regulatory controls on killing of bears and on trade in their parts and derivatives; and
 - b) from all countries of import (re-)export and consumption of parts and derivatives of bears, all information on: their enforcement efforts to interdict illegal shipments of bear parts and derivatives; legislative/regulatory controls on trade in these parts and derivatives; prosecutions relating to illegal trade in bear parts or derivatives; the kinds of bear derivatives available on the market; efforts to promote the use of substitutes in traditional medicine; and education programmes.
3. This issue will be included in the Agenda of the 10th meeting of the Conference of the Parties (Zimbabwe, June 1997). Therefore, the information requested in paragraph 2. should be received by the Secretariat by 10 January 1997 at the latest.



Attachment 3: USFWS Fact Sheet on Traditional Chinese Medicine

Traditional Oriental Medicine, International Affairs—U.S. Fish and Wildlife Service

<http://www.fws.gov/~r9dia/tcmproc.html>

U.S. Fish and Wildlife Service

Traditional Oriental Medicine

The Fish and Wildlife Service would like to recognize the Traditional Oriental Medicine community for the vast body of knowledge, both cultural and medicinal, preserved by practitioners here and in Asia. In the United States, large

and diverse communities make use of traditional medicines as a vital part of their culture. The Fish and Wildlife Service both respects and acknowledges the significant contributions Traditional Oriental Medicine has made to human health.

What is the Fish and Wildlife Service?

As the agency responsible for implementing the Convention on International Trade in Endangered Species (CITES), Service has had a long-term conservation commitment to species potentially endangered by trade.

It is interested in the link between medicinals and endangered species, and convinced that the best way to ensure the sustainable use of certain plants and animals is to work closely with those who rely on them.

Why is the Service interested in working with the Traditional Oriental Medicine community?

Many Traditional Oriental Medicine community members feel they have not been invited to participate in issues directly related to them, and have expressed concern that the media tends to report stories concerning the connection between traditional medicine practices and diminishing numbers of endangered plants and animals in the wild, without consulting

the community. The Service wants to work closely with the community because their involvement is critical to the conservation and sustainable use of biodiversity. The Service hopes to create a community-focused program that incorporates the needs of the community in discussions on plant and animal conservation.

What is the significance of the Traditional Oriental Medicine community to the conservation of plants and animals?

The Service supports the use of natural resources, when such use is sustainable. However, the serious depletion of certain plants and animals requires that the agency work closely with partners to develop new ways of approaching conservation. Therefore, we are coming to the community to request its

assistance in protecting vanishing biodiversity. Practitioners have contributed in extraordinary ways to human health. Now there is an equally significant opportunity for them to contribute to the health and sustainability of the Earth's diverse plants and animals.

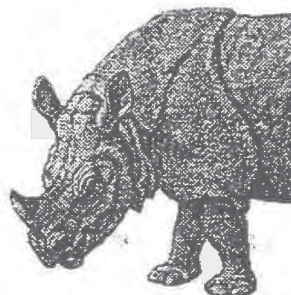
How will this be done?

There are any number of ways that the community may be able to suggest working together, and the Service welcomes such discussion. For its part, the Service has launched an educational initiative that seeks to create an atmosphere both of cooperation and inquiry into the needs of Traditional Oriental Medicine practitioners and endangered plants and animals.

With the support of community representatives, the Service intends (1) to create opportunities for community-directed discussion, (2) to answer questions about wildlife and trade presenting stumbling blocks to legitimate community practices, and (3) to learn ways in which it can support conservation efforts initiated by the community.

U.S. Fish and Wildlife Service

Asian Medicinals *Questions and Answers*



What are patented Asian medicinals?

They are commercially manufactured, mass produced medicines that follow traditional Chinese formulations. Manufactured medicinals are sold in packages, with pictures of the wildlife they claim to contain, such as the

illustration of a tiger on the box. The Endangered Species Act and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) make it illegal to import products containing endangered species.

Why is the Fish and Wildlife Service concerned about these medicinals?

As the agency responsible for enforcing CITES, the Service has had a long-term conservation commitment to tiger and rhino protection. Its interest in the link between medicinals and endangered species prompted the Service's National

Fish and Wildlife Forensics Laboratory to analyze products seized at ports of entry. The Forensics Lab found no evidence of endangered species in these patented over-the-counter medicinals, but significant levels of mercury sulfide and arsenic.

What is the problem if there are no endangered species products in the medicinals?

The popularity of these items maintains the demand for wildlife products containing endangered species. Also,

although the products analyzed do not contain endangered species, the toxic metals present in the medicinals may pose a health risk to consumers.

The Service suggests that certain over-the-counter Asian medicinals may represent a health risk. Why?

Ingestion of arsenic and mercury may have dangerous cumulative effects over time. The table included with this fact sheet indicates the toxins found in products sampled by the Forensics Laboratory. The Fish and Wildlife Service currently is working with the U.S. Food and Drug Administration, which sets tolerance levels for such toxins. Establishing such levels will help

consumers more easily determine the levels at which some medicinals are harmful to health. The State of California's Department of Health Services also has divided patented medicinals into risk-related categories. Mercury sulfide and arsenic sulfide fall into Category 1, ingredients that are toxic when taken internally. Under California's Sherman Food, Drug and Cosmetic Law, sale of these products is illegal.

Are toxins intentionally included or are they byproducts of the process?

The Chinese pharmacopeia lists realgar (arsenic sulfide) and cinnabar (mercury sulfide) as therapeutic agents. Traditionally they have been used in

Asian medicinals. However, none of the medicinals analyzed list them as ingredients. Realgar and cinnabar appear to be associated with products claiming to contain tiger bone or rhinoceros horn.

Is there a safe level for mercury or arsenic sulfide?

Studies evaluating levels of these compounds have not been completed. However, studies published in Australia reported chronic arsenic sulfide poisoning from traditional Chinese medicine with an average intake of approximately 10.3 milligrams per day. Studies published in Britain reported chronic mercury sulfide poisoning from

Indian ethnic remedies with approximately 262.0 milligrams per day. Ingestion of the daily recommended dose of Asian herbal balls could theoretically provide up to 72 milligrams of arsenic and up to 1.2 grams of mercury. Arsenic and mercury bioconcentrate in the body. A small dose over a long period of time eventually could produce chronic toxicity.

Original rhino illustration from Dover Publication "ANIMALS 1419 Copyright-Free Illustrations of Mammals, Birds, Fish, Insects, etc."

Analysis of Herbal Ball Samples					
Sample	Medicinal	Manufacturer	Lot #	Arsenic	Mercury
1	An Gong Niu Huang Wan (n=4)	Tung Jen Tang Pharmaceutical Factory, Nanjing, China	unk	Yes	Yes
2	Da Huo Luo Wan (n=3)	Guangzhou Chen Li Ji Pharmaceutical Factory, Guangzhou, P.R. China	89 06 05	No	Yes
3	Dendrobium Moniliforme Night Sight (n=2)	Tientsin Drug Manufactory, Tientsin, China	8505218	No	No
4	Niu Huang Chiang Ya Wan (n=3)	Tianjin Drug Manufactory, Tianjin, China	4850182	Yes	No
5A	Niu Huang Ching Hsin Wan (n=16)	Peking Tung Jen Tang, Peking, China	9010-111 8807-120	Yes	Yes
5B	Niu Huang Ching Hsin Wan (n=3)	Peking Tung Jen Tang, Peking, China	8209-184	No	No
5C	Niu Huang Ching Hsin Wan (n=3)	Peking Tung Jen Tang, Peking, China	8209-184	No	No
6	Niu Huang Ching Hsin Wan (n=3)	Tientsin Manufactory, Tientsin, China	unk	Yes	Yes
7	Niu Huang Ching Hsin Wan (n=4)	Beijing Tongren Tang, Beijing, China	9104-104	Yes	Yes
8	Niu Huang Ching Hsin Wan (n=1)	Beijing Tung Ren Tang, Beijing, China	unk	No	No
9	Niu Huang Qing Xin Wan (n=1)	JH	9205-307	Yes	Yes
10	Ta Huo Lo Tan (n=3)	Beijing Tung Jen Tang, Beijing, China	184-113	Yes	No
11	Tsai Tsao Wan (n=4)	Peking Tung Jen Tang, Peking, China	8507-115	Yes	Yes
12	Yan Shen Jai Jao Wan (n=3)	United Pharmaceutical Manufactory, Fushan, China	T Jn 137	No	Yes

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Attachment 4: Summary of FWS Educational Efforts with the TCM Community

EDUCATIONAL EFFORTS:

- ☐ Creation of the Los Angeles-based Asian Medicinal Task Force, with ten State and Federal agencies represented. The task force has regular monthly meetings providing multi-agency training and projects designed to identify illegal trade routes. To date, it has conducted several multi-agency inspections on Southeast Asia mail and passenger flights from China.
- ☐ Teacher training workshops were conducted in collaboration with World Wildlife Fund U.S. (WWF), the Los Angeles Zoo, and the American Zoo and Aquarium Association to test the effectiveness of a wildlife trade education curriculum developed by World Wildlife Fund and develop a core group of teachers to serve as advisors as the curriculum is refined and further evaluated.
- ☐ Meetings with the traditional medicine community in which their representatives were engaged in discussions on CITES and endangered species as these relate to relevant traditional medicine flora and fauna. The Service determined this was necessary to effectively determine common ground so that, as strategies are developed, they are built on areas of mutual interest and concern.
- ☐ Presentations at national conferences of traditional medicine to advance the importance of partnership with the community and reach those in a position to take leadership roles on endangered species issues in the community.
- ☐ Development and dissemination of fact sheets, species lists, and other information so as to develop foundation documents establishing the Service's intent to work as an equal partner with the traditional medicine community, providing basic data on endangered species.
- ☐ Begin development of an outreach education component with law enforcement to be used in the community to build understanding of CITES regulations. Initial discussions with members of the Korean, Vietnamese, Cambodian, and Chinese communities are underway.

