STATUS OF JAPANESE BLACK BEAR

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Abstract: This report reviews the status of Japanese black bear (*Selenarctos thibetanus japonicus*), and proposes a conservation plan for this species. Ten thousand black bears are estimated to live in Japan as estimated by distribution of data and density estimates of 0.11-0.18 bears/km². Annual harvest is more than 2,000. More than 1,000 bears are killed as pests on plantations for depredations on agricultural products and other bear-human conflicts throughout the active bear season. The government does not manage black bears on the biological basis of hunting seasons, numbers, sex, or age at harvest. High commercial value of gallbladder threatens Japanese bears as in other Asian countries. Bear habitat was diminished by timber cutting for resources during the World War II period. (The rapid economic growth of Japan has been inadvertently consuming bear habitat all over the world.) For the conservation of bears, social education is necessary along with proper management of hunting and habitat on a biological basis.

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In Japan the government has no approach to legally conserve wildlife; there is no government system in the Environment Agency to manage bears. Increasing wildlife damages to human products require that a new policy be developed.

Since the 1970s, biologists have demonstrated the critical situation of the Japanese black bear. Excessive numbers of nuisance kills as pest animals and careless timber cutting heightens the sense of crisis. The high commercial value of bear parts threaten Japan's bear (Milliken 1985). At the same time, the reports by IUCN/SSC (Servheen 1990) and TRAFFIC USA (Mills and Servheen 1991) indicate that Japan is responsible for a significant part of the worldwide bear trade.

The Environment Agency has researched bear population biology since 1980. Information from the prefectures has been developed on bear damages, harvest, and the size of populations. I worked on some of these projects and on the threatened bear project of WWF Japan, 1988-90 (In Press). In this report, I review the status of Japanese black bear on biology, harvest, habitat and bear use; define the problems; and propose a conservation plan for this endangered species.

BIOLOGY

Japan is a narrow, long country that consists of 4 major islands with an area of about 370,000 km². The steep mountainous areas occupy 68% of the land. Human populations are concentrated in the remaining 32%. Japanese black bears live on 3 major islands, Honshu, Shikoku and Kyushu. The latter 2 islands may have endangered or extinct populations. Another bear species, brown bear (*Ursus arctos yezoensis*), dominates the northernmost Hokkaido island, and the species do not overlap. The geographical placement of Japan, steep topography, seasonal winds from the continent, and varied warm and cold ocean currents, make for diverse climates and vegetation in Japan. Bear habitat can be generally separated into the northeastern high snow area and the southwestern low snow area.

Black bears use vegetation from the hills near villages to the alpine zone more than 3,000 m in altitude. Their food habits are omnivorous but mainly herbivorous. They eat grasses, sedges, herbs, and buds in spring; berries and nuts in summer and fall. The acorns of *Fagus*, *Quercus*, and *Castanea* are key food in the important pre-denning season (Takada 1983, Nizaki et al. 1983, Hazumi and Maruyama 1987). Their weight is 60-120 kg in adult males and 40-100 kg in adult females. Body length is 120-140 cm. The characteristic feeding behavior of this small bear is to climb a tree and to eat fruits and buds. The ledges of broken oak branches like nests, called "Enza" are conspicuous feeding signs in fall. The same behavior is reported in Asiatic black bears in China (Schaller et al. 1989). They also use certain insects and carcasses of wild animals and livestock opportunistically. The bone parts and claws of a bear cub were found in the stomach contents of an adult male bear (Yamagata prefecture 1982, Hazumi unpubl. data). Cannibalism may occur in this species as with the American black bear (LeCount 1987).

In the last 15 years, some radio-tracking research has examined this species. Hazumi and Maruyama (1986 and 1987) worked in Nikko. Maita (1990) tracked 19 bears at Mt. Taiheizan in northeastern high snow habitat. Their range size is 50 km² (n = 7) in males and 30 km² (n = 12) in females. Hazumi (unpubl. data) has been tracking 11 bears of Tanzawa, an isolated population in southwestern low snow habitat. Their range size measured 2 to 3 times as large as that of the northeastern population. The difference may be caused by decreasing capacity of habitat. Expanding coniferous plantations separate the natural forest into small patches.

