

FADING FOOTPRINTS:

THE KILLING AND TRADE OF

SNOW LEOPARDS

STEPHANIE THEILE

A TRAFFIC REPORT



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SPECIES INFORMATION

Biology and habitat

The Snow Leopard is the only member of the genus *Uncia*. Its classification in a separate genus from the other big cats is justified by its unique hyoid apparatus (a series of skeletal elements which support the base of the tongue) (Hast, 1989). The distinction between “big cats” and “small cats” is not based on size, as the terms suggest, but on the type of hyoid. In big cats this has cartilaginous portions, whereas in the small cats, the hyoid is completely ossified or bony. The hyoid and a series of thick fibrous pads on the vocal cords of big cats

enable them to roar, but they are unable to purr continuously. The hyoid of the Snow Leopard is only partly ossified and the vocal folds only slightly thickened, so that Snow Leopards are unable to roar, or to purr, continuously.

Credit: Peter Graham, International Snow Leopard Trust



Snow Leopard cub

Snow Leopards live in rugged mountainous terrain and are associated through most of their range with arid and semi-arid shrubland, grassland or steppe (Fox 1989; Jackson 1992). They are generally found at elevations between 3000 to 4500m, although they occasionally go above 5500m in the Himalayas, and can be found between 600 to 1500m at the northern limit of their range. They are extremely well-adapted for life in steep, high and rocky terrain, with short fore limbs, long hind limbs and large paws for walking on snow. Their tails are extremely long (up to 75-95% of the length of the rest of the body) and this adaptation not only assists balancing, but the thick tail can be wrapped around the body to protect the animal from the cold. An enlarged nasal cavity and well-developed chest allow Snow Leopards to cope with the cold, thin, high-mountain air and long body hair, with dense, woolly under-fur, traps warmth (Fox, 1989; Jackson, 1992; Nowell and Jackson, 1996).

Snow Leopards are known to live up to 21 years in captivity (Blomquist and Sten, 1982), but are unlikely to reach half of this age in the wild. Adult cats usually weigh between 35 and 55kg. They reach sexual maturity between two and three years old and mate in late winter. Litters, usually of to 2-3 young, are born in late spring.

Snow Leopards are opportunistic predators, capable of killing animals up to three times their own body weight (Schaller, 1977; Fox, 1989). There are regional differences in prey taken, but Snow Leopards most commonly hunt wild sheep and goats, such as Blue Sheep *Pseudois nayaur*, Argali *Ovis ammon*, Urials *Ovis vignei* and Siberian Ibex *Capra ibex*. Smaller animals, such as pikas *Ochotona* spp., zokors *Myospalax* spp. (also known as *sailongs*), and marmots

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Argali skull - Argali sheep constitute important Snow Leopard prey

Marmota spp. also constitute important prey species, especially during the summer months (Schaller *et al.*, 1988). Predation on domestic livestock can be significant and, in several regions, this has been directly attributed to a decreased availability of wild prey and increased human and livestock encroachment into Snow Leopard habitat (Nowell and Jackson, 1996).

Distribution and population

Snow Leopards are distributed in relatively low numbers in the high mountain ranges of central Asia and the Himalayan region. They are most numerous in the Tibet (Xizang) Autonomous Region and other parts of China, but their range includes territories in eleven other countries: Afghanistan, Bhutan, Kazakhstan, Kyrgyzstan, India, Mongolia, Nepal, Pakistan, the Russian Federation, Tajikistan and Uzbekistan (see **Figure 1** and **Table 1**). The species is extinct in several areas of its former distribution. Snow Leopards have extremely patchy distribution and, although their range extends over a large area (more than 2.3 million km²), their fragmented populations occupy an area of no more than 1.6 million km² (Jackson and Hunter, 1996).

Worldwide population estimates for the species range between about 4000 and about 7000 animals. Country estimates are shown in **Table 1**, but it is important to note that these estimates were based on data collected several years ago and that some populations could be at lower levels than those shown in the table. There have been numerous reports of population declines in most parts of the species's range over the last decade. Snow Leopard numbers in Kyrgyzstan, for example, are reported to have decreased significantly since the early 1990s (Koshkarev and Vyrypaev, 2000). Any such declines would be of conservation concern: as long ago as 1975, the Snow Leopard was included in Appendix I of CITES, recognition that it was "threatened with extinction" (Anon., 1979). The species is also classified as Endangered in the 2002 *IUCN Red List of Threatened Species* (Anon., 2002b; Nowell, 2002) and has been so classified in IUCN Red Lists since 1988. According to the 2002 Red List, its predicted population trend is downward.

range. In Nepal, for example, wild ungulates are sometimes seen as direct competitors with livestock as they may graze in the same areas (Oli *et al.*, 1994).

