

## ЭКОЛОГИЯ, ПОВЕДЕНИЕ

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### Market prices for the tissues and organs of snow leopards in China

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The snow leopard (*Uncia uncia*) is an endangered species, the distribution of which is limited in the western China, as well as in the adjacent countries. Members of the Xinjiang Snow Leopard Team (XSLT) studied on the status of snow leopard during ten years (2002-2012). For such a rare and mysterious species like snow leopard, market surveys and questionnaires are very important because the monitoring of population density is very difficult in the field (McCarthy, 2000; Zhiryakov & Baidavletov, 2002; Xu et al., 2010). Consequently, the project team also visited to the customs, the police stations and bazaars for carrying out investigation and statistical work.

**Introduction.** Millions of years ago, the snow leopard was originated in Central Asia. Accounts of snow leopards in ancient Chinese books come from as far back as 4000 years ago. The trade in snow leopards and snow leopard products has occurred for several thousand years, and the trade of this large cat was common during trading activities along the Silk Road between the Central Asian and Arabian countries.

China contains largest population size and distribution area (60-70% from the world habitat) for snow leopards. At the same time, China also has the biggest market and most intensive trade on the snow leopard products, such as skins, claws, teeth, penises, taluses, bones, meat and living cubs (Tan and Liao, 1988; Nowell, 1997; Xu et al., 2006). Usually, illegal trade data are forbidden by local officials for publishing in the open forums and medium. However, there are still some reports from international organization, and the most information is available from foreign tourists (Dexel, 2002; Theile, 2003). In fact, the trade of the fur, skeletal and living cubs occurred usually in the neighboring to China countries, such as Mongolia, Russia, Kazakhstan, Kyrgyzstan, Tajikistan, Pakistan, Afghanistan, Nepal, and India and these products had just arrived to China.

**Materials and methods.** In China, the cases of poaching and smuggling were often found in the border areas and remote mountains as well as large cities including places such as Yining, Kaxgar, Tacheng, Altai, Urumqi, Lhasa, Xigaze, Nagqu, Zhangmu, Shiquanhe, Xining, Linxia, Yinchuan, Lanzhou, Baotou, Manchuria, and Hohhot (Liao, 1994; Tian, 2008). There were many smuggling channels, which were used for supplying snow leopard products in different ways to Chinese cities (Wen, 2002). Questionnaire surveys involved a list of questions, including the number of cases, product types (which parts of the body), product list, prices, trade intensity, transport channels, poaching places and tools, human-wildlife conflict, potential problems and human attitudes to snow leopards (Hussain, 2003; Dawa et al., 2006; MaMing et al., 2011). Such work is very important for monitoring of snow leopards and for estimation of their population status which is critical for conservation management. When possible we used informants and unannounced visitors to the black market to get the real products or to take pictures as evidence. The surveys also covered the local bazaars, pharmacies, drugstores, museums, animal herbariums, customs, border troops, trade bureaus, police stations, livestock companies, tanneries, forestry and husbandry bureaus, environmental protection agency and the administration of nature reserves. The members of the team also received some information from local newspapers, magazines and internet. Survey data were analyzed using the Excel Software.

**Results.** The members of XSLT visited thousands of local stores and private people during decade, and selected 387 typical cases from Xinjiang Uygur Autonomous Region for analysis. All results are presented in the Table 1. Our results showed that the number of events, which are called as "private use", make about half (47- 51%) of the total registered cases, including trade of skins, bones, meats and other parts (Table 1). Cases that involved killing snow leopards for scientific research and museum collection were in second place (23%). The third most common event was capturing snow leopards for zoo (16%), starting from the earliest case in 1948, when snow leopards were captured for the Urumqi zoo. At present, more than 33 Chinese zoos and gardens kept snow leopards in their exhibition (MaMing et al., 2013). From the international studbooks (Blomqvist, 2008), in the past one hundred years, the number of registered in the zoo was close to the existing wild population, and the number of killings and trades was several times in the remaining wild population size

(c. 3500-7000). This is a significant precursor showing that the snow leopard will become an extinct species, and the zoo will be a final destination—the grave of big cats.