NGO EFFORTS TO RAISE PUBLIC AWARENESS ON THE TRADE IN BEAR PARTS

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Abstract: Most NGOs that work on bear trade issues are developing and expanding their efforts to raise conservation awareness among consumers and traders of bear parts. However, the issue of the bear parts trade is complex and public awareness campaigns must recognize these complexities to succeed. This paper provides an overview of some of the public awareness work being done on the bear trade issue by NGOs, primarily in North America. Different goals and methods are highlighted, and the cultural sensitivities inherent in any public awareness campaign aimed at a distinct ethnic community are discussed. It is hoped that the paper will encourage cooperation among NGOs and promote a positive partnership approach to public awareness.

The purpose of this paper is to: (1) discuss the role public awareness plays in helping to reduce the demand for bear parts traded for medicinal use; and, (2) highlight what World Wildlife Fund Canada (WWF) and some other non-governmental organizations (NGOs) are doing to raise public awareness on bear trade. By showcasing some of the different methods NGOs are using to spread their messages, it is hoped that more public awareness work will be inspired and that NGOs with similar goals and methods will be encouraged to share ideas and learn from each other's experiences.

A. Introduction

A significant portion of the work NGOs do on bear trade has a fairly regulatory focus. For instance, most NGOs working on bear trade issues have spent much time and effort ensuring that bear species are adequately protected by CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora), working with governments to develop and improve wildlife trade legislation and enforcement, and monitoring levels of trade, both legal and illegal. Some NGOs conduct investigations to ascertain the extent of the black market in bear parts. While this work is diverse, it is largely focused on legal mechanisms for regulating or reducing bear trade.

Work on regulatory issues by NGOs is very important and continues to expand as new issues arise. As is widely recognized, however, the law has its limitations. Despite the Appendix I listing of Asian bear species, illegal trade continues. Even in areas where trade remains legal, some traders choose to trade illegally, perhaps because they are unaware of the legal channels or simply because they want to avoid them. NGOs can always push for stronger laws and enforcement. However, NGOs can also play an important role in ensuring that people know what are the laws, and know how to use legal channels where they exist. Many NGOs are developing and expanding their public awareness work to spread awareness about laws relating to wildlife trade. In the case of wildlife traded for medicinal purposes, many NGOs are also reaching out to the communities that rely primarily on these medicines to raise their conservation awareness and reduce demand for endangered species in medicine.

B. What is Public Awareness?

Public awareness, sometimes referred to as “public outreach” or “education”, essentially describes the effort to spread information. However, there is clearly more to public awareness than spreading information. The underlying goal of any public awareness campaign is to change behavior and attitude. By arming a person with some piece of information, it is hoped that they will change their behavior.

Public awareness efforts can be divided into two forms: direct and indirect. The direct form is most likely that which comes to mind when one thinks about public awareness. It involves activities such as seminars to members of the public, school presentations, television, newspaper and radio advertisements, and written materials such as brochures and fact sheets. However, awareness can also be raised in an indirect way, as something ancillary to another activity. In other words, the aim is not specifically to raise awareness, but this is a result. For example, when the media reports on a seizure of medicines claiming to contain endangered species derivatives, awareness is raised even though the seizure was not necessarily intended as a public awareness tool.

Determining which public awareness activities are most effective is difficult, as measuring the success of public awareness programs is a complicated task. Surveys conducted before and after a campaign can help determine whether public awareness efforts have had an effect, but it is very difficult to isolate other variables that might impact behavior. NGOs will inevitably take varying approaches and select different activities, which provides an opportunity to learn what is and what is not effective.

C. Cultural Sensitivity

The goal of public awareness efforts aimed at the medicinal trade in bear parts are usually to:

- 1) Make people aware of relevant wildlife trade laws so that they voluntarily comply with them; and,
- 2) Reduce the demand for bear parts by empowering consumers and traders with an awareness of the conservation implications of their actions, and by promoting the use of alternatives.

It is important to note that public awareness campaigns directed at the medicinal trade in bear parts may have different overall goals, depending on the NGO behind them. Some NGOs' goal is to reduce the overall demand for bear parts to bring it to a sustainable level, ensuring that bear parts are only accessed by legal channels. Other NGOs oppose all trade in bear parts and aim to eliminate all demand. In this paper, the two aims will be grouped into one, as the purpose of this paper is not to discuss the relative merits of either position.

Public awareness work on trade in bear parts for medicinal use is something that must be approached carefully and sensitively. The issue is complex because the demand for bear galls is stimulated by health concerns. At issue is bear bile, a substance that has been used for hundreds of years to treat a variety of ailments, from bacterial infections to liver cancer. Another factor that makes public awareness in this area complex is the fact that the greatest demand for bear parts, at least for medicinal use, is driven by east Asian medical cultures, while conservation efforts are often funded and pushed forward by European and north American organizations. While conservationists expect all cultures to take precautions to protect endangered wildlife, care must be taken to be respectful of other cultures.

Over the last few years, traditional Chinese medicine (TCM) has been in the international spotlight because of its traditional use of some high profile endangered species like tigers and rhinos. TCM communities have expressed concern that their entire medical culture is being attacked by conservationists, not only the use of endangered species. Misconceptions often perpetuated in the western media about TCM using wildlife parts and derivatives primarily for aphrodisiac purposes or only in folk remedies that do not work serve only to alienate TCM communities in Asia and other parts of the world. TCM and many forms of medicine derived from it are effective health care systems that have met the medical needs of millions of people for hundreds of years.

The TCM philosophy is based on a natural balance between the mind, body and physical world. Unsustainable use of a natural resource is not within the balance and therefore not supportable by the TCM philosophy. Unfortunately, many TCM practitioners and users are unaware of the status of some of the species that are used in TCM. Armed with that knowledge, many are keen to use a substitute in order to preserve that natural resource. Public awareness efforts by NGOs on bear trade might thus best be aimed at providing a conduit through which conservation knowledge is brought to TCM communities and by encouraging TCM communities to take on the conservation challenge along with conservationists.

D. What public awareness work NGOs are doing

Over the last few years, many NGOs have recognized the importance of public awareness efforts in cases of species traded for medicinal use. There has been both an increase and a shift in the way public awareness work is done for species that are traded medicinally. For instance, instead of simply telling practitioners, vendors and users of TCM to stop using certain

ingredients, the movement is towards forging partnerships and empowering the stakeholders with the knowledge and the incentive to take on the effort themselves. The following discussion provides a very brief synopsis of what some NGOs are doing to raise public awareness on bear trade issues. The discussion does not purport to be exhaustive and is merely a sample of what some NGOs are doing.

Over the last couple of years, WWF Canada has been developing a public awareness campaign that aims to bring information to members of the TCM community in Canada. To initiate the work, WWF Canada invited members of the TCM community (practitioners and traders), Chinese, Korean and Vietnamese cultural groups, and Buddhist groups to meet. At the meeting, a dialogue ensued and points of view and concerns were shared among the participants. Many of the participants raised concerns that their cultures were being unfairly targeted. The idea of a Canadian symposium to bring traditional medicine groups, cultural organizations and conservationists together was proposed and discussed.

Voiced at the meeting was a concern that NGOs and governments spend time reporting on the need to stop trade in endangered species found in some traditional medicines, but they do not help get information about laws and conservation status to the traditional medicine community. In response to this concern, WWF Canada teamed up with Environment Canada to produce a brochure on Canada's wildlife trade law WAPPRITA (Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act) and how it applies to the trade in medicines. The brochure will be produced in two formats - one Chinese/English and one Korean/English. To produce and distribute the brochure, WWF Canada partnered with a local Buddhist community group in Toronto to select the designers, translators, typesetters and printers from within the Canadian communities that were thought to be most likely to use TCM (Chinese, Korean and Vietnamese). The content of the brochure was reviewed by TCM practitioners, members of Chinese Canadian and Korean Canadian cultural organizations, and all of the people involved in its production. The result is a brochure that is essentially a product of the community for which it is intended.