Hunting of Snow Leopard prey species, for subsistence or for financial gain, also affects their number and poaching of wild ungulates for subsistence is particularly problematic in some of the central Asian republics, where the livestock population has decreased several-fold since the break up of the Soviet Union (Koshkarev and Vyrypaev, 2000). Unmanaged - though legal - hunting of marmots to supply national and international fur markets has led to local declines in populations of this Snow Leopard prey species in Pakistan, Kyrgyzstan and Mongolia (Koshkarev, 1994; Khan, 2002a). In the Tibet Autonomous Region, the increased hunting of pikas and *sailongs* has also led to a reduction of these important Snow Leopard prey species. The Plateau Pika *Ochotona curzoniae* and *sailongs* are considered “keystone species” on the Qinghai-Tibet (Tibetan) Plateau (Smith and Foggin, 1996; Wang *et al.*, 1993), but they are seen as vermin among local people and poisoned (Miller and Jackson, 1994). The alleged reasons for these control measures are that populations of the rodents may reach high densities and damage crops and reduce forage for domestic livestock (yaks, sheep or horses) correspondingly, and because they may be responsible for habitat degradation (Smith and Foggin, 1996; Nowak, 1997). The demand for *sailong* bones for use in traditional Chinese medicines has increased since this alternative was promoted by the Government of China after the manufacture of Tiger-bone medicines was prohibited in that country in the mid-1990s (Nowell, 2000; Chang and But, 2001).



Credit: Tom McCarthy, International Snow Leopard Trust

Poached ibex horns in the Altai Mountains of Mongolia. Ibex are amongst the ungulates which make up the Snow Leopard's wild prey.

Whatever the reasons for a reduction in Snow Leopard prey, the effects may be indirect as well as direct, as a shortage of natural prey can lead to increased predation on domestic livestock, which in turn may provoke herders to kill Snow Leopards (McCarthy and Chapron, 2003). For this reason, destruction of the habitat of Snow Leopard prey species may affect the predator more seriously than direct impacts on its own habitat.

Kathmandu is known as an important centre for trade in wild cat skins and other wildlife products (Van Gruisen and Sinclair, 1992). In 1989, an investigator reported the sighting of twelve Snow Leopard skins and a Snow Leopard fur coat offered for USD3000 in a five-star hotel in Kathmandu (Bajimaya, 2000).



Credit: Rodney Jackson, National Geographic Society

Villagers in Dolphu village, Mugu District, western Nepal selling a Snow Leopard pelt

Pakistan

The long-term future of the Snow Leopard in Pakistan is under threat, mainly from retaliatory killings by farmers and poaching for pelts and other body parts (Hussain, 2003). Loss of prey and of natural habitat are also affecting the species. Marmots, important prey species for Snow Leopards, were regularly observed during market surveys in Pakistan, in 2002, and conservationists have raised concerns about the unmanaged exploitation of marmots in Pakistan (Khan, 2002a). According to furriers in Karachi, marmot skins are in great demand in Europe and the Russian Federation and the majority collected in Pakistan are destined for export. One marmot skin is worth around USD10, depending on the quality. Trophy hunting of ungulates may be contributing to a diminution of Snow Leopard prey in northern Pakistan (Hussain, 2003).

A widespread lack of awareness of the Snow Leopard's conservation status and/or a lack of political willingness to act in the interests of this cause among local people and government officials are situations which, in themselves, present threats to the species in Pakistan.

Trapping and killing for trade

The results of the market survey undertaken in Pakistan, in July and August 2002, provides an indication of the present-day trade in Snow Leopards in the country, but further field investigations will be needed to understand the trade in Snow Leopards more thoroughly in Pakistan.