**Table 1.** Analysis on poaching cases and product list of snow leopard in Xinjiang

| Cases (use)   | Number     | %          | Areas of Xinjiang Uygur Autonomous Region                              |
|---|------------|------------|--|
| Skins in home (personal collection)   | 51         | 13         | All of Xinjiang  |
| Skins in markets  | 24         | 6          | Kaxgar, Kezilesu, Ili, Urumqi, Altay etc.                              |
| Traditional Chinese medicine (bone, organs, penis)                              | 36         | 9          | Kezilesu, Bayinguoleng, Hotan, Aksu, Urumqi, etc.                      |
| Trinkets (claws, teeth, skulls, talus)  | 11         | 3          | Urumqi, Kaxgar, Ili etc.   |
| Captured for zoo (including cubs)   | 60         | 16         | Urumqi, Aksu, Kaxgar, Dushanzi, Yining, etc.                           |
| Exhibition in the museum (specimen)   | 25         | 6          | Karamay, Shihezi, Urumqi, Aksu, Korla, Yining, Hoxud, etc.             |
| Scientific research (e.g. DNA samples)  | 15         | 4          | Usu, Wensu, Tomur Mts., Hotan, Qarkilik, Altun Mts., etc.              |
| Retaliatory killings by herders   | 15         | 4          | Tacheng, Ili, Bay, Wensu, Taxkorgan, Hotan, etc.                       |
| Accidentally injure (e. g. trap for wolf or sheep)                              | 12         | 3          | Hotan, Kezilesu, Bayinguoleng, Aksu, Manas, Mori, etc.                 |
| Attacked by the Tibetan mastiff or wild dogs                                    | 4          | 1          | Muzat, Wenquan, Bay, etc   |
| Accidental death such as disease, disasters, killed by wolf ( natural factors ) | 9          | 2          | Yumin, Wenquan, Mori, Hami, Bayinguoleng, Wensu, Yecheng, Kaxgar, etc. |
| Eaten meat by local people  | 17         | 4          | Hotan, Kaxgar, Hoxud, Yining, Kunes, Hami, Toksun, Urumqi, etc.        |
| Met in the field for observation, photography, etc.                             | 64         | 17         | Tianshan Mts., Duku Highway, Bortala, Kunlun Mts., etc.                |
| Released by locals  | 7          | 2          | Hami, Bayinbuluk, Bay, Taxkorgan, etc.                                 |
| Unknown or heard of cases   | 37         | 10         | Wenquan, Bay, Kezilesu, Hami, etc.                                     |
| <b>Total</b>  | <b>387</b> | <b>100</b> |  |

Trade is closely related to poaching intensity and market demands, and the high prices for snow leopard products is, of course, the most critical factor. These prices have increased by 10 times during the last 20 years (Table 2). Tourists saw more than 30 skins for once, including those of several cubs, in the market of Kaxgar (Anon, 1996). In 2010, there were at least 27 cases of poaching in Xinjiang. According to the average income of the Chinese people, the profit from the trade of snow leopard is very high, considerably larger than the average monthly salary and low effort results in high output. For example, in the end of 2008, a herdsman picked up two six-month cubs from a wild field near Gulja and wanted to sell them for the price of 200,000 Yuan (RMB). However, in other case from February 2012, a hawker sold a cub of 6-8 months old for price only 5000 Yuan ( $\approx$ 800 \$US) in Kuqa County so as to sell the cub quickly.

Snow leopard products could be categorized into several major usages. For example, skins for coat or decoration, bones for traditional Chinese medicines, meats for food, specimens or living cubs for research and exhibition, and some trinkets such as claws, teeth, skulls, fangs and talus for plaything or superstition accessories with the good luck against evil spirits. There are some strange cases, such as the Panchen Lama who once donated specimen of snow leopard to a primary school; in Urumqi a boss was able to bribe the administrative department to get the licenses to collect many specimens for display in the private club; and at a banquet people ate the meat of snow leopard as a kind of fashion and a symbol of the special right.

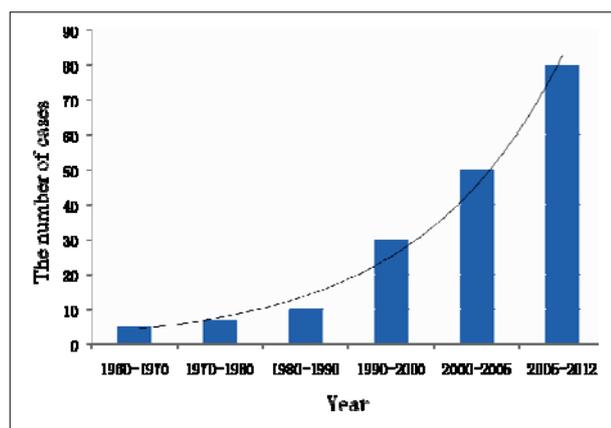
**Discussion.** In China, there has been a law for the wild animal protection since 1989, and this law has special points for prohibiting the sale of tiger (*Panthera tigris*) and snow leopard products. There are also some special regulations in each province to prohibit the sale of tiger and leopard products. However, those laws don't work because the punishment is not serious. Furthermore, it is not enough to detect these criminal activities, because there are some shortcomings and loopholes in these laws, and the procedure of punishment is long and often results in nothing. Those laws are difficult to implement in reality, and sometimes these laws are practically worthless. We discovered that in 17 records from Xinjiang Region people had eaten the meat of snow leopard, but that is likely only the tip of the iceberg. We know that the people from southern regions of China eat

many animals, including dogs, monkeys, cats, mice, owls, crows, frogs and many other species, typical of Chinese custom. Is there any difference between eating monkey and human? Some people from Guangdong and Guangxi provinces like to eat cats, and it is quite common in the southern China. Eating dogs are very usual for the people in the northeastern China, and in both cases there are no restrictions at all. In some regions, people are sure that the meat of snow leopard can enhance their sexual ability and strengthen body to fend off the cold (Wang, 1992). In Tibetan medicine, the doctors also believe that the snow leopard meat can remove renal problems. In Hotan prefecture, local people hunted the snow leopard, and after this many people ate the meat in the village. Then, they put all organs and bones into the spirituous liquor for medicines.