WWF Canada's next project will be to team up with a TCM practitioner in Canada to produce a practitioner's guide to alternatives to five protected species in medicine. Asiatic black bears will be one of the species covered. The guide will collate current research to date on alternatives, and put it into a practical, usable format for practitioners. The guide will be intended as a reference tool that a practitioner or a pharmacist could have on his or her shelves, and refer to when he or she might have otherwise wanted to prescribe or sell one of the protected species highlighted in the guide. The final product will be translated to increase its accessibility.

WWF Canada is not the only group doing this kind of work. The real pioneers are the groups in East Asia that face the issue on a much larger scale. TRAFFIC offices in east Asia have opened up dialogue with the TCM communities in this region. In 1995, TRAFFIC East Asia hosted a symposium on TCM and wildlife conservation to start a dialogue based on

listening and on using Asian languages. TRAFFIC East Asia assists TCM communities in east Asia by informing them about developments in the English-speaking world that might affect them, such as the proposed U.S. Bear Protection Act. TRAFFIC hopes to facilitate TCM groups in Asia to participate in international dialogue and make their views known. In this way, the stakeholders can be enlisted in the fight to save wildlife. As a result of its partnership approach, TRAFFIC East Asia has been approached by TCM traders to help establish a system by which they can learn more about conservation status of the herbs and animals they deem essential to TCM so that they have ample time to seek alternative medicines. It is at the request of the TCM community that TRAFFIC will hold a symposium on the latest research on substitutes for tiger bone, musk and bear gall bladder. Having brought the conservation concerns to the table in a manner that is respectful of TCM, TRAFFIC has generated an interest within the community for conserving the wildlife used in TCM.¹

Other WWF and TRAFFIC offices have undertaken public awareness efforts on bear trade as well. For instance, WWF and TRAFFIC USA teamed up with the US Fish and Wildlife Service in an education initiative launched in Los Angeles in 1995. As part of this initiative, WWF and TRAFFIC produced an excellent wildlife trade education kit that includes information on bear trade.

The Investigative Network has been conducting investigations and interviews with pharmacists in Taiwan, Hong Kong and Singapore for several years. Through this work, they identified a lack of awareness about conservation issues. They found that members of the Asian public were shocked when they found out that many of the threatened and endangered species in medicine were poached, and that the ingredients did not come from animals killed legally. They were also shocked by the thought of anti-poachers' lives being targeted. The Investigative Network also found in its work that while TCM practitioners and vendors accept some responsibility for the use of endangered species in medicine, they point to a broader issue of over-consumption. Pete Knights has recently developed the Asian Conservation Awareness Program (ACAP). A paper in these proceedings describes the ACAP program, therefore this paper will only mention that the program is an exciting public awareness campaign that takes a very direct approach to the issue. It was developed by Asians for an Asian audience based on surveys conducted to determine what public awareness materials would be most effective in changing behavior. It is focused on tigers, rhinos, elephants, bears and turtles and had a successful launch in Taiwan last month.²

¹ Judy Mills, TRAFFIC East Asia, personal communication, March 14, 1997.

² Pete Knights, Investigative Network, personal communication, March 6, 1997.

Bear Watch, Animal Alliance and some other Canadian NGOs are linking up with the Investigative Network to launch ACAP in Canada. The launch in Canada has wide support, including tourist and hunting organizations, and the Body Shop. To help with the program's integration into Canada, Bear Watch has hired two Asian outreach coordinators to prepare materials and launch the campaign. The launch of the ACAP program in Canada is planned for the spring, around the time of the Dragon Boat Festival.³

The Humane Society of the United States (HSUS) and the Humane Society International (HIS) have recently produced both a Canadian and an international report on bear trade entitled "From Forest to Pharmacy". They have also produced a state by state analysis of bear trade laws in the US. While these reports are primarily used as lobbying tools, they serve to spread awareness about bear trade. In an effort to take a more direct approach to public awareness on bear trade, the HSUS has recently produced a bear trade poster in English and Chinese that is being distributed via the American Zoological Association to zoo education departments in the US. The posters are also used to respond to information requests and are used in CITES fora. HSUS plans to do more outreach work directly with the TCM community and has begun to contact TCM organizations in the US to discuss the issues.⁴

The Environmental Investigation Agency's bear work has recently been focused on bears in Europe. While there is no formal education component to the work that has been done to this point, much of the investigative work EIA has done has had an indirect public awareness effect. Between 1992 and 1993, the EIA partnered with other NGOs to launch a campaign to boycott Taiwan for its lack of controls on illegal wildlife trade in tigers and rhinos. Trade sanctions were authorized by the US under the Pelly Amendment, though never imposed. While Taiwan was not targeted for illegal bear trade, this action received a great deal of media attention.⁵

The Western Canada Wilderness Committee's BET'R (bear, elephant, tiger and rhino) campaign, headed by Anthony Marr, has done a significant amount of public awareness work on bears in Canada. This group conducts investigations of TCM shops using Chinese national investigators, which results in media coverage. They have written articles on bear issues in Chinese language newspapers and have met with Chinese national politicians in BC. An interesting aspect of their work involves setting up booths in various venues, such as malls or sports shows, that provide information and materials on various issues including bear trade. Posters and T-shirts draw people to the booths. They also conduct slide shows and presentations to school groups of all ages and to politicians in the area. As a Chinese person, Anthony Marr has said to the media that he feels he can be more direct in dealing with the Chinese Canadian community, and that TCM communities are less inclined to feel defensive about his messages.⁶

³ Liz White, Animal Alliance, personal communication, February 27, 1997; Janna Thomas, Bear Watch, personal communication, March 5, 1997.

⁴ Susie Saunders, Humane Society of the United States, personal communication, March 6, 1997.

⁵ Craig Bennett, Environmental Investigation Agency, personal communication, March 6, 1997.

⁶ Sue Fox, Western Canada Wilderness Committee, personal communication, March 7, 1997.

The World Society for the Protection of Animals (WSPA) has been working on a variety of bear issues. Though they do not have any specific public awareness activities pertaining to the medicinal trade in bear parts, they are hoping to do some follow up work on the TRAFFIC-sponsored symposium between conservationists and the TCM community that they attended in Hong Kong in 1995. WSPA works closely with the International Fund for Animal Welfare who commissioned the Association of Chinese Medicine and Philosophy EarthCare Society to produce a comprehensive document outlining alternatives to bear bile. One interesting area that WSPA is currently investigating is a demand for spectacled bear gall bladders out of Ecuador. Perhaps WSPA will develop some public awareness work for South America.⁷

E. Conclusion

When approached in an open-minded, culturally sensitive way, many TCM practitioners, traders and retailers in all parts of the world are eager to assist conservationists find solutions to the problem of the use of endangered species in some TCM. Having realized this, NGOs are turning away from distant and detached methods of raising awareness on the trade in bear parts for medicinal use and are shifting towards integrated, community-based activities. It will be very interesting to see what new methods are developed by NGOs over the next few years, and even more interesting to see what are the results of this new form of public awareness for the medicinal trade.

⁷ Vic Watkins, World Society for the Protection of Animals, personal communication, March 14, 1997.

ASIAN CONSERVATION AWARENESS PROGRAM (ACAP) "When the Buying Stops, the Killing Can, Too."

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Abstract: The Asian Conservation Awareness Program (ACAP) is a unique cooperative program between Western and Asian conservation, media, and education experts designed to directly address consumer demand in key consumer countries by raising public awareness about threats to wildlife; discouraging consumption of products containing endangered species by making it socially unacceptable; encouraging increased Asian involvement in global conservation efforts; and building capacity in small, local wildlife organizations by providing them with high quality educational tools. ACAP focuses on the consumption of tiger, rhino, and bear products in traditional Chinese medicine and exotic foods, and the use of elephant ivory and marine turtleshell as luxury items. It consists of five Asian-language educational TV and cinema public service announcements, print adverts to appear in newspapers and magazines and on billboards; information leaflets and education brochures; an educational 25-minute documentary and local participatory events in host countries.

• Program Summary

Many wildlife species are threatened with extinction due to loss of habitat, but consumer demand for animal body parts presents an even more pressing threat for species such as **tigers, rhinos, bears, elephants and sea turtles**. This demand fuels poaching and feeds an illegal international trade in wildlife estimated to be worth \$6 billion each year. In East Asian countries and their overseas communities the traditional Chinese medicine, curio and exotic food trades and low public awareness of wildlife issues mean that demand for endangered species products remains strong despite international laws.

The Asian Conservation Awareness Program (ACAP) is a unique cooperative program between Western and Asian conservation, media and education experts. ACAP is designed to pool resources and expertise and to draw support from private foundations, corporations and individuals to provide a multi-million dollar international campaign at a fraction of that cost. ACAP focuses on the consumption of tiger, rhino, and bear products in traditional Chinese medicine and exotic foods, and the use of elephant ivory and marine turtleshell as luxury items. It consists of:

- Five Asian-language educational TV and cinema public service announcements.
- Print adverts to appear in newspapers and magazines and on billboards.
- Information Leaflets and Education Brochures.
- An educational 25 minute documentary.
- A high profile media launch involving Asian and Western celebrities.
- Local participatory events in host countries.

