Status and Conservation of Snow Leopard in Mongolia

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Introduction

First of all, on behalf of the Mongolian Association for Conservation of Nature and the Environment (MACNE) and its members, and also on my own behalf, I wish to express our sincere gratitude to the International Snow Leopard Trust (ISLT) and the World Wildlife Fund, Pakistan for giving us the opportunity to participate in the Eighth International Snow Leopard Symposium. We appreciate this opportunity to exchange views with other participants from the snow leopard's range countries. I earnestly hope that the discussions and eventual recommendations and resolutions of this Symposium will contribute to better management and conservation of the endangered snow leopard.

Biodiversity in Mongolia

As the 17th largest country in the world, Mongolia occupies 1,564,000 km2, and is situated along the northern portion of Central Asia, between the Siberian taiga and the Takliman-Central Asian desert. The distance between the western and easternmost points in Mongolia is 2,393 km, while north to south encompasses some 1,259 km; Mongolia's average altitude is 1,580 meters and the highest point (4,374 m) is situated in the Peak Huiten of the Altai Mountains, while the lowest point occurs at Khukh nuur (560 m). Eighty percent of the territory falls between elevations of 1,000-3,000 m above sea level. Mongolia contains a rich variety of scenery representing high mountains, mountainous forest/taiga, semi-deserts, vast steppes, alpine zones, desert steppes, and deserts. Consequently its nature, climate, fauna and flora varies widely and gives Mongolia some of the most unique biodiversity in the world.

The four seasons are well differentiated in Mongolia, which has a continental climate with cold winters and short, humid summers. In winter, cold air from the Arctic makes temperatures drop to -20ø or -35øC, and the Uvs nuur depression in the west is one of the coldest places: it can drop as low as -58øC. In summer, the Gobi is quite often +40øC or warmer. The average precipitation in the mountains areas is about 600 mm a year, while in the Gobi it is less than 100 mm a year.

Socio-Economic Conditions

Until 1990 Mongolia had a centrally-planned economy with its external relations limited by the former socialist countries embraced by the USSR, and a state monopoly controlling all international trade and property. The Mongolian population was characterized by a relatively high level of education, well developed culture and science, and a standard of living guaranteed by the State. In 1990, the one party system was replaced by a new multi-party system and the country started its transition from a planned to a market economy. As a result of these changes, state property was privatized, and a multi-structural economy formed. Fifty percent of the gross domestic product is now being produced by private and family enterprises. Although economic, financial, and structural difficulties caused a decrease in production as the gross domestic product fell to the level of 1981-1982, some positive changes have been observed since 1994.

As of 1994 the population of Mongolia was 2,200,000 people. The population growth rate has decreased, and in 1990-1995 it was 1.3%. The average population density (1.44 persons per km2) is one of the lowest in the world. Given a world average of 2.7 hectares of land per person, in Mongolia it is 69.5 hectares per person.

Mongolia is divided into 21 administrative aimags (provinces). Ulaanbaatar is the capital city, with a population of some 600,000 people or one fourth of the population. From ancient times Mongolians grazed their livestock and moved from one water source to another, hunting and trading, and generally living in harmony with nature. Thanks to its unique tradition of environmental protection and rehabilitation, Mongolia has remained among the world's rare and relatively untouched places. The country has a long-standing tradition of protecting snow leopards, which are the largest and most powerful predator found in the country. Mongolians believe that the snow leopard, as a species of the cat family, is vengeful if treated in an unfriendly manner.

Snow Leopard Distribution, Status and Natural History

Distribution and Status: While snow leopards are distributed mainly along the Mongol Altai and Gobi Altai ranges, they occur sparsely in the Gobi mountains at the western end of the Khangai range, and beyond the Altai. A few, mostly migrating animals, were sighted in the north and central part of the Khangai range and Khubsugul Lake mountains, but these have not been sighted over the last four years. This might be related to the reduction in prey species and by a blockage of the natural internal or external migration routes. Rock carvings of snow leopards, argali sheep and ibex were discovered in the summer of 1995 in the central part of the Khangai range (Khotont sum of Arkhangai province), which indicates that snow leopards have inhabited this area in some numbers since a long time ago. The current status of the species in this area is unknown, as no research has been undertaken.