Denning period is 5 or 6 months between November and April. Black bears use a hole in tree, under rocks,

or the ground as den sites. They do not dig the ground actively like brown bears.

Steep topography and dense sasa bamboo prevent researching bears in their habitat. The 6 prefectures of the northeastern district counted the number of bears in post-denning season. In spring much of the snow is firm enough to walk on making searches for bears easy. The density is estimated at 0.11-0.18 bears/km^2 in these areas. Direct counts are impossible in the low snow areas of the southwestern areas. Capture-recapture methods were examined with radio-marking studies in Tanzawa. However, the data indicate that the density of the southwestern population is lower than other areas. From all these data, 10,000 black bears are estimated to live in Japan (Black Bear Management committee of Environment Agency of Japan).

HARVEST

The annual harvest of black bears is more than 2,000, and half of this kill is nuisance kills as pest animals (Table 1). Poaching kills are additional to this number.

Hunting season is usually set from 15 November to 15 February. Hunters hunt pre-denning bears with dogs, and they search for bears in den sites that are used by generations of bears. In northeastern high snow areas, bear hunting is traditionally during the post-denning season because the hunters can walk easily on hard snow, see bears, and get bigger gall bladders than the other seasons. The spring hunt is conducted as a prophylactic control for decreasing the summer-fall bear damages.

Table 1. Annual harvest of Japanese black bears (Environment Agency).

Year	Hunting	Pest control	Total
1980	831	1,035	1,866
1981	1,300	1,410	2,710
1982	1,016	1,106	2,122
1983	863	1,145	2,008
1984	869	860	1,729
1985	923	1,355	2,278
1986	953	1,625	2,578
1987	1,140	822	1,962
1988	972	1,291	2,263
1989	761	1,266	2,027
Average	962.8	1,191.5	2,154.3

Japanese black bears damage artificial coniferous plantations by stripping the bark from trees (Azuma and Torii 1980, Furubayashi et al. 1980, Watanabe 1980). This is a serious problem in southwestern bear habitat where the artificial forest occupies a large percentage of the habitat (40-60%). Since 1970 many box-traps have been set in the bear habitat, and trapping and killing of trapped bears has continued through the active bear season. On the islands of Kyushu and Shikoku, where forest harvest and conversion has been extensive, the bear population has been reduced to endangered size. In some districts of Honshu, excessive control of bears as timber pests has diminished their distribution (Torii 1978, Shibata and Kofune 1984).

Black bears damage agriculture, beekeeping, fish-farms, livestock, and sometimes human beings. These damages usually occur from late summer to fall. Physical protection like electric fence is rarely used. Bears are killed by shooting, snaring, and trapping as pests. There is no regard for the impact on the population from such harvest. Recently, many bears have appeared in human areas. Excessive timber cutting and the fluctuation of mast crops diminished the capacity of bear habitat. The careless harvest of bears for pest control seriously threatens each population.

HABITAT

Artificial tree plantations occupy 40% of the forest for the temperate and humid climate. Considerations of bear habitat in Japan must employ the history of forestry.

Figure 1 indicates the changes of timber cutting. Forestry disturbances of bear habitat started in the 1940s. During World War II, 1939-1945, the forest was overcut to supply war-time needs. Though the Forest Agency planted in post-war periods, Japan has since needed a large volume of timber resources for building materials and pulpwood. The government decided to cut the interior forest and started to import inexpensive timber from foreign countries. The rate of self-supply has decreased from 86% in 1960, 45% in 1970, to 30% in 1980. The inadequate management resulted in plantation waste. The Forestry Agency has a deficit of more than 15 billion dollars due to failure of management. Simultaneously, resort developments for skiing, golfing, housing, and road developing are converting forests to nonforested areas.