ACAP is designed to directly address consumer demand in key consumer countries by:

- raising public awareness about threats to wildlife;
- discouraging consumption of products containing endangered species by making it socially unacceptable;
- encouraging increased Asian involvement in global conservation efforts;
- and building capacity in small, local wildlife organizations by providing them with high quality educational tools.

Launched in November 1996 by the Deputy Mayor of Taipei at Taipei City Zoo, ACAP will be adapted and run locally in Taiwan, Singapore, Hong Kong, Canada, South Korea, Japan, the US and Europe. In Taiwan the television adverts aired over 1,200 times. Of 1,200 members of the public interviewed, 200 remembered having seen the adverts. 150 reported they were "deeply influenced" in their concept of wildlife protection, 35 "fairly influenced" and only 15 "not influenced". 155 out of 200 said they would never use wild animal products as medicine or decoration, 40 were not certain and four said that they would.

ACAP is coordinated by the Global Survival Network (GSN), Tusk Force and the David Shepherd Conservation Foundation. Contributors include J. Walter Thompson Advertising Agency, International Advertisers Association (Taipei Chapter), Rotary Club of Taipei (Yenping Branch), The Body Shop Foundation, I-Mei Environmental Foundation, The Moving Picture Company, The Body Shop Taiwan, Taipei City Government, and the Life Conservationist Association.

- **Television Adverts**

Five adverts suitable for television broadcast and cinema release have been produced to the highest standard by one of the world's leading advertising agencies, J Walter Thompson (JWT), whose offices in London and Taiwan have generously waived creative costs to design the whole campaign. An award-winning director was retained and a leading London-based production house, the Moving Picture Company, provided its post production facilities on a pro-bono basis.

The five 40 second adverts illustrate and explain the link between the sterile products on sale in hundreds of thousands of pharmacies across Asia, and the rare wild animals poached to produce them. The adverts feature the address or telephone number of the local ACAP campaign partner from whom viewers can request further information.

Free airtime will be sought from a number of broadcast outlets, including local private and governmental television networks, international cable and satellite broadcast agencies, cinema chains and video rental companies. Through the International Advertiser's Association, Taipei Chapter, the adverts aired over 1,200 in Taiwan.

- **Print Advertisements**

JWT Taiwan has prepared five newspaper advertisements. These consist of photographs of the key products; tiger bone wine, rhino horn powder, bear gallbladders, ivory hankos and turtleshell glasses in typical Taiwanese settings. The narrative text describes the life of the animal the products came from with individual personal details to reinforce the link between animal and product. Side text contains details of threat to the particular species. Through the International Advertiser's Association, Taipei Chapter, half-page full color adverts have appeared in over seven national newspapers in Taiwan.

- **Bus/Billboard Advertisements**

JWT Taiwan has produced a bus advert that could easily be adapted for billboards. The advert asks "Who is responsible for killing endangered species?" The answer a giant hand clutching a bank note. Thanks to Taipei City Government these adverts have appeared on 118 buses.

- **Information Leaflet and Education Brochure**

An Information Leaflet on endangered species will be widely distributed to the public through various outlets. A twenty four page Education Brochure will be distributed in response to inquiries generated by the adverts and leaflets. They will provide straightforward information on all five species - their biology, behavior, the threats they face, efforts to conserve them, details of field projects and recommended alternative therapies and products. Through I-Mei Food Stores and Body Shop outlets, 120,000 leaflets were distributed throughout Taiwan.

- **Educational Film**

A twenty-five minute educational documentary "When the buying stops, the killing can too", aimed at older school children and adults has been produced to the highest professional standards. The film provides factual information on the five species with natural history footage contrasted with hard-hitting documentary film of the workings of the trade in endangered species. Although it will initially be distributed on video to schools and other outlets, it is suitable for public broadcast. The adverts conclude each section and the film finishes with a list of positive actions the viewer can take to help save endangered species. The film will be dubbed into the relevant Asian languages.

- **Program Launches**

ACAP will be launched in each country with a high-profile press conference. These will be led by the local campaign partner and will include celebrity endorsements and the first

showing of the adverts. While international celebrities will be invited to record on-screen messages of support for endangered species, local celebrities will be invited to attend the media launches and to participate in dissemination of ACAP materials and the message they contain.

- **Assessment**

JWT and I-Mei interviewed 1,200 people in Taiwan two months after the launch. 200 remembered having seen at least one of the adverts on television. Of these 200, 150 people reported they were "deeply influenced" in their concept of wildlife protection, 35 "fairly influenced" and only 15 "not influenced". 52 out of the 200 remembered having seen the ads on television. 155 out of 200 said they would never use wild animal products as medicine or decoration, 40 were not certain and four said that they would. The bear and rhino adverts (the most graphic) had the strongest effect.

- **Taiwan Launch**

On November 3rd, 1996 ACAP was launched in Taipei City Zoo, Taiwan. In all nineteen organizations and well over 50 individuals coordinated by GSN were involved in a program that would be worth several million dollars at commercial rates. GSN was overwhelmed by the generosity and enthusiasm encountered in Taiwan, a country that was subject to US sanctions for illegal trade in tiger and rhino products eighteen months ago.

Twenty-five thousand people attended the activities hosted by Taipei City Zoo. The press conference was compared by one of Taiwan's leading news presenters. Seven TV crews and probably the same number of written press attended. The Deputy Mayor of Taipei City gave an opening speech in which he described the importance of conservation. Vice-Chairman Ling (the second highest conservation official in Taiwan) then endorsed the program. He was very impressed by the professionalism and effectiveness of the adverts and asked immediately if the government could circulate them to all schools in Taiwan.

There were brief speeches from the head of the Life Conservatist Association, the Rotary Club President, the Director of JWT Taiwan, the Body Shop International, the Body Shop Taiwan, the I Mei Foundation and the IAA.

I Mei had erected a stage on which they had a huge tree of life. All the speakers from the press conference read aloud a pledge that they would not consume endangered species, banged a gong and signed the tree. Later local popstars hosted the tree and there was a constant stream of people signing and pledging all day and by the end the tree was completely black with signatures. I Mei, LCA and Body Shop had tents to sell merchandise and give away information. Body Shop Taiwan had their own endangered species pledge which was busy all day and had made an ice sculpture of a rhino which was displayed in the middle of the zoo plaza. All participating organizations expressed interest in participating further in ACAP.

- **Future Plans**

It is hoped that funding can be found to take the basic ACAP package to other Asian countries and communities around the world. The package will be refined and adapted as it progresses. It is also hoped that funding may be found to extend the program to other species of flora and fauna threatened by over-consumption.

For further details of any element of the Program, please contact:

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VIII. DISCUSSION AND SUMMARY

DISCUSSION PANEL

Moderated
by

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NOTE: The following document is a transcribed summary of audio and video tapes of the discussion panel. It has not been reviewed by all persons cited within.

Ginette Hemley

The purpose of this discussion panel is to address some of the issues and questions associated with the international trade in bear parts that have come up in the course of the past two days. Four of the presenters from the Symposium have been asked to come back up to go over some of their information and views from their presentations so that Symposium participants can probe more deeply into questions of legislative measures and other solutions being proposed and debated to address what is a very real problem – the illegal trade in bear parts, and gall bladders in particular.

In the course of the Symposium, three general approaches have been highlighted as possible responses to the illegal bear trade. For purposes of this discussion, we have categorized them as follows:

1. International Moratorium (CITES)
2. National Action (unilateral U.S. export ban on gallbladders)
3. Market-based responses to control trade (cartels, voluntary industry restrictions, etc.)

Each presents possible advantages and disadvantages and poses many unresolved questions. We would like the panelists to consider the implications of each of these approaches in light of the following questions:

- What are the benefits of an international moratorium to North American bears and critically endangered bears in Asia and Europe?
- What are the benefits of a unilateral U.S. export ban to North American bears and critically endangered bears in Asia and Europe?
- What are the risks or downsides associated with either approach? Could such risks outweigh the benefits?
- Would a trade moratorium work for bears when such actions have not always worked for other species such as rhinos and tigers? Is there something that should be done differently?
- Is there a compromise solution, such as limited legal trade for very restricted (i.e. serious medical) purposes? If so, how could this realistically be achieved?
- How can we ensure that any new measures adopted truly benefit endangered bear species such as European brown bears, sun bear, and Asiatic black bear?

The panelists invited to speak on these questions are Guy Winterton, head of enforcement for the Ontario government in Canada, Mike t'Sas Rolfes, a natural resource economist, Peter Knights of the Investigative Network, and Dr. Soon Kim, a doctor of oriental medicine at the University of Taejon in South Korea. Each panelist is asked to speak for 5-6 minutes on the questions, and then the floor will be open for all Symposium participants to share their views, perspectives, and any new information that people want in the record. This discussion will be included in the proceedings to be published after the symposium, so please, if there is any information you want for the record, this is an opportunity to have it included.