Mongolia's snow leopard population has been crudely estimated on the basis of research materials and notes, oral information from local herders, and from sightings of animals and their sign, including the number of scrapes per thousand hectares of territory. By this method and the various estimation techniques of researchers, Mongolia's snow leopard population was formerly placed at between 500 and 4,000 individuals. Using data collected during field research initiated in 1989 by the well-known scholar George B. Schaller, as well as fresh data collected by Mongolian researchers, and the notes and information of professional hunters and local people, the total number of snow leopards in Mongolia is now estimated at about 1,200 animals. If we take the number of snow leopards in four mountain ranges and subsidiary areas surveyed by researcher G. Amarsanaa, the total snow leopard number could be range between 1,500 and 1,700 animals.

Natural History: Studies have indicated that the basic life pattern of Mongolian snow leopards are similar to those studied elsewhere. However, Mongolian snow leopards probably roam over larger home areas, exhibit a higher natural death rate and consequently a lower overall population growth rate.

>From 1992 to 1995, Mongolian customs and police confiscated 84 pelts (35% of these were old pelts), an average of around twenty pelts per year. Comparing this information with the average number of offspring, we can, in theory, estimate the net growth at about 4.2% of the snow leopard population or by 46 cats per year. In a country with such a harsh climate, where the protection of snow leopards and their prey is deteriorating, such low growth rates are a cause of concern.

Argali sheep, ibex, and marmot are the main prey of the snow leopard. These cats also consume domestic animals, hares, birds, squirrels, mice, and some plant roots. Snow leopards inhabit mountain terrain that also generally supports argali sheep and ibex, but that lacks permanent settlement of people. Sixty percent of snow leopard habitat contains marmots, which are the main food source for snow leopards from the end of March to the beginning of October- that is, during the non-hibernating period of marmots. Although the snow leopard's diet has not been thoroughly studied in Mongolia, Table 1 indicates food items on a seasonal basis from studies and incidental information provided by researchers and hunters.

Table 1

Prey Species	Annual Composition	End March- Early October	Early October- End March
marmot	30%	60%	-
ibex	52.5%	30%	70%
argali	13%	6%	20%
domestic sheep	1.2%	0.5%	2%
other	3.3%	3%	3%

These data indicate the importance of marmot as a summer food item, and ibex as the year-round staple for Mongolian snow leopards.

Threats

The principle threats to snow leopards include reductions in the prey populations of argali and possibly ibex due to trophy hunting and poaching, the depredation of livestock and resulting retaliatory trapping and killing by shepherds of any snow leopard thought or known to be implicated in such events, and associated disturbance or usurpation of watering sites and alpine pastures by herders.

The number of argali sheep has been reduced to about 20,000, while the current population of ibex is placed at about 60,000. The sharply continental and unstable climate of the country probably exerts an adverse impact upon population growth of argali sheep and ibex, given the high mortalities associated with years of heavy snowfall and unusually low temperatures. Furthermore, in the opinion of hunters and local herdsmen, earlier official estimates of argali density were too high, but thanks to some protection measures, numbers may be increasing in some areas. There are no data regarding the marmot population, but its growth rate is thought to be greater than the predation or consumption rate imposed by snow leopards. It is interesting to note

that maral stags have migrated to some areas inhabited by snow leopards during recent years.

During the recent transition to a market economy, all livestock herds have been privatized and now people are increasingly interested in owning more livestock as their source of income and livelihood. Consequently, herders are restoring previously abandoned spring and winter herding camps (gers) and building new ones, thereby expanding the area of utilized pasture onto previously undisturbed or relatively undisturbed snow leopard habitat. This process may leading to more predation of domestic livestock by snow leopard, and to the migration of snow leopards from their original home range areas. Interviews conducted among local people show that snow leopards prey mostly upon one to three-year old horses, cows, yaks, and goats. Snow leopards are said to kill approximately 1% of the domestic herds which occur in the same area.