Because forestry has historically diminished the capacity of bear habitat and fragmented it, many bears appear in human areas and are killed as pests. The

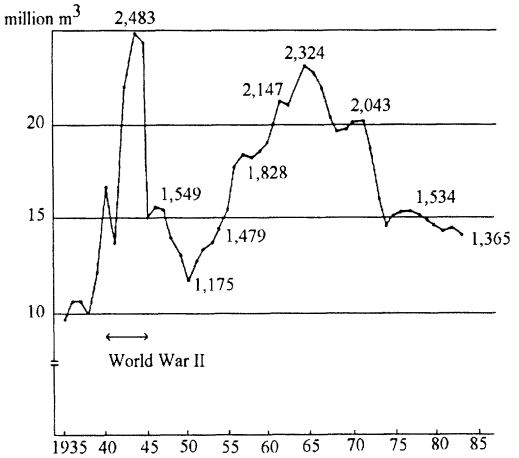

Fig 1. Changes in Japanese timber harvest.

current situation for Japanese black bears is causing "population sinks" as in other bear species (Schoen 1990).

Today Japan occupies 30% of the world trade of tropical forests including those in Philippines, Indonesia, and Malaysia. This results in habitat destruction for tropical bear species. Japan is harvesting large volumes of timber in eastern Siberia (Mills and Servheen 1991), and a high rate (30%) of Japanese timber imports are from North America. This rapid economic growth and demand for resources causes a fundamental problem for worldwide bear conservation.

BEAR USE

Milliken (1985) and Mills and Servheen (1991) have reported on bear use in Japan. But for their efforts, Japanese people, even biologists, would not have noticed this important problem of bear trade. This report adds to this historical background.

In the age of the traditional tribe "MATAGI," a hunter confronted a bear with just a spear. Hunting pressure was lower and the habitat was abundant. The ancient native religion admonished anyone against excess hunting. Since the beginning of the twentieth century, hunters have used guns. World War II brought heavy hunting pressure. Many species of wildlife, including bear, serow, deer, monkey, and wild boar were harvested for food, winter clothing, and medicine for military and civilian people. People used everything: fur, meat, fat, viscera, and blood of the game.

In this age of high economic growth, professional hunting has decreased and changed to recreational hunting. The old admonition to limit excessive hunting has disappeared. Bear gallbladder has the highest commercial value of all Japanese wildlife products. The overseas demand for bear gall is the reason for the high harvest (2,000-3,000 bears each year in Japan). Easy capture, by trapping and snaring for pest control, is threatening bear populations. The government does not collect samples from hunted animals for population estimates. The commercial value of parts of the killed bear is compensation for damages. The traditional custom of using gallbladder is disappearing among local people. Pharmaceutical companies market artificially produced ursodeoxycholic acid (UDCA) in many types of medicine.

CONSERVATION

Lack of Ideology

In the past, natural areas were generally undeveloped due to the steep topography of Japan. The ancient Japanese felt that nature was abundant and always familiar, and respected it. After World War II, however, economic development was most important and has resulted in sacrifice of nature and native ideas. The government has not established systems of wildlife management. For example, there is no ownership of wildlife. The state is not responsible for wildlife. The person who captures an animal as pest or in the hunting season, has the right to sell all parts of the animal. The Forest Agency, which has a right to manage the national forest, is primarily concerned with economic value and development of forest resources. The concept of habitat management is not considered in land laws.

The recent international movement on global environmental conservation, such as the IUCN, affects the Japanese government. The government now shows signs of reconsidering laws and systems of environmental and wildlife management. The ideology of conservation must be guaranteed under the law.

A Management Plan for Japanese Black Bear

Because of the lack of an adequate system of wildlife management and wildlife habitat management, the Japanese black bear population will be endangered. I propose the following management plan:

1. Define local population areas to prevent further fragmentation (Fig. 1).

2. Estimate population size and limit harvest numbers to sustainable levels.
3. Prohibit snaring and shooting of denning bears.
4. Prohibit shooting females with cubs.
5. Prohibit the prophylactic nuisance kill.
6. Protect the products with a physical system and a catch and release method.
7. Identify and preserve core habitat areas to support enough foods.
8. Develop a system to link adjacent habitat units.
9. Develop education to support bear conservation efforts.
10. Develop management authorities and systems for each population.
11. Improve game and land management to accomplish these objectives.