Guy Winterton

- ♦ It is important to remember that what is important is the bears. That is the starting point of what we want to achieve.
- ♦ For law enforcement, there is a huge difference between 0&1. There is less difference between 1 and 10 or 1 and 50. As an illustration of that, there was a zero quota for walleye. That is easier to enforce than a quota which makes law enforcement run around and add up the "grocery list" to see if a catch violates a quota. From a law enforcement principle, as long as there is appropriate legislation to back it up, total bans make law enforcement more efficient and effective.
- ♦ "Possession" is very important here. Taking is temporary, but possession lasts a long time. That is why from a law enforcement perspective strong laws about possession, whether it be illegal drugs or other things, help law enforcement officers do their jobs.

- ◆ Whatever legislative approach is taken, efficiency and effectiveness is important. Ontario is a good example. Ontario prohibited the sale of gall bladders. But it was virtually unenforceable because law enforcement had to prove origin. Now we have changed the law so that we do not have to prove origin, but still have to prove possession for sale. Now the law is moving towards no possession. Again, it is a matter of efficiency and effectiveness.
- ◆ Economic argument is persuasive, however. Total ban will not stop trade or demand. A total ban probably would drive up prices and increase illegal trade. If there is enough money at stake people will kill bears.
- ◆ We have some leeway in North America because there are healthy stocks. But clearly there are some stocks in the world and some in North America that cannot take that kind of pressure in some jurisdictions.
- ◆ On the other hand, totally open trade has significant problems. If you assume that the figure of 40,000 taken each year is correct, that does not mean that 40,000 galls will reach market. In best light, North America might produce 20,000 galls per year. At a generous weight of 20 grams each, only 400kgs. We don't know what impact that could have.
- ◆ Part of the problem is public perception that galls are valuable. When Ontario decided to ban trade in galls it had nothing to do with Ontario itself. Great concern that Ontario must contribute to a worldwide problem no matter how well or poorly we might understand them. Underlying fear that even if trade is not affecting bears today, it might tomorrow, and a sense that we need to do something to help.
- ◆ Best solutions are often those that are "practically achievable". Whether we have trade or prohibit it, we have to have effective means to implement it.
- ◆ I am not convinced that what we do in North America will affect what happens in Asia. Regardless of what we do, we must address issues on all continents, including enforcement.
- ◆ Forensics are very important as a science.
- ◆ There is no simple solution. The issue is multi-faceted and needs further analysis and an approach in each area, and approaches also need time to work. That includes all areas – enforcement, education, a search for alternative medicines, etc. There is also a need for careful analysis on what the relative benefits are of each option.
- ◆ Need an action plan that we can all agree on to the greatest degree.

Mike t'Sas Rolfes

- ◆ I would argue for a combination of international, national and market-based approaches, but would stop short of a complete ban or moratorium on trade.
- ◆ Three different approaches to supply and demand problem, and we must work with all three :
 - ⇒ Controlling supply at the source with field protection and enforcement measures to protect bears in situ;
 - ⇒ Expanding supply from sustainable sources where possible, obviously subject to issues such as animal welfare concerns; and,
 - ⇒ Reducing demand through moral suasion and media campaigns.

- ◆ What would be effects of an international ban? Hard to predict worldwide, but in general it would insularize markets. More serious consequences for some areas than others. Would create strong incentive for black market. Also, it would be much more difficult to get most information we need to understand this market, and monitoring would become more difficult.
- ◆ Need to try to create a more formal market mechanism to flush what trade there is into the open, understanding that now it is an illegal, informal trade.
- ◆ No clear reason for a US ban. Trade that is going on now is generally illegal, and a ban would not make a huge difference. In terms of risks and downsides, there are three important points. A ban would likely:
 - ⇒ Drive the market further underground;
 - ⇒ Drive the market price up and encourage speculator stockpiling in anticipation of a shortage; and,
 - ⇒ Change the industry structure, pushing it completely into the organized crime realm, where organized gangs can become very efficient at working with contraband.
- ◆ Total prohibition more risky than any other effort. Bear products have very similar characteristics to rhino horn and tiger bone, and we know what happened with those.
- ◆ The whole notion of demand suppression has not yet been proven, and there is no realistic assessment of what the market reaches have been. Leap of faith to say that outreach efforts have already worked. If demand suppression is really effective, we might not need a ban in any case.
- ◆ Is there a compromise solution? Yes I believe there is. It is really a theoretical solution, not being familiar with all the practical constraints. A single channel market system, creating a cartel approach similar to the system DeBeers has in place with diamonds. Combination of tight physical control of the actual product with creation of the right economic incentives right through the distribution chain. Start at the supply end by getting hunters to pay a refundable gall deposit, paying them to turn in the galls and sending them through sealed packages to formal oriental medicinal markets with an authentication process built in to ensure consumers that they are getting the real thing as opposed to pig galls.
- ◆ Such a system could work to satisfy the inelastic medicinal demand part of the trade as opposed to the elastic demand part for shampoos, teas, etc. Anything outside of that system would be illegal. Its advantage is that it rewards good countries and systems for good management and penalizes bad management systems.
- ◆ Farming reduces price of wild bear galls in short-term. But there are conservation, animal welfare, and other problems with farming. Sends a bad signal to consumer markets about what is acceptable. Need to focus on effects of restrictive farming and phasing it out, recognizing that it could backfire if it is done too fast it could have a panic effect on the markets in the face of a supply void which could have disastrous conservation effects.
- ◆ How can we ensure that any measures truly benefit endangered bears? We can never be 100 percent sure. The best we can do is make informed decisions.
- ◆ It is very important to listen to consumer countries to understand the dynamics of the trade, because they really have the best handle on how well they can influence demand.

Peter Knights

- ◆ Overriding point is that the moratoriums suggested, the proposed U.S. ban, are predominantly wake-up calls.
- ◆ U.S. Bear Protection Act is not about stopping legal trade. It is a wake up call. The fact that people are here talking about it is evidence that wake-up calls work.
- ◆ What is a wake-up call for? It is about what is really going to make the difference. Those things are public awareness, law enforcement, use of undercover agents (in Asia would make a big difference), getting TCM community to push for alternatives, international cooperation, better anti-poaching, etc.
- ◆ International moratorium would bring those things to the forefront.
- ◆ Yesterday I talked about “bureaucratic blindness”. Today I introduce another one called “political constipation” that needs a strong laxative to get it going. It is things like stronger laws and bans to make that happen.
- ◆ There is not one market or one supply and demand curve. There are today legal galls sitting in Quebec with no buyers. At the same time we see from surveys in Taiwan that the galls there are not from North America. They are illegally taken Asian galls, even though there is legal supply that has not been used.
- ◆ Organized trade is not the problem. The problem are the public who are smuggling one or two galls at a time that will never fall within a controlled legal system. They are the ones affecting the Asian bears. What we have to do to affect those people is to up the ante on enforcement and make their behavior socially unacceptable.
- ◆ Bans and moratoriums are not the end of the question, they are the start of it. It will take people like the South Korean government to really crack down to make a difference. You will not affect the small public smugglers by having a legal trade. They are not a part of it but rather are additional to it.
- ◆ That is where measures like the Bear Protection Act are a wake-up call that can affect Asian bears. In the long-run it will also protect American bears from trade down the road.
- ◆ Lesson from rhinos and tigers is: do not do a moratorium in isolation. Must be followed with other efforts. We need domestic sales bans as well as an international moratorium. Unless we have an international moratorium and intense pressure, those things will never happen in Asia and things will gradually get worse and worse.
- ◆ We have to act now while issue is hot. We have one chance and we must take it -- it will not still be there in a few years time. We need to send a wake up call with international moratorium such as through CITES. Sends a message politically that action must be taken and provides resources for those measures.

Dr. Soon Kim

- ◆ International moratorium sounds good, but will not protect bears.
- ◆ Main issues affecting North American bears loss are hunting and habitat loss. Major threat to Asian bears is trade.

- ◆ North American bears are abundant. We need to analyze what are the issues affecting the world's bears. In the United States the public does not value gall bladders, but in Asia there is a high demand and a short supply, which is why the prices are so high.
- ◆ What then, is the most effective way to protect bears. Do you think you succeeded in protecting rhinos and tigers after prohibiting trade?
- ◆ If we want to protect endangered species, we have to take all countries and cultures interested into consideration. Moratorium will drive up prices of gall bladders and provide a profit motive that would stimulate illegal trade through organized crime, similar to the trade in illegal drugs.
- ◆ To protect bears, prohibit illegal trade but allow legal trade. Theory of demand and supply says legal trade will reduce price and help stop illegal trade. If we want to eliminate illegal trade, then we must first eliminate the motivating factor, which is profit.
- ◆ We need to coordinate and balance supply and demand effectively. Americans do not put value on galls. Demand in Asia is greater than supply -- supply exceeds demand in US.
- ◆ If we want to protect American bears, strengthen regulation of hunting for fun instead of prohibiting trade. It should be possible to export gall bladders to Asia to save lives and help people with cancer, just as we willingly donate organs to help each other.
- ◆ Bear gallbladder use should be limited to medical use and scientific study. According to statistical data, the leading cancers in Korea are of the stomach and liver. One-third of Koreans have hepatitis B antigen. That is why we must allow for limited trade in gall bladders for medical care. Substitutes for gall have not yet proven as effective. It will take time for alternatives to show the same results.

