

SNOW LEOPARDS AND SPORT HUNTING IN THE MONGOLIAN PEOPLE'S REPUBLIC

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"Threatened by the loss of habitat, the world snow leopard population also faces reduction of prey species by hunters and death at the hands of herdsman protecting stock." So concluded Jackson and Hillard (1986) after their historic study of snow leopards *Panthera uncia* in Nepal. I am sure everyone attending this symposium agrees wholeheartedly. However, we may disagree on how to prevent excess killing of snow leopards and halt, reverse, or mitigate the loss of habitat and prey.

Logging, overgrazing, cultivating steep slopes, and overhunting are endangering wildlife, especially big game, in many areas I am familiar with in China, Nepal, and Pakistan. Attempted solutions have included formation of parks and closing hunting seasons. But without hunting seasons in poor countries, little money is available to enforce game laws, except in the parks. The result is comparatively small land areas, "islands," with dense wildlife populations that may periodically crash without management, and most of the land almost without wildlife. The influence of American and European preservation groups has contributed to bans on hunting.

Nations will set aside national parks because of the aesthetic and scientific value of their wildlife, but people making their living from the land are obviously not prepared to share that land with wildlife if it interferes with their livelihood. People living in poverty, as many rural Asians do, can spare little for aesthetics. This applies especially to those making a living from their sheep and goats. They cannot afford to lose stock to predators or the competition associated with large numbers of wild ungulates.

THE MONGOLIAN PEOPLE'S REPUBLIC

The Mongolian People's Republic, a large country covering an area of 1,565,000 km² in northcentral Asia between eastern Siberia and China, was formerly known as Outer Mongolia as opposed to Inner Mongolia, a part of China. The term Mongolia as used here refers exclusively to the Mongolian People's Republic. People vitally interested in the welfare of snow leopards have expressed concern over the opening of sport hunting for that species in Mongolia. On the surface, such hunting may seem unwarranted or foolhardy, but I believe it will help insure a healthy, stable snow leopard population in that country.

When sport hunting produces a good financial return from a few animals, it allows the population to be manipulated according to ecological rather than financial needs. Hunting programs are a means to an end, enabling animals to be harvested at a reasonable rate, not only maintaining the high quality of trophies, but maintaining the very animals themselves and ensuring that land will be kept for wildlife. When conservation of animals becomes valuable to people living nearby, those animals are assured protection and consideration. Thus, any hunting or management program, to be successful, must provide a return for local people. In most parts of the world, the survival of wildlife under increasing pressures from civilization is due primarily to the desire of sportsmen to hunt, an apparent contradiction in terms, but true.

The Altai Mountains cover a great portion of west central Mongolia. The huge mountain sheep found throughout the range are the Altai argali *Ovis ammon ammon*. The Gobi Desert is home to a smaller race of mountain sheep, the Gobi argali *O. a. darwini*. The habitat for this subspecies is in the vast southern plains of Mongolia that are broken by a series of mountain ranges, each dropping down to another plain, like a giant stair step.

ibex share the habitat of the argalis, but they generally feed and live in areas that argalis use only as escape terrain. In the Altai, argali are restricted to the upper slopes and alpine zones. In the Gobi, they occur in a desert environment and at altitudes as low as 1,000-1,500m. Argali use a variety of treeless habitat types, generally avoiding rocky and precipitous areas that are usually occupied by ibex. Argali and ibex have a sympatric distribution but are separated by habitat. Argali prefer open slopes that may be steep or gentle, plateaus and ridges, montane valleys, and an absence of extensive, rocky terrain and cliffs. Ibex are rarely seen away from areas of large cliffs, ravines, and expanses of precipitous and broken, rocky terrain. The snow leopards of Mongolia prey heavily on ibex (Bannikov, 1954. in Mallon, 1985). Scenes of snow leopards pursuing ibex are even found in ancient pictographs and carvings in the Ulan Bator Museum. Also, hunting guides report finding many ibex carcasses fed on by snow leopards. However, some leopards must prey heavily on other game because Mallon (1985) indicates a more extensive range for snow leopards in Mongolia than for either ibex or argali.

Let me review briefly the history of wildlife management in Mongolia.

