

# FROM HUNTING, TO CAPTURING, TO BREEDING THE BLACK BEAR (*SELENARCTOS THIBETANUS*)

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**Abstract:** In 1985 an experimental method was introduced by Pingrang Zoo for extracting bile from living black bears (*Selenarctos thibetanus*). This method has since become a large-scale production in China. There are now 30 farms producing the bear-gall powder in provinces of northeast and southwest China from 4,000 captive bears. Bear gall is a medicine from wild bears, quite rare and expensive. The rapid development of bile-extracting methods from living bears is an attempt somewhat following the successful example of farming Sika deer (*Cervus nippon*) for antlers, where the farmed population is now approaching 300,000, which is more than the wild population of Sika deer. The bears in bear farms were captured from the wild. From now on, domesticated bears must be increasing every year in farms until a population of second-generation offspring is established and capturing bears from the wild is stopped. Considering that the black bear would become a new experimental animal in the near future for the scientific research of osteology and physiology, developing these techniques of breeding and domesticating is of remarkable significance.

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It has been a long tradition to use plant parts and animal parts as medicinal products in China and eastern Asian countries. Deer antlers, musk, and bear gall bladder have been used as components of Chinese medicines for thousands of years. This fact raises a question: how to enforce conservation of the rare and endangered species of both plants and animals while people use them. It is our duty to solve the problem as we develop the national medical industry.

Bear gall bladder is a precious material in China and Oriental countries. In the past all the bear gall bladder came from hunting wild bears. A bear gall bladder averaged 50 g and cost the life of 1 bear; therefore the price was very high. This utilization of the bear gall bladder caused disaster for wild bear populations. A technique for extracting bile from living bears was introduced by Pingrang Zoo in 1985. Bile powder has become a large-scale production in China since then. There are now 30 farms producing standard bear gall powder in provinces of northeast and southwest China, and 4,000 captive bears. Most of them are Asian black bear (*Selenarctos thibetanus*), and fewer are brown bear (*Ursus arctos*).

Rapid development of bile extraction from living bears is an attempt somewhat following the successful example of farming Sika deer, for the antlers of the males. The population size of farm deer is now as large as 300,000 individuals, much larger than the wild population. The existence of domesticated Sika deer has greatly decreased the hunting pressure on the wild deer. Capturing bears and extracting their bile in these farms may be harmful to the present wild population of bears, but for long-term conservation this approach can change the traditional method of obtaining bear bile from killing bears to extracting bile from living bears.

In the bear farm a surgical operation is performed to make a fistula in the bear's gall bladder when the black

bear is 3 years old. Bile is extracted from the fistula. Then the bile is dried to use as a medical component. At preliminary stages of bear farming, bears did suffer from surgical accidents and postoperative infection. Later, the surgical operation and techniques to control postoperative infection improved. Now in operations, a small part of the colon is used instead of an artificial fistula. The amount of bile extraction is strictly limited each day.

The cage size is not large enough at this point for bear action, but diet is much better than in zoos. In 1991, a special building for farming bear was developed. Every bear cage is connected to a playing yard and at the opposite side there is a department breeding house for females. The bears are feeding, playing, breeding, and raising their cubs in the same building. The condition of feeding bears gets better gradually and the management method is progressing.

The Chinese medicine industry uses 700 kg bear gall bladder each year. One bear gall bladder can produce 50 g of bile powder; this means that 14,000 bears must be killed each year to meet the medical requirement. Certainly, there is a big conflict between the medicine industry and the protection of wildlife. Right now the technique of bile extraction can get at least 5 g of bear bile powder from 1 bear each day. For a year, 1.825 kg bear bile powder is produced. This quantity is equal to 36.5 bear gall bladders. Raising 384 bears in farms can save 14,000 wild bears' lives. The number of captured bears only reaches 3% of the 14,000 individuals. From this calculation, I can ask whether such usage of the wildlife resource is reasonable and acceptable. I would like to take Milu (*Elaphurus davidianus*) and Sika deer as the examples to discuss the wise utilization of wildlife resources.

Milu is an endemic deer of China and a well known species closely related to Chinese culture. One hundred

thirty years ago, there were 120 individuals raised in the Empire garden, which was eliminated at the beginning of the twentieth century in China. Today Milu are reintroduced to China and kept in yards located at the south suburb of Beijing and Dafeng County of Jiangsu Province. There are about 2,000 Milu deer around the world and 200 in China.

Similar to the Milu, Sika deer are also an endemic species of China. About 100 years ago Chinese people began to farm them for the medical use of their antlers when the Milu was eliminated in China. At present, the domesticated population of Sika deer has reached 300,000. The wild Sika deer population has been given a delay in extinction because of the existence of the now-declining deer farm, compared with the Milu. I think we should say the fate of the Sika deer is much better than of the Milu.

At present, the possibility of capturing bears from the wild has been reduced to a minimum since the law of wildlife protection became active to establish a domesticated population made by the second-generation offspring of captured bears. The effort to reproduce bear cubs in captivity has been made both in zoos and bear farms. For example, the Institute of Fauna and Flora Medicine got 4 cubs from 3 female black bears in 1990-91. More than 30 females have mated in reproductive season. Both natural and artificial insemination techniques were employed at the largest bear farm, located in Dujiangyan City, Sichuan Province. For 7 years the cross-mating of male brown bears with female black bears produced 12 cubs, 9 of which have survived in Baoji Park, Shaansi Province. A hybrid bear was also born in Shanhe farm, Heilongjiang Province. These individuals, which are strong and can produce higher bile powder, have been selected to breed cubs. Killing bears for their gall bladders will be greatly reduced after the second offspring bear population reaches large numbers in captivity.

In the meeting of the Eighth International Conference on Bear Research and Management, some experts found "that denning bears have a protective mechanism against the development of osteoporosis. This osteometabolic adaptation may be regulated by

circulating substance (s) produced by denning bears. Such a substance would have obvious beneficial uses for men" (Floyd and Nelson 1990:136). Perhaps the black bear will become a new experimental animal in the near future for scientific research in osteology and physiology. The possibility of using black bears as a new experimental species exists when the captive population of black bears becomes stable in physiological characteristics. The bear farms in China may help accelerate this process.

Although there are many contradictions between the Chinese medical industry and the conservation of wildlife, conflicts can be solved in some way. To convert a certain amount of wild individuals into the domesticated population for the utilization of medicine may be one way to solve the problem. The effects of deer farming in the conservation of the wild Sika deer population are a very successful example. We can not refuse to consider the requirements of medicine, scientific experiment, and other human needs for the wildlife resources. The bear farms in China are changing the usage method for wild bear resource from killing to farming.

I present this paper to bring the opinion to you that we must face the fact that the requirements of Chinese medicine will continue to place hunting pressure on wild bears if the bear farms are dismissed. To guide wise usage of the bear resource may be the only choice.

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