Questions and Discussion

Rose Marie Gnam, U.S. Fish and Wildlife Service. The current "mixed" approach at CITES does not seem to be working for bears. Appendix I species are available in trade in Asia, but Appendix II black bears don't seem to be desired and are not in trade. A cartel approach appears to be jurisdictionally unworkable given that some states feel strongly about banning trade in bear parts, while other states believe that regulated trade should be allowed. What is needed is more cooperative multilateral work to address the problem.

Dr. Fan Zhiyong, China CITES Management Authority: We need international cooperation and short-term as well as long-term solutions. The mixed approaches we are using right now are not very effective. Demand also cannot be stopped instantly. We need international conservation efforts now involving a range of approaches if we are to protect wild bears.

Peter Knights, The Investigative Agency. Even if we do not all agree on a ban, I think everyone in the room would agree that we need all these other measures, particularly in the short term anti-poaching. The question then is how do you get the money for anti-poaching. I would suggest that one way to do that would be to raise the profile of the issue through an international moratorium. Anti-poaching efforts and resources can be generated through an international ban.

Ginette Hemley, WWF-US: Something we have seen in the past with things like tigers and rhinos is that a moratorium is passed and then everyone assumes the problem is solved and the money does not come through. What we do to ensure that it does come through is one of the big issues we have to keep in mind because we have not always been successful in the past with bans alone.

Judy Mills, TRAFFIC East Asia. Speaking only for myself, I think I can say that I helped raise the alarm flags in the early 1990s through TRAFFIC reports on the Asian trade in bears, and I supported first Bear Protection Act. Since then, quantities of new information suggest that the problem is not nearly as horrible as first appeared. The biggest problem is “pocket smuggling”. Given what we know now, a ban may be the best friend of the black market. We appear to be on the brink of major positive efforts in Korea, and should continue the work. We are on the brink of a breakthrough with law enforcement in Korea, and we are on the brink of a breakthrough with the TCM community, where stewardship may be at hand in consuming countries. To ban a plentiful species now sends the wrong message – why should they engage in stewardship if it is going to result in a ban anyway?

Craig Bennett, Environmental Investigation Agency. Three things have come out to me at this symposium. One is that there is a perception that the TCM community is being attacked -- that is not intended. TCM is not an enemy of conservation, over-consumption is. Second, we need to look at the future. This debate is not over what is happening in 1997. Considering possible future demand, we are at the tip of the iceberg – the chance is now to stop something horrific from happening 20 years from now. Economic growth in Asia is likely to result in trade/demand growth, and that will occur until there is a societal evolution away from use of the products. Third, we can't effectively regulate the trade -- this is not a trade willing to use regulatory systems. If you try to create a regulated system, you will be perpetuating and legitimizing use of the products, and countries with less law enforcement capacity will be vulnerable to illegal trade demands. We need to take steps now, and the chance comes at CITES this year. We do not even have three years to wait.

Diana Wilson, BearWatch. No legal trade from US now. Would add to Craig's comments that regulation of a trade means promoting that trade. US hunters are opposed to trade in bear parts, and are not going to be interested in supplying that trade unless you tell them they should. I am afraid that promoting a legal trade will create a perception that poaching for that trade is not so bad, and the result will be to perpetuate poaching and make it more profitable.

(Unidentified Speaker). In addressing demand, it is important to address the causes of that demand. Why is gall so important? We have heard that it is important as a cure for disease, in particular liver disease and liver cancer, which is caused mainly by hepatitis. We need to think about how to prevent those diseases that drive the medical need for galls. Perhaps if you eliminated the conditions that create the demand you can get at the problem.

Joe Moll, University of Montana. Success in any conservation program requires open discussion. We need to watch what we say: “Asian countries need to get their acts together,” these societies need to “move forward”, “societal evolution” is needed. What does it feel like to be on receiving end? Imagine in the U.S. if some international group advocated banning the felling of ash trees because the baseball bat industry threatened the species and advocated a substitute. Imagine being on the receiving end of something that goes so directly to American culture and tradition. It is not that the issues do not matter, but we need to be very careful in using language that seems to assume that one value or ethic is more important than another. That can cut off the kind of communication needed to make progress. One suggestion -- we should stop using terms like TCM/TEAM/TAM which oversimplify in acronyms for linguistic convenience an intrinsic part of a millenium of culture.

Gina DeFerrari, TRAFFIC-USA. We heard earlier that there has been no export of galls from the United States. Has there been legal export from Canada?

Peter Knights, the Investigative Network. There have probably been a few hundred but no one has collected the data.

Guy Winterton, Government of Ontario. I don’t have the exact number, but in Ontario we do know that some of the galls are coming from Saskatchewan and coming from Quebec and going into the urban areas of Ontario. Those are legally taken and could be exported, but are not going out of the country. We have a homegrown demand and that is where they are staying.

Andrea Gaski, TRAFFIC-USA. We had some data from Quebec about three years ago and there was about 300 galls exported from Quebec and there were some other provinces that were open as well, so that was a minimum figure from a couple of years ago.

Boris Chiao, IFAW. We need to address habitat loss as well as trade. On trade, I would like to express to Dr. Kim that the reason I believe we can’t open trade is because we can’t measure growth in demand or the impact that will occur, so regulated trade is difficult. There are only so many bears, and we cannot predict the impact of continued illegal trade on a dwindling resource. For that reason we should not open trade.

Soon Kim, Taejon University. I am recommending nation-to-nation, government-to-government controlled trade, instead of person-to-person trade. Only 66kg of gall is used in Korea per year. Ten percent is used for pharmaceuticals, 90% is used to treat patients for hepatic cancer. We should prohibit strictly illegal trade but allow controlled trade to meet that need.

Boris Chiao, IFAW – We work with doctors in the U.S. and in traditional medicine, and our feeling is that they as practitioners feel confident that they can move away from use of bile and gall bladders towards substitutes, so why continue such a wasteful practice – killing bears for just the gall.

Adam Roberts, Animal Welfare Institute. First, there is an incredible lack of attention in the United States towards the wasteful use of natural resources, in the country that is the greatest consumer of natural resources in the world through our white-male dominated polluting industries. The U.S. needs to look inward at its own consumption at the same time that we look outwards so that we are not just throwing stones. Second, in terms of the Bear Protection Act, which has been much maligned here, we must keep in mind some things. One is that the Bear Act is not an NGO initiative but rather is an initiative put forth by Congressman Porter of Illinois and Senator McConnell of Kentucky on their own because they saw a problem not just internationally but also with the domestic consumption and the patchwork of state laws. Bear Act is not just about export but also aimed at importation of endangered bears that may be being laundered in the U.S. and the domestic trade. A majority of fish and game departments in the U.S. support the law and many states have similar laws. What we have right now is a system in which states that allow the trade serve as laundering points for bear parts from states that already prohibit the trade. At the state level we are hearing that they are crying out for law enforcement assistance. We have heard a lot about the poaching for the illegal parts trade. Even if this is a negligible number of bears in terms of its biological impact we are still talking about thousands of bears that need protection. Whether it is about the extirpation of bears in the United States is not the ultimate decision. It is about whether we have the ability to contribute to the long term protection of these animals, including habitat protection. All these things taken together will have the greatest long-term impact. Just as TCM takes a holistic approach, we take a holistic approach towards finding alternatives, working with the TCM community, and the way we put enforcement, anti-poaching, and other forces to work. As the philosopher Xeno said, if you start with a flawed premise, no matter how good your arguments are, you are going to end up with a flawed conclusion. It is time for us to take our goal – what happens 20 years down the road, as our premise, and that premise should be an end to the use of galls. Then we can get to our goals.