WILDLIFE MANAGEMENT IN MONGOLIA

Hunting wild animals for meat and furs has always been a way of life in Mongolia, and expert hunters are greatly respected. Argali *Ovis ammon* and ibex *Capra ibex siberica* have long been hunted for their meat and, in more recent times, for the horns of the males, which are regarded as desirable trophies. The amount of hunting in Mongolia increased steadily during this century with growth in the human population, improved access by motor vehicles to remote regions, and introduction of modern firearms. Such an increase in hunting inevitably resulted in a decline in numbers of many species of wild mammals. The decrease was most pronounced from 1940 to 1950. This may have been due in part to an increased need to replace meat normally provided by domestic herds, much of which was being contributed by the Mongolian Government to the Soviet war effort (Mallon, 1985). Old residents of the Gobi Desert have consistently told me that ibex were already heavily hunted and in low numbers when Mongolia gained its independence in 1924. Domestic stock were grazed in even the roughest country, and snow leopards preyed extensively on domestic goats and sheep. The predation caused herders to hunt adults and also to search for dens and destroy the kittens.

In 1953, argali and ibex were declared protected species in Mongolia, and their numbers rapidly recovered. Mallon (1985) found argali fairly common in the Altai, where he saw groups of up to eighty-five animals. During a two-year stay in Mongolia (1975-1977), he obtained information on wildlife from many people: colleagues at the Mongolian State University, biologists, local experts, hunters, and local people from all parts of the country. The consensus of opinion among all these informants was that argali existed in good numbers in suitable habitat. Mallon (1985) reported that shooting of ibex was strictly controlled, and overall the ibex is not rare in Mongolia. Kowalski (1968) described ibex as common in the parts of the Gobi he visited.

The protected status initiated in 1953 was renewed in the new game laws of 1972, which also set a heavy fine for illegal shooting. Hunting remains a popular activity in Mongolia and there are many

licensed hunters. The game laws are strictly applied and effective (Mallon, 1985).

Following the recovery in numbers of argali and ibex, carefully controlled shooting was allowed. Local quotas are set in certain areas, depending on local abundance, and hunting is reserved for foreigners in three areas. The Government of Mongolia annually earns more than a million U.S. dollars of foreign currency through hunting. Wildlife populations are regularly monitored to ensure that the numbers shot are not excessive (des Clers, 1985). A brief news item (Anon., 1982) indicated that 300 argali were shot annually in Mongolia.

Not only was hunting managed to the advantage of wildlife, grazing was restricted from some of the rough areas. This enlightened management program brought a tremendous increase in ibex and

other wild ungulates, apparently followed by an increase in snow leopards. More natural prey and fewer livestock in the rough country alleviated many of the depredation problems. However, herders told me that wolves *Cams lupus* and an occasional snow leopard still killed livestock. Some of the herders were armed with modern rifles, but insisted that they followed governmental directives and did not kill predators that did not come right into the herded flocks.

When hunting in Mongolia was opened to Westerners in 1967, the argali hunts were immediate hits with sheep hunters of the world, especially those from the United States, Mexico, Spain, Germany, and Austria. Hunts for forest game along the Siberian border were comparatively cheap, but they did not draw as many Americans as Europeans, possibly because similar game was available in North America. However, many Americans booked forest hunts back-to-back with mountain hunts; Europeans, with a shorter distance to travel, found these hunts cheaper than those in Canada and Alaska. A brisk business resulted.

As the fame of the combined argali and ibex hunts spread, the prices for a hunt rose to as much as \$19,000 in the Altai Mountains and to \$7,300 in the Gobi Desert. However, the quality of trophies declined and, with recessions around the world, some hunts were not booked. The older rams, having grown up during the hunting program and being migratory by nature, were outsmarting the hunters. As an incentive for the staff to seek out the old rams (which would die soon anyway) and to stimulate business, the Mongolians changed the prices for the argali and ibex hunts. The new prices reflect the sizes of trophies taken and the guides get a share of the excess trophy fees. If a hunter has bad luck or just gets a trophy that represents the recent average for the Altai, his cost will be \$13,800 as opposed to between \$16,500 and \$19,000 which has been the cost since 1978. If he is able to take an argali with horns more than 53 inches in length, he will pay \$500 for each additional inch up to 60 inches and \$700 for each inch above 60. The Gobi hunts are basically \$7,300 unless a person gets an exceptionally huge ram, then the price is slightly higher. In a further attempt to stimulate the hunting economy, the Mongolians looked to limited hunting for species that could not be hunted elsewhere—the snow leopard and kyang *Equus hemionus*.