Table 8

Snow Leopard and other wildlife items observed during market surveys undertaken in 2002, in Pakistan

Species/specimen	Quantity	Price (USD)
January 2002		
Antique shop, Peshawar		
Snow Leopard skin	2	340/skin
Furrier shop, Peshawar, Namak-Mandi market		
Snow Leopard skin	2	350/skin
Leopard <i>Panthera pardus</i> skin	1	500/skin
Head of Markhor <i>Capra falconeri</i>	1	
Marmot skins	Several	5-10/skin
Taxidermist shop in Lahore		
Snow Leopard head	1	170
Stuffed Tiger cub	1	
Stuffed lion	3	
Stuffed Leopard		
July 2002		
Furrier shop, Peshawar, Namak-Mandi market		
Pieces of Leopard skin	Several	0.4/cm ²
Pieces of musk deer skin	Several	0.7/cm ²
Marmot skins	Several	10/skin
Coats made of fox <i>Vulpes vulpes</i> skins	1	670/coat
Coats made of Himalayan Civet <i>Paguma larvata</i>	1	1 170/coat
Peshawar, Kissa-Khawani market		
Snow Leopard skins	6	340-510/skin
Stuffed Leopard	1	
Leopard skin	1	500/skin
Musk deer <i>Moschus</i> spp. Skins	15	
Wolf <i>Canis lupus</i> skins	>200	
Asian Black Bear <i>Ursus thibetanus</i> skin	2	
Otter <i>Lutra lutra</i> skins	Several	130/skin
Leopard Cat <i>Prionailurus bengalensis</i> skins	>100	
Marmot skins	>90	
Snow Leopard nails	20	17/kg
Snow Leopard teeth	10	17/kg
Leopard nails	25	17/kg
Leopard teeth	10	17/kg
Leopard meat and bones (of one animal)		250
Brown Bear <i>Ursus arctos</i> fat		340/kg
Roots of <i>Saussurea costus</i>		1.7/kg
Taxidermist, Lahore		
Stuffed Leopard head	1	170
Karachi		
A wide variety and number of furs including wolf, Leopard Cat, fox, jackal, lynx and marmot		

Note: Blanks in this table indicate "no data available". Source: Khan, 2002a and b.

New networks of hunters, middlemen and traders were established in Kyrgyzstan in the 1990s and these networks maintain links with traders in Kazakhstan, the Russian Federation and possibly China. In 1999, the German Society for Nature Conservation (NABU), active in Kyrgyzstan since the early 1990s, established a specialised anti-poaching team, working in close co-operation with the Kyrgyz Ministry of Environment, Emergencies and Civil Defence. This unit specifically targets illegal killing and trade of Snow Leopards, but also focuses on other wildlife offences, such as poaching of Snow Leopard prey species (Dexel, 2002). Hunting of lynx, Argali, ibex and marmots all increased in the 1990s, eroding the Snow Leopard's natural prey base (Koshkarev, 1994). Since its establishment, the anti-poaching team has confiscated three live Snow Leopards and 16 Snow Leopard skins, all of which had been sold, or were about to be sold, illegally within Kyrgyzstan. In addition, around 80 snares specifically designed to trap Snow Leopards have been confiscated by the group. Between 1998 and 2002, prices for the confiscated skins ranged from USD500 to 1500 and the price of live specimens was between USD6000 and 11 000 (Dexel, 2002). In February 2003, two Snow Leopard cubs were confiscated from a Russian circus that was touring in Kyrgyzstan. The two cubs were hidden in the bottom of a trailer in an attempt to smuggle them out of Kyrgyzstan. The authorities believe that the circus bought the two cubs while on tour in Kyrgyzstan and attempted to sell them abroad (Jumagulov, 2003).

Uzbekistan

Numbers of Snow Leopards have decreased in recent years, mainly because of increasing competition with other predators (including humans) for prey, because of over-grazing by livestock, and because of killings in retribution for loss of livestock and for financial gain (A. Esipov, E. Bykova and E. Kreuzberg-Mukhina, Asia-Irbis, *in litt.*, 2002). Although people living locally to Snow Leopards in Uzbekistan were reported to retaliate against attacks on their animals, they were held to have a generally benevolent attitude towards Snow Leopards (Kreuzberg-Mukhina *et al.*, 2002).