Doug Walker, B.C. Wildlife Federation. Perception is not a problem of export but a problem of import. Problem is Asian bear populations, not North American bear populations. B.C. several years ago banned the sale of galls, not as a conservation measure for North American bears but to contribute to a worldwide effort to protect foreign bears. Hunters traditionally are not in favor of sale of wildlife for commercial purposes. Commercial sale of galls is not something high on their list of priorities. If the sale is legal in places like Nova Scotia there could be truckloads of galls for export, but the demand is not there. If the need is to change laws in the United States to force other countries to change their laws, then it probably will pass. Commercial trade is not an issue for North American bears, but for foreign bears. Bear populations in North America, and especially in Canada, are prevalent and healthy. Extrapolating 20 or 50 or 100 years, habitat loss is going to be the problem given increasing populations, not illegal hunting. Hunters are receptive to the idea that if you kill something, put it to good use. But poaching is different, they are criminals. There are already a set of laws in place to deal with illegal export-- the “quiver of arrows” needed for enforcement is there -- education is not. Most hunters already do not want to sell galls. Trade is not happening – there is no big demand. If you want a gall you can get one, it is legal and easy. So if there is no big demand or problem, if it is simply a philosophical-based approach to put more pressure on

international markets, then be right up front and say so. In B.C. trade is not something that is a problem or threat. Stronger anti-poaching, stronger education, better information on endangered species are needed. The tools are there, we must put them into place properly.

George Phocas, U.S. Fish and Wildlife Service. Speaking strictly for myself, there is a source of legal galls, and there is a demand. These two things need to be brought together and balanced in some sustainable fashion. This is generally done by the states and jurisdictions where hunting and selling galls is legal through regulation. Galls could be taken by the state instead of by individuals and auctioned off. This is the first time that I have heard a representative of an Asian nation quantify the need. If it is 50kgs, that would be well within the sustainable supply available in North America given the number of bears legally harvested. Meanwhile, alternatives could be sought to the use of galls. It is a question of maintaining a balance, of education, and of matching the supply (say its 20,000 bears taken legally in the U.S. each year) with TCM recipients while alternatives are identified. The state and federal mechanisms are already available for a legal export of galls if there is outreach and understanding and rules, and there are resources to punish poaching and wasting outside of that structure.

Dr. Kim, Taejon University. I want to respond to the question about legal trade. Although we may pass a law, according to the statistical data, we cannot be comfortable with a law unless it is successful as we expect it to be. Do you think the law on tiger and rhino was successful? Why do you think allowance of legal trade is not good, without trying it?

Debbera Stecher, Woodland Park Zoo. This comes down to respect for other cultures. We have a lot of lack of respect. What are we doing to protect species in this country? I don't believe that we are going to succeed in telling people who have been practicing traditional medicine for 2,000 years to come around and do it our way. Why is the Western way THE way? We must work with them to get what they need for their medicine. Education requires respect and reciprocity. Working WITH people is the best bet, not imposing our personal beliefs and values and saying that others are wrong.

Stuart Chapman, WWF-UK. Looking at this situation compared with rhinos and tigers, there is an opportunity to set in place monitoring mechanisms and get baseline data so that if we meet again in three years before CITES we will have information on what resources are being spent to protect bears in the field, on law enforcement in key range and consumer countries, so if a ban is introduced at the next CITES meeting in a few years, we have some information to gauge the effectiveness of the ban and learn from the exercise whether bans really do work and we can stop debating about it.

SUMMARY OF THE SECOND INTERNATIONAL SYMPOSIUM ON THE TRADE IN BEAR PARTS FOR MEDICINAL USE

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This symposium was the second on the trade in bears and bear parts. It again served to focus interest and information on this complex and important topic. The organizers are to be congratulated on their efforts to organize such an effort. The topics discussed covered a wide range of issues. This summary will attempt to highlight the major topics and issues and focus on the important points. This paper will be written in outline form to make it easy for the reader to get a summary of the symposium.

MAJOR POINTS FROM THE CONFERENCE

- Extreme and unrealistic examples of prices paid for bear bile and other bear parts are harmful because: 1) they create mistrust of those who use these price examples, especially by those who know the real prices; and 2) they create an increased expectation for the monetary gain involved in trafficking in bear products and in so doing may actually increase the trade and illegal killing of bears.
- There are significant numbers of fake bear gall bladders and bear bile being sold as bear bile in the traditional medicine market today.
- There are three types of bear bile recognized by traders, sellers, consumers, and the knowledgeable public: real bile from wild bears, farmed bile (from captive “farmed” bears), and fake bile from animals other than bears. The fact that this distinction exists is a critical factor in any program to address the trade issue.
- Real bile from wild bears has the highest value in traditional medicine and the highest monetary value.

- Poaching is a major problem in wildlife conservation and management. There are basically three reasons for poaching: 1) family or own use; 2) personal gratification (trophy poaching); 3) commercial purposes for monetary gain. Most bear poaching related to bear parts use is in the category of commercial purposes.
- State regulations in the United States relating to trade in bear parts are of three types: 1) those states that allow trade (35 percent); 2) those states that prohibit trade (57 percent); and 3) those states that have no regulations (eight percent). This mixed and inconsistent legal approach to the management of bear parts trade in the United States contributes to: 1) difficulty in legal enforcement and control of trade in the United States; and 2) sends a mixed message to Asian countries who are either attempting to control the trade or are concerned about criticism of bear trade in their own countries by United States NGOs or government officials. The legal trade of bear parts in some areas of North America clearly weakens the will to limit trade in some areas of Asia.
- There is very little quantifiable data and information about the levels of trade within and between countries, the consumption of bear bile and other parts, and the prices paid based on origin and sale location. This lack of information inhibits considered discussion of the issue and development of solutions.
- An issue in the management of trade is “bureaucratic blindness” wherein government officials focus on paperwork, legislation, and permits while the trade continues unaffected.
- Statements that there are many bears in North America and many bears killed in sport hunting in North America weaken trade enforcement and education efforts in some Asian countries.
- Efforts to change attitudes in order to limit trade in bear parts must focus on both the producer and the consumer of the product.
- Bear farming is associated with marketing and promotion of use of bear bile in order to increase demand. The fact that there is a perceived difference in efficacy and price between farmed bile and wild bile among consumers and traders limits any benefit to farms as compensatory agents to the killing of wild bears for trade of bear bile. The production and sale of farmed bile with its associated marketing and promotion may be additive to the trade in wild bile. This assertion needs further documentation which will be difficult due to the limited specific data on the trade.
- Changes in political systems have increased the permeability of international borders to trade. This has resulted in increasing movement of bear parts from places like the Russian Far East which had little or no trade in bear parts 10 years ago.

- A survey of visitors to a Japanese bear park revealed that 26 percent of those less than 30 years of age support use of bear bile for medicinal purposes and that 19 percent did not value the existence of wild bears. While this was not a scientific survey, it did point out some surprising attitudes in young Japanese about the use and future of bears.
- An economics view of the trade cautions that ceasing the trade in bear parts, hunting of bears for the sale of their parts, and farming of bears for bile is not realistic. It may be possible with legal restrictions to minimize the legal trade in bears and parts with little impact on the illegal trade. Demands will shift in relation to price, but reduction in demand is not the same as reduction in consumption.
- There are strong feelings among many users of bear parts for traditional medicine that restrictions on the use of bear bile in human medicine are an affront to those who believe in such medicines.
- An estimated 50 kilograms of bear bile per year is needed for scientific and medicinal use in South Korea. At an average of 100 grams of dried bile per bear gall this equals the bile from 500 bears.
- There are questions among traditional users relating to the “Bear Protection Act” introduced into the U.S. Congress to prohibit the export of bear parts from the U.S. The questions are:
 1. Is not habitat loss, not trade for traditional medicine, the main cause of reductions of North American black bear populations?
 2. Why should exported bear galls from legally killed North American bears not fund North American anti-poaching and other conservation efforts by being sold to Asian traditional medicine markets? and
 3. Would not export of legally killed North American bear parts reduce the poaching pressure on Asian bears?
- Many traditional medicine users believe that killing and use of bears for traditional medicine is much superior to killing and use of bears in recreational hunting.
- China reports that there are currently 481 bear farms in China with more than 7600 bears in such farms. However, China is reported to have decided to reduce bear farming and has stopped issuing permits for new bear farms.
- Herbal substitutes for bear bile may be available in two years, but availability does not mean acceptance.

- In Canada, illegal harvest of bears for bear parts is thought to be minimal, yet the trade in bear gall in Canada is significant with several thousand being sold each year.
- Recently, significant imports of farmed bile imported into the U.S. from China were seized by U.S. customs agents. Does this mean that there is too much farmed bear bile in Asia and that markets in the U.S. are being sought, or does this mean that the profit to be made by selling bear bile in the U.S. is greater than in many Asian areas? The answer is unknown.
- A sample of bile sold in traditional medicine shops in Taiwan revealed that of 183 samples tested, 30 percent were real bear bile representing both farmed and wild bear origins. The remainder were cow, pig, and goat bile being sold as bear bile. In some cases, real bear bile was mixed with pig bile to enhance its acceptance a pure bear bile.
- Currently all species of bears are either CITES Appendix I or Appendix II. Reported data on trade do not reflect the true levels of trade due to inaccurate reporting and continued illegal smuggling. Thus, there is not database available to determine if CITES listing has decreased international trade to any degree. Trade controls under CITES are only as effective as the weakest management authority in any country, and enforcement varies widely between countries.
- International trade in bear parts affects all species of bears to some degree. It is likely that the Asian bear species including Asiatic black bear, brown bear, sloth bear, and sun bear are all impacted to some degree with the Asiatic black bear being the most impacted species. Lack of information on population numbers and distribution, harvest rates, and reproduction for these bear species makes it impossible to understand the levels of impact of trade on these species.
- In order to reduce demand, education of users about the impacts of the trade is necessary. Education may be effective by promoting alternatives and their use and the direct and indirect impacts of the use of bear products. However, the effectiveness of education is limited by lack of precise information on the status of bear populations in Asia and the consequent lack of information on the impacts of trade on these populations. A key item is that many users of bear parts in traditional medicine do not know the impacts of this use on bears. In Taiwan, educational advertisements in the mass media about the impacts of use of bear parts and other products from threatened animals have been somewhat effective in limiting use.
- Trade in bear parts for medicinal use involves health and medicinal concerns. It is also a bicultural issue involving Eastern and Western philosophy, belief systems, and approaches to health.