Although Mallon (1985) maintained that snow leopards were very rare in Mongolia, Mongolian officials maintain that they have become quite common on the ibex cliffs of the Gobi. The Mongolian Government sponsored an extensive survey by Polish biologist Prof. Dr. Ing. Jerzy Krupka, and now proposes allowing five snow leopards to be hunted per year. They will attempt to take these five from the ten or so that have to be culled each year because they are killing livestock. Thus, sport hunting should not appreciably increase the level of snow leopard kills in Mongolia as feared by Mallon (1984). They do not expect a high success rate, so the basic hunt will cost \$5,200. If a snow leopard is killed, a trophy fee of \$11,200 will be charged. A

hunt for Gobi argali, ibex, and black-tailed gazelle *Gazella subgutturosa* can be combined with the snow leopard hunt for an additional \$5,000.

Snow leopards seem fairly easy to kill under the usual conditions associated with livestock predation. On 7 March 1986, midway up the Markha Valley of Ladakh, Fox (1986) learned that a snow leopard had killed several goats near a shepherd encampment. That afternoon, a snow leopard killed another goat within 100m of his camp. The goat carcass was retrieved by a shepherdess, but the leopard was found in a shrub thicket with another goat it had killed the previous day. Fox and his companions were able to observe and photograph the animal from a distance of about 30m for 20 hours as it consumed the goat. Such apparent lack of fear may not be unusual. People have reported killing snow leopards with primitive weapons within corrals or goat sheds. Seemingly, a shepherd with almost any kind of firearm could easily eliminate such unsuspecting predators. Many of the Mongolian shepherds have modern rifles; I saw 7 x 57 mm Mausers and .30-06 Winchesters there. One shepherd could probably kill more snow leopards, if he was so inclined, than the whole Mongolian hunting program allows.

Management programs can both influence people that live off the land and result in healthy wildlife populations. Once wildlife is shown to have economic value, higher even than that of livestock, chances of survival improve. If properly managed, such hunting creates interest in the welfare of wildlife by governments who are eager to generate foreign currency. The managed ungulate populations provide food for predators, and at least some consideration is given to the needs of wildlife in habitat management.

REVIEW OF OTHER HUNTING MANAGEMENT PROGRAMS

Perhaps a review of the results of management on two species of wild cats, roughly similar in size to snow leopards, is in order.

During 1973, I visited and hunted on game ranches in Namibia. A hunting cooperative had been developed whereby ranchers received a daily fee for housing, feeding, and guiding hunters on their ranches. The ranchers also received an additional amount for each animal killed. When I was there, large antelope such as the greater kudu *Tragelaphus strepsiceros*, gemsbock *Oryx gazella*, and red hartebeest *Alcelaphus buselaphus*, as well as common leopards *Panthera pardus*, netted the ranchers about \$100 each. Smaller antelope brought half or less than that amount. The two threatened or endangered large species in the area, cheetah *Acinonyx Jubatus* and mountain zebra *Equus zebra*, brought \$800 each. Before this cooperative was formed, both species were systematically killed because the cheetahs preyed on game animals and domestic sheep, and the zebras damaged the sparse desert vegetation. Under the hunting program, both species had increased substantially.

Cheetah, which were in trouble in most of Africa, seemed to have a bright future in Namibia. Then in 1973, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) was negotiated by representatives of eighty countries in Washington, D.C. The United States was the first country to ratify CITES and implement it through the Endangered Species Act. The basic purpose of CITES was to protect certain species of wild fauna and flora against over-exploitation through international trade. Trade includes all imports, exports, re-exports, and introductions into a country from the high seas. It is not limited to commercial traffic, including shipment of animals or animal parts for any purpose. The importation of cheetah (an endangered species) skins to the United States was thus outlawed in 1975 when ten countries had ratified CITES, even if the skins were taken in accordance with the laws of the

country of origin.

Most of the hunters visiting Namibia were Americans or Germans. The Germans generally would not shoot cheetah because these cats were popular pets or status symbols in Germany, especially with wealthy women. However, many American big-game hunters wanted one of every species and were willing to pay for them. Consequently, the demand for cheetah to hunt was nearly eliminated. The results are not well documented. Hunting guides in Namibia say the law drove this interesting cat to very low numbers, but they have an "axe to grind."