As in Kazakhstan and Kyrgyzstan, poaching of Snow Leopards for profit is reported from the 1990s, motivated by economic insecurity after the collapse of the former Soviet Union. It seems that deterrents against poaching were slight: in 1994, a man who had killed a Snow Leopard was fined USD10 (Chestin, 1998). Other isolated reports of Snow Leopard trade include an account of two Snow Leopard cubs, probably caught after the mother was killed, sold in 1998 to private individuals in Tashkent, capital city of Uzbekistan (A. Espinov, Chatkal Nature Reserve, *in litt.*, 2002) and a Snow Leopard skin offered for sale at a market in western Uzbekistan for USD3000, in 2001. According to the trader, the Snow Leopard was killed by wildlife guards of the Ugam-Chatkal National Park in the western Tien Shan mountain range, in response to pressure from the local herder community, following cases of Snow Leopard depredation of their livestock (A. Espinov, Chatkal Nature Reserve, *in litt.*, 2002).

Tajikistan

Snow Leopards are thought to have been severely impacted by civil war and its consequences in Tajikistan, such as poverty, habitat degradation and reduction of prey species (M. Kadamsharev, Pamir Institute of Biology, *in litt.*, 2002). In the past, Tajikistan has played a role in supplying live Snow Leopards for zoos and has had close ties with Kyrgyz traders (Heptner and Sludskii, 1972), some of which still exist today (Chestin, 1998). According to local reports

Cambodia: Community-based protection for Tigers

In 1997, the NGO Cat Action Treasury (CAT) (www.felidae.org) began working with Cambodia's Wildlife Protection Office to identify skilled hunters around the country, to access their knowledge of wildlife. The aims of the programme - The Cambodia Tiger Conservation Programme, now also referred to as the Community Wildlife Ranger Programme, are:

- to reduce Tiger poaching and trade;
- to increase awareness among rural Cambodians of the importance of wildlife conservation;
- to develop a community-based monitoring system, to gather biological data to improve government management of Tiger information.

Former Tiger hunters are hired as community wildlife rangers and paid to protect Tigers rather than poach them. The rangers also carry the message of Tiger conservation to the remote rural villages where they live. The programme encourages the education of local communities and individual hunters. When a hunter is discovered carrying out an illegal activity, the ranger informs the hunter of the regulations and the reasons for these. The hunter is then asked to sign a "no-hunting contract", whereby he agrees that he has understood the information and commits to stop any illegal activity regarding wildlife. The hunter is also notified that, in case of recidivism, he would be prosecuted and the information recorded on the contract would be used as evidence (Kimsan *et al.*, 2002). Since the establishment of the programme, the level of Tiger poaching in Cambodia has been significantly reduced and is much lower than in the mid-1990s (Kimsan *et al.*, 2002).

Kyrgyzstan and Mongolia: Strengthening law enforcement

As mentioned earlier, illegal killing of Snow Leopards has increased many-fold during the last 10 years or so in Kyrgyzstan. In 1998, the German Society for Nature Conservation (NABU) (www.nabu.de) developed a national conservation strategy, with the primary aim of stopping Snow Leopard poaching, in co-operation with the Kyrgyz Government and local experts. In 1999, the group established a specialized anti-poaching unit, the so-called 'Gruppa Bars', a team of five, plus support staff. The unit works as a part of the enforcement department of the Ministry of Environment, Emergencies and Civil Defence and with the Ministry of Domestic Affairs and is authorized to arrest suspects and to confiscate fire arms or illegally obtained wildlife or their parts. Since 1999, the Gruppa Bars has dealt with 178 wildlife offences and confiscated three live Snow Leopards, 14 Snow Leopard skins, two lynx skins, 65 marmot skins, eleven Argali trophies and 13 ibexes. One hundred and ten people have been arrested, 162 arms confiscated and 232 traps and 119 snares, including 79 snares specifically designed for Snow Leopards, have been destroyed.

WWF Mongolia has similarly established an anti-poaching team operating in Uvs Province, western Mongolia. A network of informers and volunteer rangers work at different project sites as part of a larger project, that includes measures to increase public awareness about Snow Leopard conservation, to support community development initiatives, such as Snow Leopard-Enterprises, to foster wildlife-friendly herding practices and to reduce conflicts between herders and Snow Leopards.