Current Survey and Research Activities

The Mongolian Academy of Sciences has studied snow leopards for many years relying upon simple and non-technical methods. Due to financial constraints, serious research activities using advanced methods and technologies such as radio-telemetry have not been systematically carried out.

In cooperation with ISLT, MACNE is currently implementing a snow leopard research project involving the Snow Leopard Information Management System (SLIMS). It is working with the American biologist Tom McCarthy in undertaking a baseline natural history study using radio- and satellite telemetry in the Altai Range, near where Dr. Schaller conducted his work. A partial study of the snow leopard and its prey animals (argali sheep and ibex) is being conducted within the framework of the Ministry of Environment's projects on Biodiversity and the Management of Protected Areas, with support from the United Nations Development Programme (UNDP).

Conservation Measures

As one of the species registered in the Mongolian Red Book, the snow leopard has now also been included in the list of rare species protected from hunting under the June 5, 1995 Hunting Law which establishes a penalty for killing of a snow leopard, and in some cases criminal prosecution. Mongolia became party to the CITES convention on May 4, 1995. Thus, the legal basis for the conservation of snow leopards in Mongolia is now in place, although full implementation of these laws and relevant regulations has yet to be completed and inspection and control improved.

There are over 26 protected areas in Mongolia totaling some 12,600,000 hectares. Five of these protected areas, totaling 150,000 hectares, support snow leopard, including the Gobi Gurvan Saikhan National Park, Great Gobi National Park (middle part of the Altai range), the mountains beyond the Altai (Khasagt Khairkhan uul), and the northwestern part of the Altai range (Kharkhiraa uul and Khokh Serkhiin uul).

The Ministry of the Nature and Environment and MACNE intend to submit a plan to protect another 100,000 hectares or more, covering the Jargalant, Burkhan Buudai and Great and Small Bogd Mountains, which are thought to contain relatively dense populations of snow leopards. Management authority would be laced under the control and protection of the local authorities and people, as permitted under draft legislation submitted to Parliament. This area is isolated from surrounding mountain ranges, with rocky terrain and permanent snow in some parts, and is rich in wildlife. Human activity is also very limited and local people have treated these majestic mountains with reverence for generations.

I mentioned above that the legal instruments for conservation are in place, including the Hunting Law and Law on Land Use, which have all the necessary provisions to combat the above-mentioned threats to the snow leopard and its prey species. But the low density of rural population, the frequent movement of herders from one place to another for better pastureland during the four seasons, and the lack of communication and information, constitute serious constraints to ensuring proper control and protection of wildlife. Timely measures are thus extremely difficult to achieve, and it is therefore imperative that rural people be educated and their awareness about the importance of conservation raised. One way to actively involve local people in state and public protection work is through a feasible system of compensation and remuneration for wildlife stewardship. MACNE and the ISLT have decided to start a trust-based-compensation project with the aim of easing conflict between herdsman and snow leopards which will be launched during the winter of 1995-1996.

Within its limited means, MACNE conducts information and educational work through the mass media to raise public awareness. We are working to revive the old traditions of our nomadic culture regarding the protection of nature and the environment. There are some encouraging signs, and we hope that the aim of protecting the snow leopard, by relying upon the local people themselves, will in the end bring about the desired results.

Conclusions

In conclusion, I should like to stress that this report has been written on the basis of all the data relating to snow leopards that is available in our country. It is a rather daring attempt to give an overall view of the present status of snow leopards and their prey. All data, summaries, and conclusions of this report are therefore subject to further scrupulous study, using advanced methods and technologies of scientific research.

In Mongolia, in view of the ancient nomadic way of life, traditions and customs and also the present economic difficulties, it is impossible to introduce truly effective protection of snow leopards without taking into consideration the social aspects of such measures. The only way to achieve this important objective is to protect the snow leopard by enhancing the local people's vital interests. This, in our opinion, holds for most snow leopard countries. Therefore, I would like to propose once again that a certain kind of "Conservation and Compensation Fund" be set up, with the broadest possible

involvement of the international community, and with a decision-making role by the ISLT and other interested parties.