My personal experience may indicate what happened on many ranches. Kudu and gemsbok were my quarry on a large ranch between the Namib and Kalahari deserts. The number of cheetah was impressive; each day on the ranch. I saw two to five. The rancher said that he had allowed the population to build for hunting and had about 35 cheetah. He added, rather sadly, that he couldn't afford to keep them now that the American hunters would not shoot them. Although the rancher had almost gone out of the livestock business in favor of game ranching, he felt that the cheetah killed too many small antelope and young kudu for him to make a profit. He had hired a German trapper who would catch as many as possible for the zoo and pet trade, then he would shoot and poison the rest. The rancher seemed to like the big cats. He did not allow any common leopards killed on his property because they seldom bothered his game animals, preying mostly on baboons *Papio hamadryas* and rock dassies *Procavia capensis*.

The situation with cheetah in Namibia points out the advantage to a species of being valuable and being managed.

The mountain lions *Felis concolor* of North and South America exhibit many similarities to snow leopards. Both species tend to hunt alone, kill game larger than themselves, prey on domestic livestock when natural prey is scarce, and seldom threaten the safety of man.

As the western sections of the United States were settled by Caucasians, big game was decimated by destruction of habitat and year-around hunting, and mountain lions and other predators turned to

livestock. An all-out war on predators ensued that involved poisons, hunting with dogs, killing young in dens, paying of bounties, and many other innovations. Mountain lions were reduced to very low numbers and, as their natural prey increased under wildlife management programs, predation on livestock nearly ceased. The bounties were generally removed, but indiscriminate killing and taking of kittens for pets continued.

By the 1970's, most western states placed mountain lions on the game list, allowed a regulated harvest, and used harvest data to track population changes. Mountain lions, like most of the cat family, are nearly impossible to census accurately over large areas. However, trends in population size can be determined by track counts, harvest rates related to effort, and other methods. I first counted mountain lion tracks on mule deer *Odocoileus hemionus* winter ranges in the Bitterroot mountains of western Montana during the winter of 1964-65. At that time, traveling on snowshoes, I saw a lion track, on the average, every 34 km. This count remained quite constant through the winter of 1971-72. The mountain lion was declared a game animal in Montana during 1971, and my track counts per kilometer started increasing. My last count, during the winter of 1983-84, yielded a mountain lion track every 11 km. During the same time period, 1971-1983, mountain lions spread from the comparatively wild western mountains of Montana to the prairies and isolated mountain ranges of eastern Montana where livestock are numerous. Livestock predation has not become a big problem, probably because mule deer, white-tailed deer *O. virginianus*, pronghorns *Antilocapra americana*, and smaller game are flourishing under a management program that is supported by hunters' dollars. Although drainages that are highly accessible and enjoy a reputation among houndsmen for providing good

lion hunting are occasionally over-harvested, dispersal of young lions from lightly hunted drainages soon compensates for local over-kill (Murphy. 1983).

KHUKHTSYRH RESERVE MANAGEMENT

To illustrate how seriously conservation and management are taken in Mongolia, the following history of the establishment and management of Khukhtsyrh Reserve has been summarized from des Clers (1985) who used data gathered by joint Polish and Mongol expeditions.

During the early 1970's, Prince Abdorreza, the Founder-President of the International Foundation for the Conservation of Game, drew attention to the heavy competition for grazing and drinking water that was taking place between Mongolian wildlife and domestic animals. He pointed out that conservation of wildlife was not only important per se, but that the financial return in hard currency from foreign hunters visiting Mongolia already amounted to more than one million dollars per year.

In 1977, Mongolia created a reserve in the Altai Mountains for the conservation and management of argali, ibex, snow leopard, and other species of wildlife. A formal agreement was signed specifying that the reserve, covering an area of nearly 70,000 ha, would gradually be fully available for wildlife. Grazing by domestic livestock would be phased out over a period of five years.

The Mongolian Government participated in scientific expeditions in the reserve, hired a director and game-guards, and protected the wildlife until such time as a controlled harvest could be carried out within the framework of a management plan. The Foundation provided, through collaboration with the Polish Hunting Association, the University of Cracow, and the Agriculture Academy of Lublin, the scientific personnel necessary for this work and for training Mongolian counterparts. Research was under the leadership of Prof. Dr. Ing. Jerzy Krupka. The study in 1979 documented 242 argalis and 748 ibex with sex-ratios of 83 males per 100 females for argali and 50 males per 100 females for ibex. Productivity was good. 34 lambs per 100 adult ewes and 82 kids per 100 adult nannies. Twenty shepherd's yurts and a number of Kazakh cabins, which provided for winter living quarters and winter grazing, were in the park. The number of domestic animals present during summer was estimated at 50,000, and the winter grazing amounted to 10,000 animals.