- Criticism of use of certain species in traditional medicine is perceived by some users of this medicine as an attack on the entire traditional Chinese medicine (TCM) system and the Asian cultures that use this system. Critical approaches to the use of bear parts in TCM must be used with great caution and sensitivity for the belief systems and cultures associated with this use.

SUMMARY HIGHLIGHTS

- Trade is an issue in worldwide bear conservation.
- Trade is a serious issue in the conservation of Asian bear species, but the magnitude of this threat is unknown due to the lack of knowledge about population numbers, distribution, and sustainable harvest rates for these populations.
- Bear farming for production of bear bile poses both bear conservation and animal welfare concerns.
- There are serious questions about the economics of the bear trade. These questions revolve around consumption and demand, the ability to legally limit the trade, and the differential prices and values placed on farmed and wild bear bile.
- Belief systems in Traditional Chinese Medicine drive use of bear bile but many users do not know the impacts of the use of these products on wild bear conservation.
- Education can be an important factor to:
 1. educate users on the impacts of use on wild bears; and
 2. promote the use and efficacy of alternatives to bear bile.
- Great care must be used in any critical statements relating to use of bear parts in Traditional Chinese Medicine (TCM) due to the human health issues involved and because criticism of bear use in TCM can be viewed as criticism of TCM itself and of the Asian cultures that use TCM. Such comments could be viewed as racist.
- There is limited value in dependence on regulations due to:
 1. the ease of movement of bear parts across borders;
 2. the unequal effort and effectiveness of regulatory systems between countries; and
 3. the fact that bears are already either CITES Appendix I or II which raises questions as to the effectiveness of existing regulatory efforts.

A PROPOSED PLAN FOR ACTION

A successful approach to management of the trade in bears and bear parts will have multiple targets and each target will have to be addressed simultaneously for success:

1. Maintain regulations with continued efforts to improve the standardization of existing regulatory systems. This will send an important message to those involved in the trade. Conflicting laws in Canada and the United States relating to the sale of bear parts send a confused message to consumer countries. However, we must guard against dependence on regulations.
2. Expand outreach efforts to consumers based on the impacts of the trade on wild bear populations and the availability and efficacy of alternatives to bear bile in TCM. Such outreach efforts are best done by consumer country government involvement and support.
3. Continue to send a clear message that farming of bears for bile production is not a solution to conservation of Asian bears. Farming of bile requires and is associated with marketing of the product. Marketing increases demand and makes use of bear bile acceptable. Farming of bile will continue a two-tiered consumer system: users of farmed bile; and users of real bile with a large difference in price between them.
4. Expand our knowledge base on wild Asian bear populations. Documentation of the effects of trade as a mortality factor on Asian bear populations could be a key education and outreach tool as well as an important incentive to address the trade issue with more aggressive actions if necessary. Such research would also gather critical information on basic ecological factors on Asian bear species necessary to their conservation and management. The basis of sport hunting of North American bears is careful limitation of mortality to sustainable levels. This mortality management is based on sound biological information on the hunted populations. Mortality of Asian bear species is not managed nor is it known what levels of mortality are sustainable nor what level of mortality is ongoing. Given the demand for bears in traditional uses in Asia and ongoing habitat losses due to human development and population increase in Asia, this lack of knowledge about Asian bears is a recipe for disaster. Given what we know about Asian demand for bear parts, it seems reasonable to assume that mortality of many populations of Asian bears is excessive and not sustainable and that many populations and subpopulations are declining in numbers and range. The management of bear hunting at sustainable levels in North America is paid for by the hunters through purchase of hunting licenses. If users of bear parts in Asia supported research and management of Asian bear populations to assure that these populations could sustain the mortality resulting from use of bear parts, there would be much less concern about such use.

5. We must work to build ownership of bear conservation in Asia and worldwide. Interest in bear conservation is critical if people who use bears and live in bear habitat willing to make the sacrifices to assure a future for wild bears. This ownership must be build through education and outreach efforts.

There are four basic needs for a successful bear conservation program (Figure 1):

1. Biological data on Asian bear species.
2. Social support from people in Asia to conserve bears built on expanded public knowledge and acceptance of the status of bears related to the use of bear parts.
3. Political support from central and local governments to achieve conservation success. There must be depth to this support so that necessary difficult decisions can and will be made to conserve bears.
4. An organizational structure including knowledgeable people in place in each country to enforce laws, develop and use biological data to properly manage bear populations, and to develop education and outreach programs to local publics.

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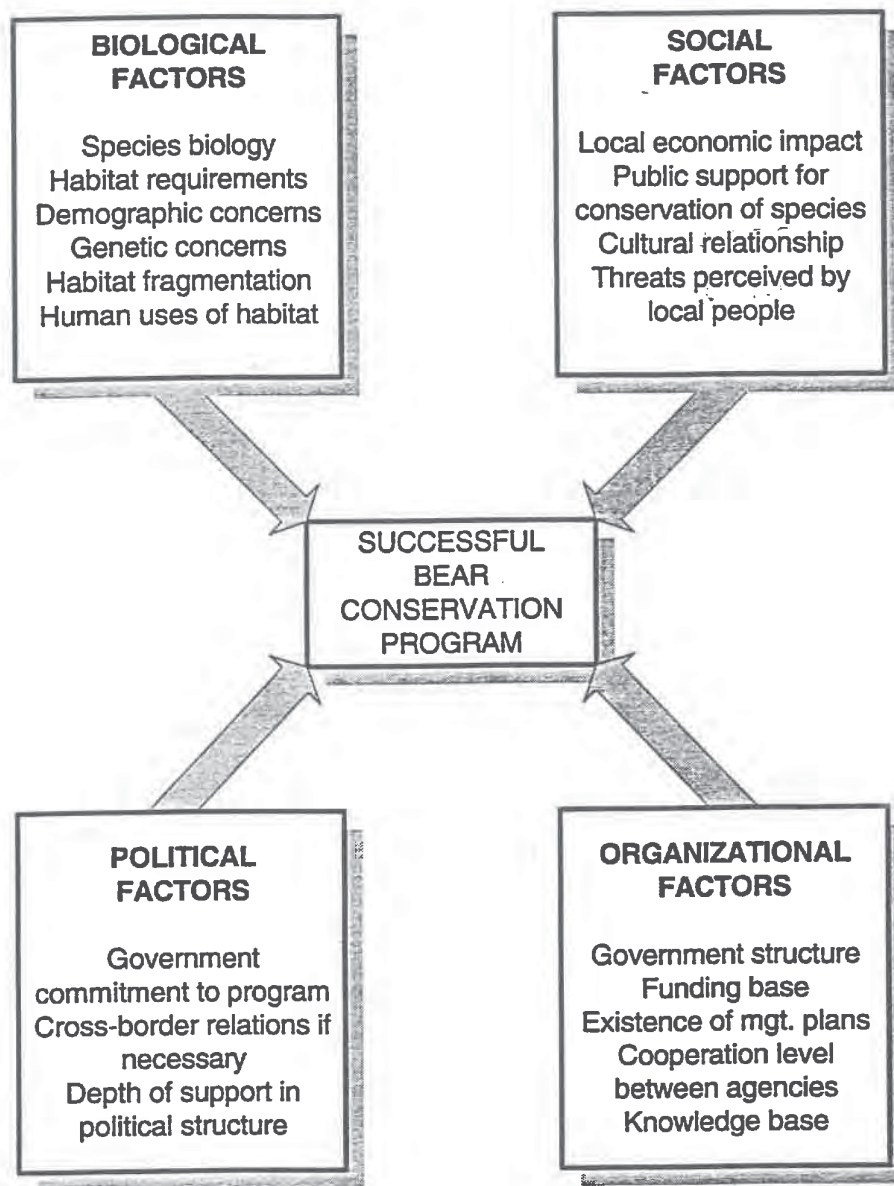


Figure 1. The essential elements of a successful bear conservation program (Servheen, in press).



TRAFFIC NETWORK



SPECIES SURVIVAL COMMISSION



WOODLAND PARK ZOO