**Table 2.** Snow leopard products in the markets and its price system in China (Yuan, RMB)

| Parts of the body \ Year  | 1960-1980 | 1980-2000 | 2000-2012   | Region (Provinces)  |
|---|-----------|-----------|-------------|---|
| Fresh corpse  |           | 900~1100  | 10000~30000 | Xinjiang  |
| Skin (a complete skin)  | 20~40     | 300~2500  | 7000~15000  | Tibet, Xinjiang, etc.   |
| An artistic specimen  |           | 2000~3000 | 20000~50000 | In internet trading   |
| A fur coat (made with 4-5 skins)  |           | 5000~8000 | 60000~80000 | Haining, Zhejiang   |
| The whole skeleton  | 110       | 700~1000  | 5000~7000   | Tibet, Xinjiang   |
| Skull (specimen or gift)  |           | 300~500   | 1000~4500   | Xinjiang  |
| Medicinal bones (per kg)  | 50~100    | 300~500   | 1800~2600   | Xinjiang  |
| Fangs or canines (each one)   |           | 50~80     | 300~600     | Sichuan, Xinjiang   |
| Claws or toenails (each one)  |           | 20~50     | 100~180     | Xinjiang  |
| A specimen for research   |           | 1000~3000 | 10000~30000 | In big cities   |
| Genitals or penis (each one)  |           | 100~200   | 1400~3000   | Xinjiang, Beijing, etc  |
| Talus (each one)  |           |           | 500~1000    | Xinjiang  |
| Fat and organs (heart, liver, gall, bladder, lung, stomach, intestines) |           | ?         | 200~300 ?   | (the viscera is perishable, and is often discarded in the wild) |
| The raw meat (per kg)   |           |           | 160~200     | Sichuan   |
| Cooked meat in restaurants (each disk)                                  |           |           | 128         | Sichuan   |
| Cub (alive and half year old)   |           |           | 5000~100000 | Xinjiang  |
| Monthly income (Yuan / person)  | 20~100    | 300~1000  | 2000~4000   | In the west of China  |
| RMB (¥) : U.S. Dollar (\$)  | 11:1      | 8:1       | 6:1         | In China  |

In 2002, in Seattle a document for the Snow Leopard Survival Strategy (SLSS) was created by Snow Leopard Trust (SLT) and Snow Leopard Network (SLN). However, what has been done in the following ten years? We have done nothing under the shadow of the global economic crisis and many years of war with elements of terrorism around the world, together with the intense economic development in the western region in China. All resources are for increasing the gross domestic product (GDP), and as a result the situation for the snow leopard has gone from bad to worse (Zahler & Graham, 2001; Mishra & Fitzherbert, 2004). The SLSS experts drew some "hot" spots on the map and created a great so-called "priority" protection program in 2002. However, this was done on paper only, and results are often the opposite in real life (Tian, 2008; MaMing et al., 2013). During last ten years, international organizations such as SLT, IUCN, WWF, SLC, PANTHERA and WCS have invested the majority of their funds into the edge of snow leopard habitat in Mongolia, Pakistan, Kyrgyzstan and other countries. Due to some political bias and interests of limited closed management groups, the politicians changed



**Fig. 1.** The rapidly increasing trend of cases for snow leopard poaching and trading in Xinjiang (Incomplete statistics)

their minds, and plans were rejected for protection of the largest snow leopard population, which occupied the vast habitat areas in Xinjiang and Tibet (more than 60% from the total habitat area in the World). As a potential result the trend of poaching cases in the west of China is increasing (MaMing, 2005; Dawa et al., 2006), and the illegal trade in snow leopard pelts continues (Figure 1).

The population of snow leopards is plummeting with the intensity of an avalanche or a waterfall. Poverty, ignorance, greed and bureaucratic corruption are the four main social cancers (Koshkarev, 2000; Li & Wilcove, 2005). Similarly, with the decay of social institutions and their egotistic and unilateralist purpose the protective system has a very low efficiency (MaMing, 2005; Blomqvist & Dixel, 2005). What can we do? Similar to the fortune of tigers in China, the situation is bad for snow leopards. We assert it eventually will follow the fate of the Chinese tiger (*Panthera tigris amoyensis*) and become the next extinct species among big cats.

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**Fig. 2.** At August 2006, local people even sold the fur coat of snow leopard in a store from Urumqi, the coat was made by 4-5 skins



**Fig. 3.** In a bazaar of Urumqi, a trader is putting claws of a total of 60 on table, which are equivalent to kill three snow leopards



**Fig. 4.** At December 2008, the members of Xinjiang Snow Leopard Team (XSLT) met the professional hunter in Yining County, he "picked up" the cubs of about 7 months old and weighing more than 20 kg

Photo by R. MaMing

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