By 1982, all yurts had been removed from the reserve, and grazing by domestic livestock had been eliminated. The observed number of argalis and Ibex was stable during 1981 through 1984 even though the recruitment each year was high. A rather large emigration was apparently taking place out of the reserve into the neighboring territories.

In 1984, after total protection for 10 years, a management plan was implemented that provided for a harvest of 5 to 10 argalis and 10 to 20 ibex per year. A group of U.S. tourists and bird-watchers also visited the reserve in 1984. The total income generated to the benefit of the Mongolian Government in this first year of operation was more than \$50,000. Here was one benefit to the Mongolian Government for having established this reserve. Furthermore, its possible effect in repopulating the middle-Altai range with wildlife should not be ignored.

Monitoring of wildlife populations and vegetation continues. Studies on the feeding habits of argalis and the biology of snow leopards are underway so that a nation-wide conservation strategy can be established for those species.

The success of Khukhtsyrh Reserve prompted the Mongolian Government to ask the Foundation for its support in the creation of another reserve ten times as large to be located in taiga north of Ulan-Bator. This area is completely unpopulated and, at present, no human

exploitation of wildlife or forests is taking place. At the suggestion of the Foundation, the Mongolian Government has declared the southern part of the new reserve a national park, which will be used for local as well as foreign tourism. More than 500,000 ha of the northern area will be used for wildlife management and controlled hunting.

CONCLUSIONS

The Government of Mongolia is committed to the conservation of its wildlife; Article I of the 1972 game laws states that the object of these laws is to protect wild animals, which it regards as one of its most important natural resources. This protection carries the added incentive of a regular source of foreign currency from hunting, provided stocks are maintained. The former nomadic way of life of the Mongols has given them a strong sense of identity with the land, and public support for the conservation of wildlife is readily available. In addition to these advantages, game laws are strict, human population density is low, and reserves exist that protect all wildlife.

Because hunting provides a substantial portion of Mongolia's foreign currency with little impact on the environment and a minimum of expense to the government, wild animals are protected, and habitat can be managed for their benefit. A million dollars in foreign currency means more to Mongolia's economy than ten to twenty times that amount would mean to an American or a European economy. The program also provides incentives to the local people right where the hunting takes place. Guides, drivers, cooks, wranglers, skinners, and others are employed from the local populace. Besides bonuses from the government for successful hunts, tips from successful hunters can be substantial. In an area where other employment is almost non-existent, such income is very important, and the importance of conserving wildlife is evident to the people who have the most influence on it.

Cats have fairly high reproductive rates when prey populations are adequate, and many species are hunted and trapped in managed programs throughout the world without endangerment. Lack of natural prey leads to starvation, low kitten survival, and predation on livestock. To be against allowing a managed harvest of snow leopards in a country that has brought the prey species and die predators back to good numbers is against the concept of wildlife management and, in a long-term practical sense, against the survival of the species. The hunting program in Mongolia, for predators and prey, increases the value of both to the government and to local people, providing incentive to wisely manage all wildlife.

Enlightened game management in the Mongolian People's Republic has brought prey species to high numbers, and snow leopards have apparently increased accordingly. Still, the opening of a hunting season on snow leopards in the Mongolian People's Republic may seem unwarranted to most conservationists. Snow leopards face a bleak future in many parts of their range—a result of death at the hands of herdsmen protecting livestock, and reductions that are occurring in wild prey populations from hunting and loss of habitat. Reductions in wild prey lead naturally to predation on domestic stock and retaliation by herdsmen. We should recognize that many species of wild cats are shot and trapped but still thrive under controlled management programs. As long as wild prey is available, livestock predation is seldom a major problem, and cats can compensate for a limited harvest. A managed harvest of snow leopards in a country with a stable prey base will increase the value of the cats to the government and to the local people, providing incentive to wisely manage all wildlife. Without this incentive, a single herdsman could easily kill more snow leopards than would be killed in a formal hunting program.

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