BEAR TRADE

It is difficult to monitor the underground trade of bear gallbladder. In Japan, the establishment of wildlife-management systems and strict hunting control is critically important. Japanese pharmaceutical companies are able to market bear gall ingredients that have great value. Therefore, the market must be closely limited. Japan should enforce CITES regulations on bear trade. It may be better to have the wildlife market controlled through the government so that purchase of galls from bear hunters would be at a stable price. On the other hand, the managed bear farm may be useful for decreasing hunting pressure to wild bears. The optimum solution is to use synthetic ursodeoxycholic acid synthesized from cow gallbladder.

LITERATURE CITED

AZUMA, S., AND H. TORII. 1980. Impact of human activities on survival of the Japanese black bear. Int. Conf. Bear Res. and Manage. 4:71-79.

FURUBAYASHI, K., K. HIRAI, K. IKEDA, AND T. MIZUGUCHI. 1980. Relationships between occurrence of bear damage and clear cutting in central Honshu, Japan. Int. Conf. Bear Res. and Manage. 4:81-84.

HAZUMI, T., AND N. MARUYAMA. 1986. Movements and home ranges of Japanese black bears in Nikko. Int. Conf. Bear Res. and Manage. 6:99-101.

_____, AND_____. 1987. Movements and habitat use of Japanese black bears in Nikko. Int. Conf. Bear Res. and Manage. 7:275-279.

LECOUNT, A.L. 1987. Causes of black bear cub mortality. Int. Conf. Bear Res. and Manage. 7:75-82.

MAITA, K. 1990. Ecology of Japanese black bear in Akita. Japan Environ. Agency Res. Publ. Pages 126-206.

MILLIKEN. T. 1985. Concern over Japanese bear trade. IUCN Traffic Bulletin 7(1):5-8.

MILLS, J. A., AND C. SERVHEEN. 1991. The Asian trade in bears and bear parts. TRAFFIC USA Publ. 113pp.

NIZAKI, E., S. AZUMA, T. AOI, H, TORII, T, ITO, AND K, MAEDA. 1983. Food habits of Japanese black bear. Int. Conf. Bear Res. and Manage. 5:106-109.

SCHALLER, B. S., T. QITAO, K. J. JOHNSON, W. XIAOMING, S. HEMING, AND H. JINCHU. 1989. The feeding ecology of giant pandas and Asiatic black bears in the Tangjiahe Reserve, China. Pages 212-241 *in* J. L. Gittleman, ed. Carnivore behavior, ecology, and evolution. Cornell Univ. Press, Ithaca, N.Y.

SCHOEN, J.W. 1990. Bear habitat management: a review and future perspective. Int. Conf. Bear Res. and Manage. 8:143-154.

SERVHEEN, C. 1990. The status and conservation of the bears of the world. Int. Conf. Bear Res. and Manage. Monog. Ser. 32pp.

SHIBATA, E., AND T. KOFUNE. 1984. Japanese black bear in Kii peninsula. Forest Pests 33(10):6-11. (In Japanese).

TAKADA, Y. 1983. The food habits of the Japanese black bear in the Central mountains area, Nagano prefecture. J. Mammal. Soc. Jap. 8:40-53. (In Japanese with English abstract).

TORII, H. 1978. Damage and control of Japanese black bear in Shizuoka. Forest Pests. 27(12):2-6. (In Japanese).

WATANABAE, H. 1980. Damage to conifers by the Japanese black bear. Int. Conf. Bear Res. and Manage. 4:67-70.

YAMAGATA PREFECTURE. 1982. Bear research annual report. 38pp. (In Japanese).